

LANGUAGE ADJUSTMENT OF INTERNATIONAL STUDENTS IN THE US: A SOCIAL  
NETWORK ANALYSIS ON THE EFFECTS OF LANGUAGE RESOURCES, LANGUAGE  
NORM AND TECHNOLOGY

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## ABSTRACT

### LANGUAGE ADJUSTMENT OF INTERNATIONAL STUDENTS IN THE US: A SOCIAL NETWORK ANALYSIS ON THE EFFECTS OF LANGUAGE RESOURCES, LANGUAGE NORM AND TECHNOLOGY

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The study explores factors that enhance or inhibit the language adjustment of international students in the U.S. Using social network influence model, the study examines the effects of language resources, language norm, and technology use on international students' self-confidence in overall English skills and four subskills, namely, listening, speaking, reading, and writing. The social network analysis is conducted on longitudinal data collected via two surveys administered to eighty one international students enrolled in the English Learning Center at a midwestern university. The findings suggest a number of variables boosting English confidence of international students: usage of mass media related to host community, usage of technology to contact family (in home country), the size of one's personal network, the proportion of English speakers (both native and non-native) in one's personal network weighted by the contact frequency. Meanwhile, this study disproved a set of variables suggested by the literature that is beneficial to language adjustment: length of residence (in the US), the percentage of native English speakers in the participants' social networks, and home country-related mass media usage. Length of residence in the US had no significant impact on English self-confidence, indicating that living in the US for longer period of time does not automatically improve one's confidence in using English. The study found that the participants' English confidence benefits

from a larger personal network consisting of both non-native and native speakers, instead of native English speakers only. Implications for institutional policy and future research are discussed.

To  
Mom and Dad  
Linzi, Yuhua, and Ninghui  
for your love

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## CHAPTER 1 INTRODUCTION

This dissertation reports the results of a longitudinal study on key contextual variables that affect international students' language adjustment with the aid of informal interaction and technology. The first chapter presents the problem statement and outlines the purpose and rationale of the study.

### Problem Statement

Never in American history has the concern about international students' language adjustment been as significant as it is today. The heightened concern is partly because of the surging number of international students in American colleges and universities in the past decade (2010), and partly because of a shared awareness that international students' language adjustment affect not only the community of international students but also a broader campus community academically, socially and financially (J. J. Lee, 2010).

Language has been pointed out as a major barrier to international students' overall adjustment in host countries (Gillette, 2007; Mori, 2000; Trice, 2004; Ward, Bochner, & Furnham, 2001). For international students in the United States, English is essential to the students' academic pursuits, such as note-taking, assignment, test-taking, presentation, and discussion with professors and fellow students, as well as their sociocultural and psychological adjustment (Noel et al., 1996; Yang et al., 2006). Universities that host international students put in place programs and activities to enhance international students' language proficiency and confidence. Such programs frequently include a combination of the following elements: orientation, remedial English course, conversational partner, home stay, social and cultural events (e.g., coffee hour, international movie series, basketball game, day trip.)

Initially, language interventions relied on classroom-based instruction, such as remedial courses. However, second language acquisition (SLA) literature suggests that formal language instruction is necessary but insufficient. Formal classroom instruction dilutes language complexity because of the simplification of language in teacher speech, written texts, homework assignment, and excludes authentic language exposures as well as language production opportunity (Gor & Long, 2009). This is possibly the reason why language barriers are found to persist among international students, although they have undertaken several years of formal education in English in their home countries (Ward et al., 2001), provided proof of language proficiency such as TOEFL (Test of English as a Foreign Language) before admission (Mori, 2000), and enrolled in English remedial courses after arriving in the U.S.

Gradually, the focus is shifted from formal instruction to informal learning, such as social interactions between English native speakers and international students that provide international students with academic, social, and emotional support (Ward et al., 2001). Compared to formal instruction, a growing body of evidence shows that informal interaction with English language speakers is conducive to the development of English self-confidence among various groups of English language learners, such as international students (Yang et al., 2006; Clement, 1986; Clement & Noels, 1994), adult immigrants (Norton & Toohey, 2001; Raschka, Wei, & Lee, 2002; Smith, 1996, 2002; Yum, 1982), and first-generation adolescent immigrants (Carhill, Suárez-Orozco, & Páez, 2008; Isabelli-García, 2006; Jia & Aaronson, 2003; Norton & Toohey, 2001; Raschka, Wei, & Lee, 2002; Smith, 1996, 2002; Yum, 1982). An important finding from the aforementioned research is that language learning outcomes are intimately associated with the quantity and quality of interethnic interactions.

More recently, technology has been viewed as a potentially valuable element that should be integrated in language support programs (K.-H. Kim, Yun, & Yoon, 2010; Qian, 2009; Ye, 2005, 2006). Since its inception, Information and Communication Technology (ICT) has showed great potential in facilitating Second Language (L2) learning as a platform that offers opportunity of language input and output, as well as a communicative environment (Ritchie & Bhatia, 2009; Zhao, 2005). Researchers argue that ICT is a convenient tool for international students to learn the language and culture in the host country (K.-H. Kim et al., 2010; I.-H. Lee, 2005; Qian, 2009). ICT makes it possible for international students to live physically in the host country, but simultaneously, live linguistically and psychologically in their home culture (Kim et al., 2010). While connection with home culture and ethnic community provides valuable social and psychological support, over-connection with home culture may decrease international students' participation in the host culture and their contact with the host country language, which, in turn, significantly interferes with international students' self-confidence in English. This may happen more frequently among international students coming from a collectivist culture, where group cohesion is relatively strong and harmonious connections with family and friends is an important part of one's self and daily life (Markus & Kitayama, 1991).

It should be noted that the aforementioned language pedagogical approaches (i.e., formal instruction, informal learning, and technology) do not have to be an either-or choice. First, it is because, as it is true with almost all matters, each approach has its advantages and disadvantages. Second, international students are diverse in terms of their cultural orientations, prior language proficiency, personality, and academic pursuit. These approaches have to be customized in a way that highlights their strengths and minimize their weaknesses, and that fulfills the varied language learning needs of international students.

The existing literature reviewed in this study has generally focused on a single pedagogical approach, which has limitations. The most serious limitation is that focusing on a single pedagogical approach does not reflect the reality of language learning facing most international students who are endeavored to improve their language skills through multiple approaches instead of one. As an attempt to address the gaps in the literature, this study takes a pluralistic strategy of facilitating international students' language adjustment and seeks to understand which variables enhance or impede language adjustment when these approaches are combined.

### Research Questions

The focus of the current study is on international students' language self-confidence in English language. L2 self-confidence is considered an important predictor of L2 proficiency, L2 use, and cultural adjustment (Clément, 1986; Clément, Dörnyei, & Noels, 1994; Noels, Pon, & Clément, 1996). In fact, L2 self-confidence is found to be a more precise predictor of language and sociocultural adjustment than actual linguistic competence (R. Yang, Noels, & Saumure, 2006). Along with students' self-confidence in overall English skills, this study also explores factors influencing students' self-confidence in four sub-skills of English language: listening comprehension, speaking, reading, and writing. Specifically, this study seeks to identify key factors in informal interaction process, online, and face-to-face (f2f), that contribute to the development of international students' English self-confidence in general and their self-confidence in the four English subskills.

To that end, the study adopts social network perspective and a social influence model which suggest that an individual's behaviors or attitudes are influenced by his or her social contacts' behaviors/attitudes and his or her intrinsic attributes (Peter V. Marsden & Friedkin, 1994 cited in Frank, 1998). Social influence model has been widely applied to examine individuals' changes in

behaviors and attitudes, such as academic performance, drinking behavior, technology adoption (Duke, 1993; Friedkin & Johnsen, 1999; Maroulis & Gomez, 2009; Morgan & Sorensen, 1999, Frank & Zhao, 2004). Since language adjustment involves in essence a change in international students' language behaviors and attitudes, social influence theory is valuable to provide insights into interpersonal factors (interethnic interaction) and local factors (technology use, prior English self-confidence) that shape international students' self-confidence in English.

The study addresses the following four questions.

#### *Question #1*

The first question is to what extent is international students' English self-confidence influenced by the intensity of informal interactions that the students have with co-nationals and English language speakers? Informal interaction, such as studying together or having a party, seems an indispensable channel for international students to access large amount of authentic language input, to obtain opportunity to use the language, and to elicit timely feedback, all of which are fundamental to second language acquisition (Gass, 1997; Gor & Long, 2009; Zhao, 2005). While the SLA literature indicates that informal interaction facilitates L2 learning (Carhill et al., 2008; Isabelli-García, 2006; Smith, 1996, 2002), the current literature has a number of limitations. First, it is unclear which types of interaction are more effective to enhance L2 self-confidence and proficiency.

Second, there is an assumption in the current literature suggesting a linear relationship between informal interaction and L2 confidence and proficiency. Very little research has explored the possibility of a nonlinear relationship between L2 confidence and informal interaction. Given the sizable evidence for a non-linear link between informal interaction and expatriates' psychological and emotional adjustment in cross-cultural settings (Black &

Mendenhall, 1991), there is a need to explore the potential existence of a nonlinear relationship between informal interaction and language adjustment.

Third, the existing research on international students' language adjustment often treats L2 learners as a group that goes through a similar or even universal set of stages on the road of language adjustment. Only recently researchers began to pay attention to the fact that different groups of international students go through different stages of language adjustment and employ varied strategies to fulfill different needs in each stage (Qian, 2009). There is a need for further research to understand international students as heterogeneous groups, so that universities can create more fine-grained strategies to better serve international students from various backgrounds.

#### *Question #2*

The second question concerns the effect of language norm of students' personal networks on the development of their English self-confidence. Language norm is found to be influential on L2's language choice, language use and language proficiency (Herman, 1961; Milroy & Milroy, 1992; Smith, 1996, 2002; Warschauer, Said, & Zohry, 2002). From the social network perspective, an important indicator of language norm of students' network is network closure or network density, which describes the degree of how many friends in one's network know each other (Smith, 1996). While some researchers suggest that network density enhances language proficiency (Milroy & Milroy, 1992), others argue that network density has a negative effect on language proficiency, possibly due to the limited language exposure provided by a close-knit network (Smith, 2002).

Moreover, it is unclear that in order to have a strong language norm of English speaking, whether an international student should limit his or her network to English native speakers only

or expand his or her networks to both native and non-native speakers. SLA literature has traditionally focused on native speakers as appropriate language models. Only a few researchers pointed out the value of non-native speakers in second language learning (Cook, 1999). To further understand the impacts of language norm and language environments on international students' English self-confidence, this study takes a closer look at the aforementioned two controversial issues in the literature: 1) whether international students' network density (of English speaking ties) increases language confidence, and 2) whether a non-native English speaker is helpful or not in terms of building language confidence?

#### *Question #3*

The third and fourth questions of this study concern technology. The third question is whether ethnic technology use deprives international students of the time that they might be able to devote to host technology use. Ethnic technology use refers to the technology-based activities in which international students are engaged for interactions within their own ethnic groups, such as their family and friends in the home country, conational friends in the host countries. Host technology use here includes those technology-based activity that international students use to maintain connections with host country nationals. Previous studies suggest that international students are heavily involved in online ethnic communities, which is in potential competition with technology-based host country exploration (K.-H. Kim et al., 2010; Ye, 2006). Since the findings on this question are inclusive, this study examines if there is a mutual exclusivity between ethnic technology use and host technology use.

#### *Question #4*

The fourth question is a yes/no question about technology use effect on the development of international students' self-confidence in English. The literature on international students'

technology use has pointed out the pros and cons of technology use for cross-cultural adjustment. Online ethnic involvement is found to be negatively associated with international students' cultural adjustment to the host environment, although it helps the students to reduce stress and maintain ethnicity (I.-H. Lee, 2005). Kim et al. (2010) suggest a potential that with the convenience offered by the Internet, international students may explore the host culture primarily on the mass media level, but still live linguistically, psychologically, and emotionally in their home culture and ethnic community.

### Research Rationale

There are good reasons for the heightened concerns on international students' English proficiency. From the student perspective, English proficiency determines the quality of international students' educational and social experience in the U.S. (Ward et al., 2001). From the institutional perspective, language adjustment of international students has a direct impact on their research and teaching performance in the host institution. Meanwhile, successful language adjustment would turn international students into a unique asset that helps universities enhance cross-cultural communication and enliven global citizenship education on campus, both of which are important issues and missions for higher education institutes. Further, international students' language adjustment exerts an impact on the retention and enrollment of other international students from overseas as international students frequently share their experiences and levels of satisfaction with their peers in the home country, influencing the latter's decisions about whether and where to study abroad (J. J. Lee, 2010). Considering the significant financial, academic and cultural contributions of international students as well as the quality of individual student's educational experience in the U.S., it is important to understand what kind of factors and supportive programs enhance international students' language adjustment.

The literature on international students' language adjustment research is growing, and findings from this study make a number of contributions to the literature. First, the study contributes to the discussion of language adjustment as a multifaceted issue. On the one hand, language adjustment in general and the adjustment of four language subskills may require different approaches and conditions. On the other hand, international students go through different language adjustment issues and phases, depending on their cultural orientation, prior English proficiency, length of residence in the host country, etc.

Second, the study examines simultaneously how international students' English self-confidence is influenced by individual efforts (e.g., technology use) and contextual factors (e.g., a network's language resource and language norm), which reflects the language learning reality of international students nowadays.

Third, regarding the effects of informal interaction, the study avoids an assumption common in the language learning literature that a linear relationship exists between informal interaction and language confidence development. The reason is that cross-cultural adjustment literature shed lights on a nonlinear relationship of psychological and social adjustment of cultural travelers (such as expatriates and study abroad students) and their interactions with hosts, which suggests a possibility of a nonlinear relationship between language adjustment and informal interaction (Black & Mendenhall, 1991). Meanwhile, the study examines the effects of various types of informal interaction on language confidence, rather than treating them as equally effective or ineffective in enhancing language confidence (see pp. 17-18 for details on the types of interaction).

Fourth, the study seeks to explore the effect of language norm and network density on language confidence development. It also takes into account the value and role of non-native speakers in international students' language adjustment.

Finally, this study aims to identify both the up and down sides of technology on English confidence development. Meanwhile, the study explores a puzzle whether ethnic community-related technology activities prevent international students from entering host community and society.

On a practical level, understanding such individual and situational factors can provide a key input into designing language support programs and interventions such as “conversation partners” or “study groups”. There is a great demand for innovative interventions that utilize the linguistic benefits afforded by informal interactions and technology to support international students' language adjustment. Many universities have rolled out such programs as “conversation peers” program (Abe, Talbot, & Geelhoed, 1998; Gillette, 2007; Trice, 2004). Nevertheless, much remains unclear what kind of social interaction contributes the most to English proficiency and what roles technology play in language adjustment. Answers to these questions are helpful to make informed decisions about language intervention programs.

## CHAPTER 2 LITERATURE REVIEW

This chapter begins with an overview of the growth of international student enrollment in the United States followed by an introduction to the language challenges facing international students. The focus of this chapter is on discussing key predictors of the development of international students' self-confidence in English. The chapter concludes with a summary of research questions and hypotheses of this study.

### Growth of International Student Enrollment

The enrollment of international students in American colleges and universities has almost doubled in the past two decades from 366,354 in 1988/89 to 690,923 in 2009/10 (IIE, 2010). The increase in the past three years has been significant: 3% increase in 2009/10, 8% increase in 2008/09, and 7% in 2007/08 (IIE, 2009). A significant driving force behind this rapid growth is the students from Asian countries, especially China which sent 30% more students to the US in 2009/10 than the previous academic year. Other countries who sent increasingly more students to the US are: India (9.2% increase), South Korea (8.6% increase), and Vietnam (46.2% increase) (IIE, 2009). The top three countries where international students come from in 2009 are India, China and South Korea, consisting of 41.2% of international students in the U.S. (IIE, 2010).

International student enrollment has become a critical marker of a higher education institution's prestige, partly because of the academic and cultural contributions from international students (J. J. Lee, 2010). For example, the top 10 hosting institutions in the U.S. in 2009/10 are high quality universities such as USC, UIUC (University of Illinois--Urbana-Champaign), NYU, Purdue University, Columbia University, University of Michigan-Ann Arbor, University of California-Los Angeles, Michigan State University, University of Texas-Austin, Boston University, (IIE, 2009). All these campuses host somewhere between 7900-5,000

international students, which amounts to 10% to 20% of the total enrollment of these campuses. International students contribute to campus diversity by bringing along diverse perspectives and fostering cross-cultural interactions in and out of the classroom. Meanwhile, the unique set of skills and knowledge of international students enable them to play a key role in academic research in general and in Science, Technology, Engineering and Mathematics (STEM) fields in particular (J. J. Lee, 2010).

While often singled out for their academic and cultural benefits, international students also generate significant financial benefits for the hosting institutions. According to IIE, international students' net contribution to the United States economy was nearly \$14.5 billion, and American college education is the fifth-largest service export, bigger than medical services (Lewin, 2007). Thus, colleges and universities are increasing their efforts to attract and retain international students (Lee, 2010).

### Language Challenges of International Students

With a remarkable expansion of international student enrollment, it becomes urgent to facilitate international students to overcome various adjustment challenges (Mori, 2000; Lee, 2010; Gulliette, 2007). English language is one of the most significant and prevalent challenges for international students (Heggins & Jackson, 2003; J. J. Lee, 2010; Sanner, Wilson, & Samson, 2002; Wilton & Constantine, 2003). Language challenges are especially serious among students from Asia (Heggins & Jackson, 2003), Africa (Sanner et al., 2002), and Latin America (Wilton & Constantine, 2003).

Low language self-confidence has direct negative impact on international students' academic pursuits, teaching and research performance, and their satisfaction of college experience in America. Academically, low confidence in English diminishes international

students' ability to understand lectures, take notes, complete reading and writing assignments, express their opinions, and participate in class discussion (Mori, 2000). Meanwhile, low English confidence compromises the quality of their performance as a teaching or research assistant (Mori, 2000). In addition, language confidence affects how well international students fit in socially with their peers, professors, and local communities (Trice, 2003). The lack of self-confidence in English also lowers international students' desire to seek out assistance, and subsequently, affect their self-efficacy, sense of belonging, and even mental health in some serious cases (Olivas & Li, 2006). In brief, English confidence is fundamental to international students' academic, social and emotional adjustment in America.

The literature points out several potential reasons that decrease one's self-confidence in the host language. First, limited social-cultural understanding about America is a high barrier to English fluency (Mori, 2000; Trice, 2004). Scholars suggest that the longer that one stays in the U.S. and the more host culture exposure one has, the more fluent and confident one becomes in the host language (Trice, 2004). Second, English is a complex language with different accents, rates of speech, slangs and implicit meanings, all of which are not easily mastered without considerable language exposure and practice (Gillette, 2007; Mori, 2000). Third, while conversational English skills can be learned within about 2 years, it takes 4 to 7 years or more to develop levels of academic English equivalent to native English-speaking peers (Carhill, Suarez-Orozco & Paez, 2008). Last but not least, while human beings possess language learning ability throughout the lifespan, biological constraints lowers the speed at which adult learners master a foreign language in a short span of time. It normally requires a relatively longer period of strenuous study for adults to master English as a second language (Mori, 2000).

## Development of English Self-Confidence

### *Importance of Self-Confidence*

Self-confidence is considered as a crucial ingredient that makes all the difference between success and failure by psychologists (Polivy & Herman, 2002). The value of self-confidence in learning has been articulated most clearly by Bandura (1977). Bandura argued that self-efficacy, or confidence that one can achieve one's objectives, is a key mechanism that leads to behavior change, such as making adjustment to the host country language. Individuals with higher self-confidence, according to Bandura, are more likely than those with lower confidence to initiate efforts to accomplish the goals they are striving for, and are more likely to intensify and sustain their effort in face of obstacles.

There is substantial evidence that higher self-efficacy and confidence are associated with better outcomes in college student academic performance (Colbeck, 2001) and other domains (a review in Polivy, 2002). Self-confidence seems a better predictor of students' academic performance and career choice. As mentioned earlier, researchers found that English self-confidence predicted cultural adjustment and academic success than actual English proficiency (Yang et al., 2006). College women with higher SAT scores or grades than men are more likely than college men to underestimate their objectively measured math abilities (Drew 1996 cited in Colbeck, 2001), which, in turn, has a negative effect on women's performance and persistence in pursuing a career in math and science (Ceci, Williams, & Barnett, 2009). Similarly, low self-confidence in host language may have a negative effect on international students' persistence in studying the host language and their willingness to practice host language.

### *Sources of English Self-Confidence*

Given the importance of self-confidence in learning, a natural question to ask is how to develop self-confidence? Bandura (1977) identified four mechanisms to build self-confidence: performance accomplishments, vicarious experience, verbal persuasion, emotional arousal. Of particular relevance to international students' language adjustment is vicarious experience. By vicarious experience, or observing native speakers and fluent non-native speakers of English, international students persuade themselves that if others can make it, they should be able to achieve at some improvement in using English (Bandura, 1977). Non-native speakers are of special value to second language learning from a self-confidence/efficacy development perspective. According to Bandura's self-efficacy theory, seeing others perform threatening activities (e.g., non-native speakers may make mistakes in their language productions) without adverse consequences (e.g., losing face) can generate confidence in international students that they too will improve they intensify and persist in their efforts. For vicarious experience to be effective in boosting self-confidence, the modeled behaviors should be diversified and with clear outcomes (Bandura, 1977). The implication to international students is that they need to interact with a diverse group of individuals so that they are exposed to a variety of language models in diverse language situations.

However, it should be pointed out that self-confidence derived from vicarious experience alone is likely to be vulnerable to change, because vicarious experience is a less dependable source to develop self-confidence (Bandura, 1977). To obtain a solid sense of self-confidence in English, international students should not only observe others who speak fluent English, but more importantly, embrace opportunities to practice English in interpersonal interactions, in social media, etc. While practice makes perfect, practice may have contrasting impact on self-

confidence, depends on the quality of efforts that one make. On the one hand, international students will feel a stronger self-confidence after making successful communication in English with host nationals and others who speak English. On the other hand, one's confidence will be decreased after repeated failure or frustrated experiences in using English.

The second language acquisition literature suggests that a host of factors come into play in the development of international students' English self-confidence, including *individual* factors (e.g., prior English proficiency, the length of residence in the U.S., personality, etc.), and *contextual* factors (e.g., group affiliation, language environment) (Gass, 1997; Gor & Long, 2009; Herman, 1961; Jia & Aaronson, 2003; Pica, 1987). Technology use has become another important variable in the equation of English language learning (Zhao, 2005). Along with technology-related factors, this study explores the effects of two contextual factors on English self-confidence: *language resources* embedded in various types of interaction and *language norm* of one's personal network.

### English Self-Confidence and Language Resources

Language adjustment of international students can be interpreted both a language learning phenomenon and change in behavior/attitude phenomenon. Behavior/attitude change offers a valuable alternative angle to understand language adjustment because for many international students, even though they have the ability to speak and write English, they are reluctant to change their home language mindset and habits and to adopt host language. Lack of self-confidence can be one of the potential factors to account for the reluctance in linguistic behavior change.

Behavior/attitude change has been the focus of research for social influence theory. From a social influence theory standpoint, an individual builds his or her attitude both on his intrinsic

attitude and on the attitudes of his friends (In the remainder of the paper, terms such as friends, social contacts, and alters are used interchangeably to refer to a member of a student's personal network), as well as on the constraints and opportunities granted by one's social network (Friedkin & Johnsen, 1999). A case in point is one's personal opinions on presidential election candidates is heavily influenced by his alters' opinions, by the groups that one identifies with, and by one's personal opinions. As Leenders (2002) points out, *communication* is one of the mechanisms of social influence process. In the communication-driven social influence process, an individual receives influences from his alters through direct contact or communication. According to Leenders, the more frequent and vivid the communication between the individual and his alters, the more likely it is that he will adopt alters' ideas or behaviors (p. 27). International students' English self-confidence can be influenced by his communication with his alters, in addition to his own prior language confidence level, among many other factors.

The idea of communication-based social influence process echoes SLA's emphasis on the importance of interaction and communication in language learning. According to SLA research, international students' self-confidence in English builds partly upon the availability of critical language resources from their social contacts, including comprehensible input, practice opportunity, quality feedback and cultural exposure (Gass, 1997; Gor & Long, 2009; Lafayette, 1988; Long, 1983, 1996; Stanton-Salazar, 1997). These language learning resources are brought together by informal interactions that international students have with their American, multinational and co-national friends (Long, 1996; Gass, 1997).

#### *Informal Interactions outside Classroom*

Informal interaction is a multidimensional concept that involves the number of interaction partners, the amount of interaction, the types of interaction that provide various kinds of support,

and the sources of support. All these aspects of interaction have potential impacts on international students' English self-confidence. Academic English proficiency, for example, was found to be significantly predicted by *the amount of time of informal social interactions* (e.g., in the cafeterias, hallway of school, neighborhood contexts or part-time job) (Carhill et al., 2008).

Meanwhile, there is research suggesting that *sources of support* are influential to L2 learning and cross-cultural adaptation (Agneessens, Waeye, & Lievens, 2006). International students seek supports from various sources: co-national, host national and multinational networks (Agneessens et al., 2006; Bochner, McLeod, & Lin, 1977; Ward et al., 2001). As one of the first empirical studies to understand international students' friendship patterns, Bochner and his colleagues (1977) found that international students enter into three distinct interpersonal networks to fulfill different functional needs: (1) co-national networks, which is their primary network, where they can obtain support in their daily lives, maintain native language and culture identity, as well as express themselves freely; (2) host national networks, their secondary network, which facilitates their academic and professional aspirations and fulfills their cultural curiosities; and (3) multinational networks, a third and much less salient network, which consists of friends coming from countries other than their home and host countries who fulfill recreational and social belonging needs.

Furthermore, researchers suggest that *types of support* could possibly make a difference in language learning outcomes (Norton & Toohey, 2001; Smith, 1996, 2002). Norton and Toohey (2001) only made a brief discussion on this hypothesis in her ethnographic study on five participants. Smith (1996, 2002) made similar suggestions based on the findings of his network study on expatriates' language adjustment in Asian countries. Even though few studies focus on the different language benefits linked to the type of *support*, it is not difficult to understand why

language learning benefits may vary by the type of support. When international students seek different supports from others, they actively put themselves into diverse situations that demand different language reactions. On the one hand, the more diverse situations that one is exposed to, the more one is likely to become comfortable to produce linguistic output that is appropriate for a specific situation (Black & Mendenhall, 1991). On the other hand, some types of interaction may be more linguistically complex than other types, such as borrowing money versus debating about diversity-related issues. Thus, interactional students are likely to receive different levels of language benefits from different types of interactions.

There are various types of support that international students obtain from their social contacts. The interpersonal support literature often makes a distinction between instrumental support, informational support, social companionship, and emotional support (Agneessens et al., 2006). In addition to these types of support, international students turn to their family and friends for academic support, language support, religious support as well as cultural support (Bochner et al., 1977; Smith, 1996; Wellman & Wortley, 1990; Ye, 2006).

In short, international students seek the following types of support from their personal networks: 1) academic support (e.g. study together); 2) language support (e.g. language help); 3) cultural support (e.g., discuss about issues such as affirmative action); 4) religious support (e.g., practice religious rituals together); 5) social companionship (e.g., discuss about hobbies, have meal together); 6) emotional support (e.g., discuss about important personal decisions); 7) instrumental support (e.g., borrow money). In college student adjustment literature (Tinto, 1993; Fishner, 2007), emotional support, social companionship, and cultural support are grouped together under the umbrella term of social support.

### *Benefits of Informal Interactions*

While the aforementioned types of informal interaction may be varied in the types and amount of language resources they provide, these interactions all have potential to provide language resources and opportunity in four aspects: input, output, feedback and exposure.

*Input.* Informal interactions produce a large amount of comprehensible input that is a prerequisite for a L2 learner to master a new language (Krashen, 1985; Long, 1983, 1996). In his discourse analysis study, Long (1983) found more interaction in host language between native speakers (NS) and non-native speakers (NNS) than between NS-NS dyads especially during informal interactions. Long concluded that the increased interaction stemmed from the misunderstandings between language partners and subsequent linguistic modifications in order to resolve misunderstandings. Long also recorded that the NSs used extensive modification strategies and tactics to make input more comprehensible and resolve communication breakdowns, such as comprehension check, clarification request, simplification, elaboration. There are a series of studies confirming that negotiated and modified input facilitates L2 comprehension and acquisition (Ellis, Tanaka, & Yamazaki, 1994; Loschky, 1994; Polio & Gass, 1998).

*Output.* Informal interactions provide multiple opportunities for international students to actively test out their hypotheses about English language, such as producing various utterances, eliciting feedback from more competent speakers (Gass, 1997). Meanwhile, ongoing interactions and negotiations with others in English push L2 learners to refine their language hypotheses through modifying incomprehensible output, clarifying meanings, making requests, and raising questions (Long, 1983; Gass, 1997).

*Feedback.* L2 learners obtain both positive feedback and negative feedback from informal interactions in English. While positive feedback is important because it strengthens what has already been mastered and boosts learners' motivation by recognizing the acceptable language output of L2 learners, more research efforts are turning to the role of negative feedback (Gor & Long, 2009). According to Gor & Long (2009), negative feedback (also known as corrective feedback, e.g., recast) highlights the divergence between L2 learners' language production and that of native speakers and draw L2 learners' attention to this divergence. Empirical studies (Mackey, Oliver, & Leeman, 2003) and two meta-analyses of interaction studies on L2 learning (Keck, Iberri-Shea, Tracy-Ventura, & Wa-Mbaleka, 2006; Mackey & Goo, 2007) reported evidence showing that informal interactions not only provide a larger amount of positive and negative feedback, but also make feedback more noticeable and effective (Gor & Long, 2009; Gass, 1997).

*Exposure.* Cultural and language exposure is indispensable for international students to develop the kind of English proficiency that enables them to navigate within the academic, social and cultural environment in the U.S. (Lafayette, 1988). In a study of minority children and adolescents in the U.S., Stanton-Salazar (1997) argued that, by negotiating with significant others (e.g., their teachers, mainstream peers), minority students (e.g., immigrants) managed to obtain various funds of linguistic and cultural knowledge, such as institutionally sanctioned discourses (e.g., socially acceptable ways of using language), academic-related knowledge (e.g., terminologies), technical funds of knowledge (e.g., note-taking skills, phrases and expressions of presentation). These resources are critical for minority and newly arrived immigrant students to make adjustments to their new schools. Although international students may differ with minority

students in many ways, international students are similar to minority students in the need of extensive cultural and linguistic exposure that can help them to improve English skills.

While input, output, feedback and exposure play an important role in L2 learning, L2 formal instruction does not necessarily provide the ideal or even adequate conditions for international students to develop self-confidence in English. Researchers argue that classroom activities eliminate opportunities for learners to interact, negotiate and practice in the target language (Pica, 1987). Meanwhile, not only are commercialized textbooks limited in the amount of authentic cultural exposure, these textbooks deploy a strategy of simplification rather than elaboration, which dilutes the complexity of language learning materials (Gor & Long, 2009). Given the limited language resources available in classroom instruction and textbooks, it becomes critical for international students to go beyond the classroom and participate in informal interactions, so that they can explore, utilize, discover, and create their own language resources.

#### *Research Question #1: Language Resources*

As discussed earlier, informal interactions are beneficial to language learning because they generate rich language resources for L2 learners. Both the quality and quantity of interactions are considered as strong correlates of English self-confidence and proficiency (Clément et al., 1994; Noels et al., 1996). However, the literature has two major limitations. First, little research directly addresses the issue that if different kinds of interactions contribute differently to the development of English self-confidence, except a few exceptions (Norton & Toohey, 2001; Smith, 1996, 2002). Smith (1996, 2002) found a significant difference in the amount of support (e.g., emotional, financial, social) that different social contacts provide. However, the study didn't address the question if different types of interactions have varied effects on the participants' language confidence.

Second, and more important, even though the SLA literature stresses the benefits of informal interaction on language learning, it is an open question if informal interaction is universally instrumental to all international students regardless of their personality, prior experiences in host country, prior language skills, etc. If everything has both pros and cons, then there is a need to explore the potential disadvantages of informal interaction on language learning.

To better understand the effects of various types of informal interactions on language learning, this study explores the first research question:

Research Question #1: Among the four types of informal interaction including instrumental talk, language talk, social talk and religious talk, which types of interaction are more effective in boosting international students' English self-confidence?

As mentioned earlier, different types of interaction involve different levels of language complexity, which may consequentially lead to varied levels of language competence. For example, international students who discuss affirmative action with their American friends may seek a linguistic and cultural competence far greater than those who chat merely about weather with American friends. Meanwhile, the ones who discuss complex issues such as affirmative action probably get in touch with more complex and richer language resources than those chatting about the weather. Those who discuss affirmative action may eventually reach a higher level of language competence than those who only chat about less complex topics.

Furthermore, the linguistic benefits associated with different types of interaction may vary with individuals' previous language proficiency, interests and efforts in certain types of interaction. Even though discussion about affirmative action may involve more complex language expressions than a casual conversation on hobbies, it would not have much impact on

one's English proficiency if he or she had no interest in this topic and paid passing attention to the discussion. On the contrary, an international student would benefit linguistically to a great extent if he or she had a strong interest in hobby-related conversation and devoted considerable time to carry an in-depth conversation with English language speakers on this topic.

In other words, although it is plausible that certain type of interaction benefit an international student more than other types, there is no reason to predict that any type of interaction is definitively more beneficial than other types in terms of the development of self-confidence in the host language. Thus, to explore the first research question, this study proposes two open hypotheses regarding the effects associated with the four types of informal interaction. The null hypotheses are:

Null H1a: Informal interactions in general neither increase nor decrease international students' English self-confidence.

Null H1b: There is no difference in the effects on international students' English self-confidence among the four types of informal interaction.

#### English Self-Confidence and Language Norm

International students often find themselves in the position of having to choose between two or more languages as they live simultaneously in American culture and their home culture. Sociolinguistic research suggests that language choice profoundly influences a L2 learner's motivation to learn and use a language, as well as their language proficiency (Herman, 1961; Jia & Aaraonson, 2003, Milroy & Milroy, 1992). One of the influential factors on L2 learners' language choice is the language norm of the group or community that one inhabits (Herman, 1961).

## *Language Norm*

As a community-based practice, languages vary with the community's demographic characteristics. Sociolinguists found significant correlations between linguistic variations (e.g., pronunciation patterns, grammar, social address) and community members' characteristics, such as gender, age, race, ethnicity socioeconomic class, nationality, occupation, religion, etc. (Labov, 1965 ; Maltz & Borker, 1982; Tannen, 1992; Eckert & McConnell-Ginet, 1992; Milroy, 1992; Jia & Aaronson, 2003; Durham, 2003; Warschauer, Said, & Zohry, 2002). In his seminal study of the social stratification of English language, Labov (1965) noted that ethnicity is a strong factor resulting in various pronunciations and accents in New York City English. In a Detroit inner-city black neighborhood, the younger age group (18-39 years old) is found to be more likely to choose a colloquial Standard English whereas the older age group (> 40 years old) is more likely to choose Black English (Edwards, 1992). While it is important to recognize diversity among women and men in their ways of speaking, there is a remarkable difference in linguistic behaviors between females and males (Maltz & Borker, 1982; Tannen, 1992). Technology also has an impact on L2 learners' language norm and language choice (Warschauer et al., 2002)

The strong tie between language norm and language use perhaps has to do with the symbolic value of language. Language is considered an important tool to construct identity of children, adults, and nations (Gee, Allen, & Clinton, 2001). L2 speakers' adoption of a second language is an indicator of their intention of claiming membership in other groups to which they aspire (Herman, 1961; Jia & Aaronson, 2003). Meanwhile, L2 speakers who continue to speak their home language is also a sign of their desires to maintain their ethnic identity and roots.

### *Research Question #2: Language Norm*

The fact that international students live simultaneously among multiple networks - host nationals, conationals, multinational friends, family back in the host country- makes it necessary for international students to respond to multiple language norms of these different networks. Common language norms facing international students include the norm of speaking native language, the norm of speaking host language, and the norm of speaking a mixture of host and native language, which is more common among the ethnic community in the host country but often frowned-upon in one's home country. International students use their language choice as an important tool to claim and maintain memberships in multiple groups with which they identify.

Findings from other researchers suggest that for adolescent immigrants, language norm plays a significant role in their choice of language, which consequentially influences their language confidence and proficiency level. In a study on newly arrived Chinese children and adolescent immigrants in the U.S., Jia and Aaronson (2003) found that, for the network of adolescent immigrants (12-16 years old), which consists primarily of Chinese-speaking friends in China and the US, drives them to speak Chinese more than English. For young children (5-8 years old), even though these young Chinese immigrants were more fluent in Chinese, they still prefer English over Chinese because they want to be similar to their peers in school and be accepted by their peer group (p. 145). Since there is no similar study on language norms among international students, the issue of language norm becomes the second research question of this study:

*Research Question #2: whether international students' language self-confidence is influenced by their network's norm of English-speaking?*

The English-speaking norm is shaped by a number of factors. First, it has to do with the proportions of English language speakers of a student's network. The higher the proportion, the more likely a student is to use English, and consequentially, the more confidence they have in their English skills. Yum (1982) found a strong correlation ( $r = .51$ ) between the English proficiency of Korean immigrants in Hawaii and their networks' total number of non-Korean social contacts in their networks.

Although Yum's study is valuable, it neglects the important role of participants' Korean social contacts (conational contacts) who also speak English in the participants' English learning. Conationals who speak English are influential because they can serve as language models and language partners to practice English, in addition to sharing lessons and tips in learning English. To investigate the effects of all English language speakers, native and non-native, it is hypothesized that:

H2a: An international students' English self-confidence increases when his or her network has a higher proportion of English-speaking individuals (including both native speakers and non-native speakers).

A second factor affecting language norm is network closure (Coleman, 1988). The networks that exhibit closure are the ones that everyone is connected in a way that their behavior cannot help but be observed by others (Maroulis & Gomez, 2008). Closure is measured by the density of a network, indicated by the ratio of actual direct links to possible direct links in a network (Smith, 1996). The denser the network, the more contact each individual has with the other members of the network.

A network with a higher density exerts a higher peer pressure upon its members to conform (Coleman, 1988; Maroulis & Gomez, 2008). An international student is more likely to choose to

speak English, if his or her networks consist of English-speaking friends who also know each other, than those whose networks consists of loosely connected English-speaking friends. Moreover, an international student is more likely to gain help in English from an American if the two share at least one friend. The sharing of mutual friends, as a sign of network closure, results in greater trust among group members, and thus providing more help and support in English language learning (Maroulis & Gomez, 2008).

While network density is influential to a group's language norm and its group member's language use, the findings are mixed. Milroy (1992) found that in a network consisting of individuals from different dialect regions, the participants adhere to the dialect common to the network, and the denser the network, the stronger the adherence to the norm.

In contrast, Smith (1996, 2002) concluded that expatriates' L2 proficiency was negatively related to network density. Smith argued that while high-density networks provided suitable environments for positive socialization in a new cultural setting, close-knit networks might also prove stifling to L2 acquisition, by preventing the L2 learners from being exposed to new vocabulary, phrases, and sociolinguistic situations. (Smith, 2002, p. 154)

As discussed earlier, language self-confidence largely hinges upon expansive exposure to new vocabulary, expressions and styles, as well as opportunity to practice English with various people in diverse linguistic situations. Hence, it is hypothesized that:

H2b: An international students' English self-confidence increases when his or her network has a lower density of English-speaking ties.

## English Self-Confidence and Technology Use

### *The Internet and Cross-Cultural Adaptation*

The Internet provides international students with powerful communication tools on both a mass media level and on an interpersonal level, due to its capacity to overcome time and place-related constraints. International students use mass media to fulfill informational and entertainment needs. They rely on interpersonal communication tools to maintain emotionally close relationships such as family and close friends, and to make new connections with members of the same ethnic groups in the U.S. , Americans and multinational friends (Kim et al., 2010; Yang et al., 2004; Ye, 2006). Therefore, both mass media and interpersonal communication tools provide international students with valuable informational support and social-emotional support that are critical for cross-cultural adjustment.

While international students use technology for interactions with both host national friends and with the ethnic community, there is evidence showing that international students use technology more often for interpersonal interactions within ethnic communities rather than host national communities (K.-H. Kim et al., 2010; Qian, 2009). Regarding this phenomenon, there is an ongoing debate whether home country-related technology use would consume the time that may be formerly reserved for host-country-related technology use, which, in turn, would prevent international students from engaging with the host culture and host community (K.-H. Kim et al., 2010; Qian, 2009).

Another question is whether technology use enhances international students' English proficiency. Although researchers consider technology as a powerful tool to enhance L2 learning by providing authentic language input, opportunity to use L2, and timely feedback as well as enhancing learners' motivation (Zhao, 2005), most of the existing research explore a technology

effect on language in a mono-cultural context. Since international students live in a cross-cultural environment, the relationship between language proficiency and technology use becomes more complicated, because the technology environments of this group of students oftentimes involve two or more communities, languages and cultures, which may or may not be in competition with one another.

Given that international students spend a considerable amount of time on the Internet and other technologies, it is important to understand what impact that technology-based activities has on international students' English self-confidence development. To that end, this study proposes two research questions.

#### *Research Question #3 Host-Home Technology use*

Research Question #3: Is there a mutual exclusivity between ethnic community-related technology use and host community-related technology use?

According to a study on Internet use by Chinese students in the U.S., Yang et al. (2004) found that the participants' use of Chinese-based Internet sites was higher than the use of US-based Internet sites. Kong (2006) found that given the same access to host media and ethnic media, international graduate students from China spent more time on ethnic media than on host media on the Internet. In contrast, Ye (2005) found that generally international students used more English-language Internet than native-language Internet. Still, other researchers (Kim et al., 2010) argue that the international students' Internet consumption was not based on country of origin but on personal interests. The respondents of Kim et al.'s study reported they did not feel the need to distinguish between South Korean-based sites and their native language-based sites but instead navigated freely among various sites to satisfy their appetites for diverse contents (p. 164).

The mixed findings regarding international students' Internet consumption patterns may be accounted for by the cultural background of the international students. For the students coming from a collectivist culture such as China, they may spend more time in home/ethnic community-based technology activities to cement their connections with the community from which they came from. Cultural psychologists argue that a sustained and meaningful social relationship is an essential part of the self identity for the individuals from a collectivist culture, which makes it an imperative for one to actively maintain interdependence among individuals (Kitayama & Markus, 1991). Thus, international students with a collectivist cultural orientation may devote considerable time and energy to maintain and strengthen connections with their family and friends in the home country as well as the conational friends in the host country. Over-involvement in home country and community may leave little time for them to reach out to the host community. However, this may not be the case for international students from individualist cultures.

Since this study focuses on international students from collectivist cultures, it is expected that they are more involved in home country-related technology activities than host country-related technology activities.

H3a: International students from collectivist cultures have more *home country*-related technology activities (abbreviated as home technology use) than *host country*-related technology activities (abbreviated as host technology use).

H3b: More *home country-based mass media consumption* (abbreviated as home mass media use) results in less *host country-based mass media consumption* (abbreviated as host mass media use).

H3c: More technology-based communication with friends in the *home country* (abbreviated as home friend contact) results in less technology-based communication with *American friends* (abbreviated as host friend contact).

H3d: More technology-based communication with *ethnic friends in the host country* (abbreviated as ethnic friend contact) results in less technology-based communication with *American friends* (abbreviated as American friend contact).

#### *Research Question #4: Technology effects*

Research question #4: What are the effects of various types of technology use on international students' English self-confidence?

While newcomers are keenly aware of the vital role that technology play in the process of cross-cultural adjustment, international students may not appreciate the different effects on English skills associated with different types of technology uses, such as host mass media use vs. home mass media use, home friend contact vs. host friend contact via technology (Qian, 2009). Answers to these questions may help international students to plan their technology-based activities in an optimal way that they can benefit linguistically to the fullest extent.

Regarding the effects of host and home mass media use on language proficiency, the research findings are inconclusive. On the one hand, international students' English proficiency in general benefit from their use of both traditional host mass media, such as TV, radio and print media (Ryu, 1976; Kim, 1977; Yum, 1982) and the Internet-based host mass media (Qian, 2008; Ye, 2005). Ye (2005) suggested a possible reason is that host mass media such as the Internet provide international students with rich and updated information about the host country norms, values, and lifestyles, all of which are less accessible in formal classroom instructions.

However, there is also evidence showing that host mass media were not related to Indian students' acculturation levels (Raman & Harwood, 2008). Meanwhile, some researchers concern that host mass media consumption may slow down the acculturation process because host media stereotypes could affect newcomers' self-concept, breed mistrust, cause poor communication, and result in feelings of alienation (Keshishian, 2000).

On the other hand, some researchers argue that the use of home mass media is positive to acculturation (Elias & Lemish, 2008; Zhou & Cai, 2002), because home mass media serve as a vital means for international students to learn about the host society and about ways to adapt to it. Others note that home mass media are not related to cross-cultural adaptation including language adjustment (Melkote & Liu, 2000; Moon & Park, 2007). Meanwhile, emerging evidence indicates that home mass media usage has a negative effect on international students' degree of acculturation (Raman & Harwood, 2008; Lee, 2005; Kim, 2001). It should be pointed out that the focus of interest for these studies was the overall adjustment rather than language adjustment.

Given the mixed findings on the effects of host mass media and home mass media on English learning, this study tests the following hypothesis:

H4a: *Host mass media use* results in a higher English self-confidence among international students, whereas *home mass media use* results in a lower English self-confidence.

As far as the interpersonal-level technology use is concerned, technology provides numerous tools and services for international students to contact their host friends. Studies find that international students actively harness ICT to form new social ties with host nationals (K.-H. Kim et al., 2010; Melkote & Liu, 2000; Peeters & d'Haenens, 2005; Qian, 2009; Ye, 2006). International students interact with host nationals online through various channels, such as email, instant messaging or online social networking sites (Ye, 2006). It is argued technology-based

host friend connections are beneficial to international students' English self-confidence, because technology-mediated interpersonal communication bypass the awkwardness and anxiety of face-to-face communication in the host language and creates opportunity and tools to carry on sustained negotiation of meanings with host friends (Qian, 2009). However, it is unclear whether friendship and conversation online between international students and their host friends are deep enough to boost their language confidence, or too superficial to make a difference in language confidence and proficiency level.

Meanwhile, technology allows international students to use their native language continuously on Skype, online discussion forum, mailing list or other medium to bond with their existing ethnic community in home country and host country (Ye, 2006; Melkote & Liu, 2000; Lee, 2005). While technology-based contact with family and ethnic friends is helpful in providing social and emotional support, it may not boost their self-confidence in English learning. Thus, it is expected that:

H4b: host friend contact results in a higher English self-confidence among international students, whereas technology-based contact with family and ethnic friends results in a lower English self-confidence.

#### Summary of Research Questions and Hypotheses

In summary, this study addresses the following research questions and hypotheses.

Q #1: Which types of interaction are more effective in boosting international students' English self-confidence?

Null H1a: Informal interactions in general neither increase nor decrease international students' English self-confidence.

Null H1b: There is no difference in the effects on international students' English self-confidence among the four types of informal interaction.

Q #2: Whether international students' language self-confidence is influenced by their network's norm of English-speaking?

H2a: An international students' English self-confidence increases when his or her network has a higher proportion of English-speaking individuals (both native and non-native speakers).

H2b: An international students' English self-confidence increases when his or her network has a lower density of English-speaking ties.

Q #3: Is there a mutual exclusivity between home technology use and host technology use?

H3a: International students have more home technology use than host technology use.

H3b: More home mass media consumption results in less host mass media consumption.

H3c: More technology-based communication with friends in the home country results in less technology-based communication with American friends.

H3d: More technology-based communication with ethnic friends in the host country results in less technology-based communication with American friends.

Q #4: What are the effects of various technology activities on international students' English self-confidence?

H4a: Host mass media consumption results in a higher English self-confidence among international students, whereas home mass media consumption results in a lower English self-confidence.

H4b: Technology-based host friend contact results in a higher English self-confidence among international students, whereas technology-based contact with family and ethnic friends results in a lower English self-confidence.

## CHAPTER 3 METHODS

This chapter explains the research methods used to generate the survey data in this study. An overview of the participants is followed by an introduction to the data collection procedure, instruments, outcome variables and predictor variables. The chapter concludes with details about data analysis and the social influence models developed for data analysis.

### Participants

The participants were recruited voluntarily from the English Learning Center<sup>1</sup> (ELC) at a large Mid-Western University after the participants filled out the consent form. There were 127 students who filled out the first survey at the beginning of the 2010 spring semester and 91 students filled out the second survey three months later at the end of the semester, among which 81 students filled out both surveys. The participants' demographic information was summarized in Table 1.

The participants' age ranged from 17 to 47 years old, with 51 students in the 17-20 age group, 23 students in the 21-30 age group, and seven students in the 31-47 age group. The participants spent on average one year in the U.S. when the second survey was administered,

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1. ELC provides instruction to international students who need to improve their English language skills before beginning academic coursework. The participants in this study all enrolled in the ELC's *English for Academic Purposes* Program (EAP program is also a course in English reading with course code of ESL 223). According to the ELC's director, ninety eight percent of the participants were degree-seeking students. Those who were not seeking a degree from the host university were probably on exchange programs allowing them to experience American college life for a semester or two while seeking a degree from their home universities.

with a standard deviation of 11 months. Five students spent more than 2 years in the U.S., and one student stayed in the U.S. for more than five years.

Table 1 Descriptive Statistics of Participants' Background (n=81)

|                            | Min.  | Max.  | Mean  | SD    |
|----------------------------|-------|-------|-------|-------|
| Age                        | 17.00 | 47.00 | 21.60 | 5.21  |
| Gender (male:0; female: 1) | .00   | 1.00  | .40   | .49   |
| Time in the US (months)    | 1.00  | 82.00 | 12.20 | 11.13 |
| English Placement Test     | 66.00 | 85.00 | 72.78 | 3.83  |

Sixty-three students provided their English placement test scores. The students who provided placement test scores all passed the test, with the lowest score of 66 and the highest score of 85. The average score was 72.78 (out of 100), indicating that the participants' English proficiency were limited but have exceeded beginning level (ELC requires that students cannot exit the program until they reach 85 on the placement test).

In terms of nationality, the third column of Table 2 presents the number of students from each country or region, indicating that the participants come from a wide range of geographic regions, including East Asia, South-East Asia, Middle-East, Eurasia, Africa, and Central-South America.

Regarding the participants' cultural orientation, the fourth column of Table 2 includes the individualism score of Hofstede's cultural dimension scale for each country (Hofstede, 1980, 2010), suggesting that all participants come from a collectivist culture. According to the Hofstede Scale (Hofstede, 2010), the world average score of individualism (for more than 74 countries and regions) is 43. A country or region with a score lower than 43 is considered as collectivist; countries higher than 43 are considered as individualist. The United States has a score of 91 on individualism, which is far higher than the world average.

As Table 2 shows, the participants' countries of origin all have a score below the world average except Japan (46). While Japan's score is slightly higher than the world average, it is generally considered as a country with a collectivist tradition and more collectivist than the U.S. (Markus & Kitayama, 1991) A possible reason for Japan's high score on individualism on Hofstede's scale has to do with the original data that generated the Hofstede's Scale. Hofstede's Japanese sample was recruited from the Japanese branch of IBM, an American multinational with a strong individualist cultural orientation. The Japanese participants from the IBM's branch in Japan might have been more westernized to begin with when they were employed by an American corporation, or might have become more individualized after employment because of the exposure to American culture and the corporate culture. Thus, it is not surprising that their scores on individualism were higher than the average Japanese in Japan.

Although it is not necessarily true that an individual coming from a collectivist culture has or endorses collectivism, it is not exaggeration to predict that an individual encounter a strong cultural shock if there is a large gap in individualist cultural dimension between home society and host society. This is probably the situation facing a majority of the participants, especially the new comers to the U.S.

Table 2 Participants' Country of Origin and Cultural Orientation (n=81)

|                          | Country/Region          | Number of participants | Hofstede's Individualism Score <sup>1</sup> |
|--------------------------|-------------------------|------------------------|---------------------------------------------|
| East Asia                |                         |                        |                                             |
|                          | China (mainland)        | 39                     | 20                                          |
|                          | South Korea             | 19                     | 18                                          |
|                          | Japan                   | 2                      | 46                                          |
|                          | Taiwan                  | 1                      | 17                                          |
| South-East Asia          |                         |                        |                                             |
|                          | Indonesia               | 2                      | 14                                          |
| Middle-East <sup>2</sup> |                         |                        |                                             |
|                          | Saudi Arabia            | 8                      | 38                                          |
|                          | Iraq                    | 3                      | 38                                          |
|                          | Kuwait                  | 2                      | 38                                          |
|                          | United Arab Emirates    | 2                      | 38                                          |
| Eurasia                  |                         |                        |                                             |
|                          | Kazakhstan <sup>3</sup> | 7                      |                                             |
| Africa                   |                         |                        |                                             |
|                          | Libya                   | 2                      | 38                                          |
| Central-South America    |                         |                        |                                             |
|                          | Costa Rico              | 1                      | 15                                          |
|                          | Columbia                | 1                      | 13                                          |

1. Source: Hofstede's Cultural Dimension Website. [http://www.geert-hofstede.com/hofstede\\_dimensions.php](http://www.geert-hofstede.com/hofstede_dimensions.php) The world average is 43.

2. Hofstede provides an overall score of 38 for Arab World including Egypt, Iraq, Kuwait, Lebanon, Libya, Saudi Arabia and UAE.

3. Hofstede Scale has no data for Kazakhstan, however, the score for Russia is 39.

## Data Collection and Instruments

Data were collected through two surveys administered at the beginning and the end of the spring semester in 2010 (refer to Appendix A for the survey forms and the student consent form). The surveys were administered and collected by the ELC instructors who agreed to help without extrinsic compensation. To protect the privacy of the participants, an internally generated ID number was assigned by the ELC instructors to the Time1 survey form and the Time 2 survey form, so that the researcher could match Time 1 and Time 2 surveys based on the internally generated ID without knowing the true identity of the students. To ensure the language complexity of the survey was within the participants' English comprehension level, the instructors proofread and revised the wording of the survey to ensure that the students would have no difficulty in understanding the survey questions. In addition, the instructors made explanation of words that the participants did not understand. The surveys were distributed at the end of the class by the instructor to avoid interrupting the regular instruction. The participants were asked to fill out the surveys after class (either at home or in school) without discussing the items with others. It took about five minutes to complete Time 1 survey and 15-20 minutes to complete Time 2 survey.

Time 1 survey collected data on the participants' prior English self-confidence level (as a control variable) and the participants' background information, including age, gender, nationality, the length of residence in the U.S., whether the participants work and live on campus or off campus, and prior English proficiency level (e.g. TOEFL, English placement test).

Time 2 survey collected data on English self-confidence (Time 2, also as the outcome variable), technology usage, offline host community engagement, and the participants' personal network.

English self-confidence in Time 1 and Time 2 surveys was measured by four items on the respondents' self-confidence in listening comprehension, speaking, reading and writing skills, with a scale from 1 (strongly disagree) to 5 (strongly agree). The scale is a replication of the scale developed by Clement (1986,  $\alpha = .93$ ).

Technology use scale measured six types of activities that international students were typically involved in the Internet, phone and other technologies (Kim, 2001; Ye, 2005; Qian, 2007). The activities included: (1) home mass media; (2) host mass media; (3) contact family members with technology (abbreviated as "family contact" in the remainder of the paper); (4) contact home friends with technology (abbreviated as "home friend contact"); (5) contact ethnic friends in the host country (abbreviated as "ethnic friend contact"); (6) use technology to contact American and multinational friends ("abbreviated as "host friend contact"). The participants responded to the items on a Likert scale from 1 to 5 (1 = once or twice a semester; 2 = once or twice a month; 3 = once or twice a week; 4 = once or twice a day; 5 = multiple times a day at some point could recode to times per semester, but not necessary now. The participants were asked to fill in zero if they were not involved in the corresponding type of technology-based activity.

There were five survey items assessing the participant's offline host community engagement: (1) sports club participation; (2) fraternity or sorority participation; (3) student organization participation; (4) ethnic/racial student organization; (5) local cultural events, such as campus concert. The participants responded to the items on a Likert scale from 1 to 5 (1 = once or twice a semester; 2 = once or twice a month; 3 = once or twice a week; 4 = once or twice a day; 5 = multiple times a day, zero indicates no involvement).

Network data were collected with name generators and name interpreters informed by the General Social Survey (Peter V. Marsden, 1990), East York study (Wellman & Wortley, 1990), and comparative research on the effects of different types of name generators and interpreters (Ruan, 1998). The name generators and interpreters provide rich information on both the composition and the contents (the amount, types and sources of informal interactions) of each participant's personal network. Both the name generators and interpreters were phrased in the past tense to gather information on the activities that had already taken place before the survey. This way the network survey illuminated individual participant's actual, rather than perceived or imaginary, interpersonal environment.

The name generators listed below include one main generator and nine exchange name generators that explore the intensity of informal interaction between the participants and their social contacts.

**Main Name Generator:**

Looking back over the past six months, who are the people with whom you discuss matters important to you or who are the people you really enjoy socializing with. Please think of as many as 10 social contacts and write down their initials.

**Exchange Name Generators:**

How much have you engaged this social contact in the following activities on a scale from 1(not at all) to 5 (a great deal)?

- Borrowed a large sum of money from this person (Money)
- Chatted with this person in English (English Chat)
- Asked this person to help you improve English (English help)
- Talked about your hobbies with this person (Hobby Talk)

- Discussed about issues such as current world affairs, culture, diversity (Culture Talk) with this person
- Talked about personal worries with this person (Personal Talk)
- Talked about your important decisions, such as job or academic pursuit with this person (Job-related Talk)
- Learned about or kept your religious practices together with this person (Religious Talk)
- Had social activities with this person, such as having coffee together (Go out)

The main name generator was a replication of the name generator of Burt's GSS survey, with a slightly different wording and a maximum number of social contacts that the respondents generate (10 in this study, no specific limits on the number of social contacts in Burt's GSS survey. In addition, GSS's name generator does not have the part "or who are the people you really enjoy socializing with."). The number 10 was decided based on the literature on the size of the personal network generated by both Burt's general name generator and Ruan's (1998) exchange name generators. According to Ruan (1998, p.253), the respondents mentioned 7.87 alters in response to exchange name generators and 3.3 in response to GSS's general name generator on average (standard deviations for both is roughly 1.5). Thus, a total number of 10 would be an appropriate network size that allows a majority of respondents to include their closest social contacts in the survey responses.

This study included exchange name generators in the survey in addition to GSS's general name generator, because exchange name generators not only produce a similar core network as GSS's general name generator, but also generate a much larger network (Ruan, 1998). Moreover, exchange name generators allow researchers to obtain detailed information on various types of interactions between the respondent and their social contacts. In this study, the participants

responded to the exchange name generators on a Likert scale from 1 (not at all) to 5 (a great deal).

Following the *name generators*, participants were presented with a series of *name interpreters* that describe the characteristics of each nominated social contact. Name interpreters gathered information on social contacts, such as age, gender, nationality, language background, major, organization membership, religion, as well as social relationship between the participants and their contacts (i.e., family member, classmate, roommate, co-worker).

In addition, name interpreters asked about the frequency with which the participants contacted alters in face to face situations or via phone, email and the Internet, on a Likert scale from 1 to 5 (1 = once or twice a semester; 2 = once or twice a month; 3 = once or twice a week; 4 = once or twice a day; 5 = multiple times a day, zero indicates no contact at all).

### Measures

Table 3 summarized the dependent variables and predictor variables of the study. Following the table is a detailed description of how each variable is measured.

#### *Dependent Variable*

English self-confidence was the dependent variable, measured by four self-perception items. The items asked the respondents to rate if they are self-confident in four English subskills: writing, reading, speaking, and listening comprehension, on a five-point Likert scale (1= strongly disagree, 5 = strongly agree). The average score of the four items was the respondents' final score for the *overall English self-confidence*. The reliability analysis shows that the four-item measure has a relatively high Cronbach's  $\alpha$  of .80.

Table 3 Dependent and Independent Variables

| Variable                                                         | Hypothesis | Number of items used | Reliability (Crobach's $\alpha$ ) |
|------------------------------------------------------------------|------------|----------------------|-----------------------------------|
| Dependent Variables                                              |            |                      |                                   |
| Overall English Self-Confidence                                  |            | 4                    | .80                               |
| Listening Confidence                                             |            | 1                    | n/a                               |
| Speaking Confidence                                              |            | 1                    | n/a                               |
| Reading Confidence                                               |            | 1                    | n/a                               |
| Writing Confidence                                               |            | 1                    | n/a                               |
| Predictor Variables                                              |            |                      |                                   |
| Network-Level                                                    |            |                      |                                   |
| Overall interaction intensity                                    | H1a        | 9                    | .91                               |
| Instrumental talk intensity                                      | H1b        | 1                    | n/a                               |
| Language talk intensity                                          | H1b        | 2                    | .82                               |
| Social talk intensity                                            | H1b        | 5                    | .94                               |
| Religious talk intensity                                         | H1b        | 1                    | n/a                               |
| Proportion of English Speakers (weighted, Native and Non-native) | H2a        | 3                    | n/a                               |
| Proportion of English Native Speakers (weighted)                 | H2a        | 2                    | n/a                               |
| English Tie Density (weighted)                                   | H2b        | 1                    | n/a                               |
| Individual Level                                                 |            |                      |                                   |
| Home mass media                                                  | H3&H4      | 1                    | n/a                               |
| Host mass media                                                  | H3&H4      | 1                    | n/a                               |
| Family contact                                                   | H3&H4      | 1                    | n/a                               |
| Home friend contact                                              | H3&H4      | 1                    | n/a                               |
| Ethnic friend contact                                            | H3&H4      | 3                    | .54                               |
| Host friend contact                                              | H3&H4      | 1                    | n/a                               |
| Control Variables                                                |            |                      |                                   |
| Prior English confidence (Time 1)                                | H1,2,4     | 4                    | .87                               |
| Time in the U.S.                                                 | H1,2,4     | 1                    | n/a                               |
| Cultural event participation                                     | H1,2,4     | 1                    | n/a                               |

Table 4 Predictors-Outcome Correlation

| Predictors                       | Correlation<br>(Pearson's r) | Partialling for<br>Time 1 English<br>Confidence |
|----------------------------------|------------------------------|-------------------------------------------------|
| <i>Technology Use</i>            |                              |                                                 |
| Home Mass Media                  | -.10                         | .02                                             |
| Host Mass Media                  | .29***                       | .31***                                          |
| Family                           | .24**                        | .29**                                           |
| Home Friend                      | -.10                         | -.07                                            |
| Ethnic Friend                    | -.04                         | .00                                             |
| Host Friend                      | .06                          | .07                                             |
| <i>Interaction Intensity</i>     |                              |                                                 |
| Instrumental (Money)             | .13                          | .12                                             |
| English (Chat, Help)             | .11                          | .17                                             |
| Social (hobby, go out)           | .03                          | .04                                             |
| Religious Talk                   | .14                          | .22                                             |
| <i>Network Composition</i>       |                              |                                                 |
| Network Size                     | .28**                        | .25**                                           |
| English Tie (sum)                | .12                          | .23*                                            |
| English Tie Density              | -.11                         | .03                                             |
| % of Speaking English (weighted) | .21**                        | .17                                             |
| % of Conationals (weighted)      | -.08                         | .00                                             |
| % of American (weighted)         | .06                          | .06                                             |
| % of Multinationals (weighted)   | .04                          | .17                                             |
| <i>Control Variables</i>         |                              |                                                 |
| Time 1 English Confidence        | .43***                       |                                                 |
| Age                              | -.16                         | -.12                                            |
| Gender                           | -.16                         | -.14                                            |
| Residence Length in the US       | -.01                         | .03                                             |
| <i>Offline Host Engagement</i>   |                              |                                                 |
| Sport Club                       | -.19                         | -.14                                            |
| Greek Society                    | -.18                         | -.19                                            |
| Student Organization             | .01                          | .00                                             |
| Ethnic Organization              | -.10                         | -.14                                            |
| Cultural Event                   | -.04                         | -.11                                            |

\*  $p < .10$ ; \*\*  $p < .05$ ; \*\*\*  $p < .01$

Regarding the intensity of language talk, this was the average score of the respondents' rating on two items (language talk and language help). The intensity of social talk was calculated by the average score of the participants' responses to the five social talk items (hobby, culture, personal, job, go out). As to instrumental talk and religious talk, the interaction intensity was the same as the participants' responses to a single item on the same Likert scale as language talk and social talk. The overall interaction intensity was the sum total of the intensity of the four types of interaction.

*Language Norm.* The norm of English language speaking was measured by two variables: the proportion of English speakers and the English tie density. *Proportion of English Speakers.* This variable refers to the percentage of English speaking alters in a respondent's personal network, including both native and non-native speakers of English language. The mean was 53.86% with a standard deviation of 40.75%. Regarding this variable, it is assumed that as long as alters speak English, they would be of value to enhance the participants' English skills and self-confidence. For the purpose of comparison between native and non-native speakers' value on English learning, another variable called proportion of English native speakers was constructed as an alternative variable to the proportion of English Speakers.

*English Tie Density.* Density refers to the degree of connectedness amongst the people within an ego's network, or how many people in a network know each other (Albrecht and Adelman, 1987). Following Albrecht and Adelman (1987), the English tie density indicates the ratio of the two random alters in one's network who actually talk to each other in English (abbreviated as English Tie) to the total amount of two random alters who potentially know each other. In other words, the English tie density is the ratio of actual English ties to possible dyadic ties in a network. English tie density was calculated by the formula:  $D = a/n(n-1)/2$ . In the

formula,  $a$  indicates the actual English tie and  $n$  is the network size. The range of tie density is from 0 to 1, the larger the number, the more closely connected the network. The participants' networks had an average of 11 English ties within their personal networks. The mean density of all participants' networks was .40 with a standard deviation of .29.

In addition, a network's language norm is determined not only by the number of English speaking individuals in the network, but also by the frequency of contact with the English speakers in one's network. Having the same proportion of English speakers in one's network, a network with a higher contact frequency or contact volume has a stronger English language norm than a network with a lower contact frequency. Likewise, with the same degree of English tie density, the more interaction occurs in a network, the stronger the English language norm in that network.

Thus, both variables of language norm, proportion of English speakers and English tie density, were weighted with contact frequency. Five items measured the participants' contact frequency with alters: face-to-face (f2f) unscheduled meetings, f2f scheduled meetings, phone, email and web-based social media. The respondents answered the items on a 5-point Likert scale (1 = once or twice a semester; 2 = once or twice a month; 3 = once or twice a week; 4 = once or twice a day; 5 = multiple times a day, zero indicates no contact at all).

Table 5 Correlations of Interpersonal Interactions

|                   | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9 |
|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|---|
| 1. Money          | 1     |       |       |       |       |       |       |       |   |
| 2. English Chat   | .34** | 1     |       |       |       |       |       |       |   |
| 3. English Help   | .40** | .71** | 1     |       |       |       |       |       |   |
| 4. Hobby Talk     | .48** | .47** | .45** | 1     |       |       |       |       |   |
| 5. Cultural Talk  | .39** | .55** | .58** | .81** | 1     |       |       |       |   |
| 6. Personal Talk  | .44** | .43** | .34** | .79** | .75** | 1     |       |       |   |
| 7. Job Talk       | .47** | .50** | .51** | .85** | .85** | .83** | 1     |       |   |
| 8. Religious Talk | .40** | .43** | .49** | .41** | .51** | .46** | .54** | 1     |   |
| 9. Go Out         | .43** | .57** | .54** | .66** | .64** | .66** | .72** | .46** | 1 |

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed)

The variable included in final regression models was the weighted proportion of English speakers, which was the sum total of the products of contact frequency and proportion of English speakers of each participant's network. The weighted English tie density was the products of contact frequency and English tie density of each participant's network.

Finally, network size was included in the model as a network-level covariate.

#### *Individual-Level Independent Variables*

*Home Mass Media.* Home mass media was measured by one item: how often do you read about your home country in the media (e.g., news, culture, history, entertainment, etc.)? This item, along with the items measuring the following technology-related variables, is assessed on a 5-point Likert scale (1 = once or twice a semester; 2 = once or twice a month; 3 = once or twice a week; 4 = once or twice a day; 5 = multiple times a day, zero indicates no involvement at all).

*Host mass media.* Host mass media was measured by one item: how often do you read about the U.S. in the media (e.g., news, culture, history, entertainment, etc.)?

*Family contact.* The contact with family member via technology was measured by one item asking "how often do you use technology to contact your family members in your home country?"

*Home friend contact.* Home friend contact was measured by one item: "how often do you use technology to contact your friends in your home country?"

*Ethnic friend contact.* Ethnic friend contact included three items. The first item focused on contact with ethnic friends that one had previously known in real life, and the other two items focused on the interaction with ethnic friends with whom the participants may or may not have known previously. (1) "how often do you use technology to contact your ethnic friends in the

U.S.?"; (2) "how often are you participating in online mailing lists, discussion forums or other online groups developed for your ethnic community at this university?"; (3) "how often are you participating in online mailing lists, discussion forums or other online groups developed for your ethnic community in the U.S. in general?". Items (2) and (3) were developed based on Ye's (2005, 2006a, 2006b) study on online ethnic community as an influential factor for international students' cultural adaptation. Correlation analysis showed that three items had a modest correlation of 0.59 ( $p < .001$ )

*Host friend contact.* Host friend contact was measured by one item: How often do you use technology to contact your American friends at this university?

#### *Control Variables*

Control variables include Time 1 English self-confidence, the residence length in the U.S., and cultural event participation which represented offline campus involvement. The three control variables were chosen based on the findings from other research on international students' adjustment issues (Trice, 2004).

Table 6 Predictor-Predictor Correlation

|                                  | 1     | 2     | 3     | 4     | 5     | 6    | 7     | 8    | 9     | 10   | 11    | 12   | 13    | 14    | 15   | 16  | 17 |
|----------------------------------|-------|-------|-------|-------|-------|------|-------|------|-------|------|-------|------|-------|-------|------|-----|----|
| 1. English Talk                  | 1     |       |       |       |       |      |       |      |       |      |       |      |       |       |      |     |    |
| 2. Social Talk                   | .60** | 1     |       |       |       |      |       |      |       |      |       |      |       |       |      |     |    |
| 3. Money                         | .40** | .49** | 1     |       |       |      |       |      |       |      |       |      |       |       |      |     |    |
| 4. Religious Talk                | .49** | .53** | .40** | 1     |       |      |       |      |       |      |       |      |       |       |      |     |    |
| 5. Network Size                  | .61** | .74** | .65** | .47** | 1     |      |       |      |       |      |       |      |       |       |      |     |    |
| 6. English Native Speaker%       | .12   | -.18  | -.09  | -.03  | -.04  | 1    |       |      |       |      |       |      |       |       |      |     |    |
| 7. English Tie Density           | .10   | -.05  | -.20  | -.00  | -.26* | -.02 | 1     |      |       |      |       |      |       |       |      |     |    |
| 8. English Speaker %             | .26*  | .07   | .06   | .08   | .10   | .08  | .33** | 1    |       |      |       |      |       |       |      |     |    |
| 9. Home Mass Media               | -.04  | .22   | .13   | .01   | .16   | -.08 | -.11  | -.16 | 1     |      |       |      |       |       |      |     |    |
| 10. Host Mass Media              | .12   | .11   | .07   | .18   | .03   | -.07 | -.02  | .13  | .11   | 1    |       |      |       |       |      |     |    |
| 11. Family Contact               | .10   | .03   | .05   | .28*  | .01   | .04  | .05   | .07  | .03   | .19  | 1     |      |       |       |      |     |    |
| 12. Home Friend Contact          | .07   | .07   | -.02  | .16   | -.03  | .10  | .02   | -.11 | .13   | .19  | .48** | 1    |       |       |      |     |    |
| 13. Ethnic Friend Contact        | .06   | .08   | -.09  | .13   | -.09  | -.02 | .13   | -.03 | .42** | .17  | .14   | .28* | 1     |       |      |     |    |
| 14. Host Friend Contact          | .12   | .05   | -.04  | .12   | -.08  | .22  | .22   | .16  | -.02  | .21  | .02   | .07  | .38** | 1     |      |     |    |
| 15. T1 English Confidence        | -.12  | -.04  | .06   | -.14  | .08   | .09  | -.31* | .03  | -.24* | .04  | -.05  | -.09 | -.11  | .05   | 1    |     |    |
| 16. Length of Time In US         | .07   | .05   | .12   | .08   | -.08  | .00  | .16   | .12  | .16   | .22* | .05   | .11  | .23*  | .17   | -.07 | 1   |    |
| 17. Cultural Event Participation | .22*  | .06   | .09   | .24*  | .02   | .06  | .10   | .13  | -.10  | .25* | .13   | .13  | .30** | .46** | .12  | .18 | 1  |

\*\* . Correlation is significant at the 0.01 level (2-tailed). \* . Correlation is significant at the 0.05 level (2-tailed).

## Data Analysis

This study explores how interpersonal environment, technology use and an individual's intrinsic characteristics influence international students' English self-confidence. English self-confidence was treated as the outcome, and the measures of network-level (interaction intensity and language norm) and individual-level variables (technology use) were the predictors in the analysis.

Regarding the research question 3 on the exclusivity of technology usage, paired-sample *t*-tests and correlation analysis were employed to examine if a mutual exclusivity exists between ethnic technology use and host technology use.

As to research questions 1 and 2, the participants' English self-confidence was first regressed on the network-level predictors included in the two influence models: resource-based influence model and norm-based influence model, which will be discussed shortly. The primary predictors included the intensity of overall and four interaction types, the weighted English tie density, and the weighted proportion of English speakers. Regarding research question 4 on technology effects, the English self-confidence was regressed on six types of technology-based activities. All regression analyses of questions 1, 2 and 3 were controlled for by prior English self-confidence, residence length in the U.S. and cultural event participation, allowing for an estimate on the effects of factors coming into play after the participants arrived in the host institute.

Finally, a final regression model was reported, which included the most influential factors in the conceptual framework and had the highest explanatory power. The same analysis procedure was applied to the regression analysis of the participants' self-confidence in four

English subskills as outcomes. Regression and correlation analysis was conducted in SPSS Statistics 18.

### Social Influence Model

Social influence model provides the conceptual and analytic tool to explore the interpersonal and local influences on international students' English self-confidence. Social influence theory suggests that an individual's behavior is a function of his or her own behaviors and intrinsic characteristics, the behaviors or characteristics of others in his or her networks, and the characteristics of the network as a whole (Frank, 1998; Friedkin & Johnsen, 1991, 1997, 1999). This theory began with French's (1956 quoted in Friedkin & Johnsen, 1999, p.3) social power theory which introduced a simple model of how interpersonal influence enters into the process of an individual's opinion formation. Since then, sociologists have developed various influence models to represent the processes of interpersonal influence that affect individuals' opinions (Doreian, 1989; Friedkin & Johnsen, 1991, 1999; Leenders, 2002). Influence models have been increasingly applied in education-related research, such as teacher's technology use and adolescents' academic performance (Frank, 1998; Frank, Zhao, & Borman, 2004; Maroulis & Gomez, 2008) .

#### *Basic Social Influence Model*

The basic influence model is summarized as follows (in the remainder of the paper, an ego refers to an individual under investigation, and an alter refers to a member of the ego's personal network):

$$y_{it} = \rho_0 + \rho_1 \left[ \sum_{i'=1, i' \neq i}^n w_{ii'} y_{i't-1} \right] + \gamma_{it-1} + e_i$$

Where  $y_{it}$  indicates the ego's outcomes at time  $t$ ,

$\rho_1$  represents the extent of social influence associated with alters. If ego's behavior or attitude is completely influenced by ego's intrinsic and prior attributes, then  $\rho_1$  would be zero.

$\sum w_{ii}' y_{i' t-1}$  is the sum of the attributes of alters,  $W_{ii}'$  represents the theory about the influence processes in the network. In other words,  $w_{ii}'$  reveals the relation through which alters may influence the ego.  $y_{i' t-1}$  indicates the behavior of alter  $i'$  at time  $t-1$ , which is treated as a critical determinant of the ego's behavior at time  $t$ .

$\gamma$  refers to the effect of the ego's prior performance at time  $t-1$ , indicated by  $y_{it-1}$

$e_i$  is the errors assumed to be independent and identically distributed and normal, with mean zero and variance ( $\sigma^2$ ).

The social influence model suggests that an ego builds his own opinion both on his intrinsic opinion and on the opinion of his alters. This model implies that international students' English self-confidence is built upon their prior level of English proficiency and their English learning environments, which are shaped both by their alters and by their technology use.

Social influence model has two advantages for this research. First, this model accounts for interdependence of actors as measured by  $w$ . In other words, this model can remove bias from ordinary least square (OLS) estimates of  $\gamma$  due to the interdependence of units (Leenders, 2002). Take this study for example. In traditional OLS analysis, the regression model requires the assumption the influence that a group of alters have on one international students in language learning would be the same as the same group of alters exert on another international student. However, the influence of alter is not a variable that can be isolated from the ego. Two

international students may receive a different degree of influence from the same American friend depending on the quality and nature of their relationship as well as other contextual factors. Thus, alters and egos are interdependent units that need an analysis model that is free of the assumption of OLS. A social influence model avoids the limitations of traditional OLS in this aspect.

Second, and more important, Marsden and Friedkin (1994) point out that a social influence model can test theories of social influence. In other words, the model testing can specify the specific process by which international students' language environment influences their language self-confidence. By exploring the meaning of  $\rho_1$ , this study can identify if it is language resource or language norm or an interaction between language resource and norm that influences the development of language self-confidence.

#### *Theories of Social Influence*

The social network literature suggests various theories of social influence (Frank & Fahrbach, 1999; Leenders, 2002). According to Leenders (2002), social influence occurs through *communication* or *comparison*. Communication refers to social influence through direct contact between ego and alters, where ego use alters as their frame of references for behavioral and attitudinal changes. The more frequent and vivid the communication between ego and alter, the more likely it is that ego will adopt alter's ideas and beliefs (p.27). Leenders suggests *comparison* as an alternative influence process. In comparison process, ego compares himself to those alters whom he considers similar to him in relevant respects, and adopt behaviors or attitudes of these alters, by which ego can assume a similar social identity as alters.

Frank and Fahrbach (1999) propose a slightly different influence theory that includes two influence processes: resource-based influence and norm-based influence. According to the resource-based influence model, an ego's opinions or actions are influenced by the information

the ego is exposed to. A norm-based influence model suggests a normative process where an ego's opinions or actions are influenced by the ego's group norm. Maroulis and Gomez (2008) investigate both resource-based and norm-based processes of peer influence on secondary school students academic performance.

Of particular relevance to this study is Frank and Fahrback's theory regarding the informational and normative processes of social influence. As discussed earlier, an international student's English self-confidence can be potentially influenced by the intensity of various types of interpersonal interactions, which provides the students with potential language resources. Meanwhile, English self-confidence can possibly be affected by the language norm of their social networks. Thus, the current study develops both a resource-based model and a norm-based influence model to test the hypotheses about the language resource effect and language norm effect on international students' English self-confidence.

#### *Model #1 Resource-based Influence Model*

A resource-based influence model is developed to test the first research question and the two related hypotheses.

Null H1a: Informal interactions in general neither increase nor decrease international students' English self-confidence.

$$\begin{aligned} \text{English Confidence time } 2_i = & \rho_1 \sum_{i'=1, i' \neq i}^n \text{Interaction}_{ii'} + \gamma_1 \text{English Confidence time } 1_i \\ & + \gamma_2 \text{Cultural Event}_{it} + \gamma_3 \text{Time In US} + e_i \end{aligned} \quad (1)$$

Model (1) tests the first null hypothesis: if overall interaction intensity exerts an influence on international students' English self-confidence by exposing them to various language

resources.  $\rho_1$  represents the effect of the intensity of overall interaction (including language support, social companionship, cultural support, religious support, emotional support, instrumental support). The  $\gamma$ 's represent the effects of international students' intrinsic behaviors and attitudes, as well as their background characteristics. Intrinsic characteristics include the student's prior English confidence, cultural event participation, and the length of residence in the U.S. (Trice, 2004). These variables are included as control variables in model (1) as well as other models discussed below.

Null H1b: There is no difference among various types of informal interaction in the effects on international students' English self-confidence.

$$\begin{aligned} \text{English Confidence time}_{2i} = & \rho_1 \sum_{i'=1, i \neq i'}^n \text{Interaction Type1}_{ii'} + \dots + \rho_4 \sum_{i'=1, i \neq i'}^n \text{Interaction Type4}_{ii'} \\ & + \gamma_1 \text{English Confidence time}_{1i} + \gamma_2 \text{Cultural Event}_i \\ & + \gamma_3 \text{Time In US} + e_i \end{aligned} \quad (2)$$

Model (2) tests the second hypothesis if the types of interaction make a difference in international students' English self-confidence. The model includes four types of interaction as discussed earlier: instrumental talk, language talk, social talk, and religious support. Model (2) is similar as model (1) in terms of the meanings of coefficients, except for the meaning of  $\rho_1$  to  $\rho_4$ , each representing the effect of one type of interaction between ego and alter.

#### *Model #2 Norm-Based Influence Model*

The second research question addresses the language norm effect on international students' English self-confidence.

Q #2: Whether international students' language self confidence is influenced by their network's language norm?

H2a: An international students' English self-confidence increases when his or her network has a higher proportion of English-speaking individuals.

H2b: An international students' English self-confidence decreases when his or her network has a higher density of English-Speaking Ties.

The hypotheses are tested by the following model:

$$\begin{aligned} \text{English Confidence time2}_i = & \rho_1 \text{English Speaker\%} + \rho_2 \text{English Tie Density} \\ & + \gamma_1 \text{English Confidence time1}_i + \gamma_2 \text{Cultural Event}_i \quad (3) \\ & + \gamma_3 \text{Time In US} + e_i \end{aligned}$$

In model (3),  $\rho_1$  represents the effect of the proportion of English-speaking social contacts on the ego's English confidence.  $\rho_2$  is the effect of the English tie density on English self-confidence.

#### *Model #3 Technology Effect Model*

There are two research questions concerning the technology effect on international students' English self-confidence. Research question #3 explores the exclusivity between ethnic technology use and host technology use. The hypotheses generated by this question were tested by paired *t*-tests and correlation analysis.

Research question #4 addresses the effects of various technology activities on international students' English self-confidence. Model (4), a multiple regression model, was developed to test the following two hypotheses.

H4a: Host mass media consumption results in a higher English self-confidence among international students, whereas home mass media consumption results in a lower English self-confidence.

H4b: Technology-based host friend contact results in a higher English self-confidence among international students, whereas technology-based contact with family and same country friends results in a lower English self-confidence.

$$\begin{aligned}
 \text{English Confidence time2}_i = & \rho_1 \text{Home Mass Media} + \rho_2 \text{Host Mass Media} \\
 & + \rho_3 \text{Ethnic Friend Contact} + \rho_4 \text{Home Friend Contact} \quad (4) \\
 & + \rho_5 \text{Family Contact} + \rho_6 \text{Host Friend Contact} \\
 & + \gamma_1 \text{English Confidence time1}_i + \gamma_2 \text{Time In US} + e_i
 \end{aligned}$$

## CHAPTER 4 RESULTS

As stated in chapter 1, this study sought to identify key variables that impact on international students' self-confidence in English. English self-confidence has been operationalized in terms of overall English confidence and confidence in four subskills: listening comprehension, speaking, reading, and writing. This chapter starts with a summary of the characteristics of the participants, including the participants' demographic characteristics, English self-confidence, technology use patterns, and a portrait of the participants' social networks, including the characteristics of network structure, informal interactions and contact frequency of a network. The discussion is followed by a detailed presentation of the findings on the four research questions. The final section of the chapter provides a final parsimonious model with the highest explanation power to predict international students' self-confidence in overall English skills and four subskills of English.

### Description of the Participants

#### *Participants*

##### *Participants' Demographic Characteristics*

As summarized earlier in chapter 3, the demographic characteristics of the participants were as follows.

- The mean age was 21.6 years old ( $SD = 5.2$ , ranging from 17- to 47-year-old), with 81.5% younger than 22 years old.
- 40% were females.
- 80% of the participants spent less than 12 months in the U.S. (mean = 12.2 months,  $SD = 11.13$ , range from 1 to 82 months), indicating that a majority of the sample were relatively new comers to the host society. There were five individuals who stayed in the U.S. for 1-2 years, and

three individuals spent 2-4 years in the U.S., and one individual who spent more than 5 years in the U.S.

While the participants came from Asia, Africa, and Latin America, all of the countries of origin have a collectivist cultural orientation (Table 2), suggesting that the participants might encounter a relatively large cultural shock and high language barriers in the U.S., which has a high individualistic culture orientation.

#### *Participants' English Self-Confidence*

Table 7 presents the participants' prior English proficiency levels and English self-confidence in time 1 and time 2. All participants took the placement test administered by the host university at the beginning of fall semester of 2009, and the mean score of 73 indicated that the participants had limited English proficiency (the full score was 100; participants were enrolled in ELC because their score were lower than 85).

Table 7 Means and Standard Deviations of the Participants' English Confidence

|                                  | Mean  | SD   |
|----------------------------------|-------|------|
| University Placement Test        | 72.78 | 3.83 |
| English Self-Confidence (Time 1) | 3.44  | .84  |
| Listening                        | 3.58  | 1.04 |
| Speaking                         | 3.49  | 1.10 |
| Reading                          | 3.33  | .89  |
| Writing                          | 3.36  | .92  |
| English Self-Confidence (Time 2) | 3.73  | .65  |
| Listening                        | 3.89  | .92  |
| Speaking                         | 3.78  | .85  |
| Reading                          | 3.63  | .81  |
| Writing                          | 3.60  | .70  |

At time 1 (the beginning of 2010 spring semester), the participants' mean self-confidence on various English skills was slightly greater than 3 (the items' scale was 1 to 5 in ascending order of self-confidence level; the mean ranges from 3.36 to 3.58 which means the participants were somewhat confident about their English skills but not very or strongly confident about it; the SD ranges from .92 to 1.10), indicating that the participants were relatively confident about their English skills in reading, writing, speaking and listening.

At time 2 (the end of the 2010 spring semester), the participants' mean responses to the same statements regarding their English confidence were higher than that of time 1, exceeding 3.5 but less than 4 (the items' scale was 1 to 5; mean ranges from 3.60 to 3.89, SD ranges from .70 to .90).

The participants were most confident in listening comprehension at both time 1 and time 2. The confidence in speaking and listening were slightly higher than the confidence in reading and writing. The findings were not surprising, for reading and writing as secondary literacy capacities require more time and effort to master than speaking and listening which are considered as primary literacy capacities (Geary, 2005).

Table 8 Paired Samples t-test of English Self-Confidence (T2 vs. T1)

|        |                             | t    | df | Sig. (2-tailed) |
|--------|-----------------------------|------|----|-----------------|
| Pair 1 | T2 English – T1 English     | 3.44 | 71 | .001**          |
| Pair 2 | T2 Writing – T1 Writing     | 2.32 | 71 | .023**          |
| Pair 3 | T2 Reading – T1 Reading     | 3.00 | 71 | .004**          |
| Pair 4 | T2 Speaking – T1 Speaking   | 2.77 | 71 | .007**          |
| Pair 4 | T2 Listening – T1 Listening | 3.07 | 71 | .003**          |

\*\*. t-test is significant at the 0.01 level (2-tailed).

As table 8 shows, the participants' overall English self-confidence in Time 2 is 3.73, which was significantly higher than the Time 1's overall self confidence which was 3.44 ( $df = 71$ ;  $t = 3.44$ ;  $p = .001$ ). The paired samples  $t$ -test indicates that the participants increased about 0.29 points (equivalent to 5 out of 100 points) on their English self-confidence in a semester. Not only was there an increase in the overall English confidence, but also there were significant increases in confidence in the English subskills, including writing ( $df = 71$ ;  $t = 2.32$ ;  $p = .02$ ), reading ( $df = 71$ ;  $t = 3.00$ ;  $p = .004$ ), speaking ( $df = 71$ ;  $t = 2.77$ ;  $p = .007$ ), and listening ( $df = 71$ ;  $t = 3.07$ ;  $p = .003$ ).

### *Participants' Technology Use*

The most popular technology-based activity among the participants was to access home society's mass media. As Table 9 shows, the participants' mean response to accessing home society's mass media was 3.5 with a standard deviation of 1.31 (the original scale was from 1 "once a semester" to 5 "multiple times a day"), suggesting that the participants read about their home country on mass media at least once a week. The average frequency of accessing the host society's mass media was 3.02, indicating that the participants learn about the host society on mass media on weekly basis, relatively less frequently than *home mass media usage*.

The participants reported using technology to contact their family and home friends on a weekly basis, with a higher frequency of contacting family (mean = 3.25) than that of contacting friends in home society (mean = 3.21).

The least popular activity was contacting host friends (mean = 2.73) and ethnic friends in the host society (mean = 2.84). The mean frequencies for both were lower than 3, indicating that on average the international students contact ethnic friends and host friends less than once a month.

Table 9 Means and Standard Deviations of Participants' Technology Use

|                          | Mean | SD   |
|--------------------------|------|------|
| 1. home mass media       | 3.50 | 1.31 |
| 2. host mass media       | 3.02 | 1.01 |
| 3. family contact        | 3.25 | .89  |
| 4. home friend contact   | 3.21 | 1.11 |
| 5. ethnic friend contact | 2.84 | .88  |
| 6. host friend contact   | 2.73 | 1.34 |

As Table 10 shows, the participants in general use technology more often to keep in touch with their ethnic community at home than with host society. A paired sample *t*-test found a significant difference between home mass media usage and host mass media usage ( $df = 80$ ,  $t = 2.71$ ,  $p < .01$ ).

Table 10 Technology Usage Paired Samples *t*-test

|        |                             | t    | df | Sig. (2-tailed) |
|--------|-----------------------------|------|----|-----------------|
| Pair 1 | Home_Media – Host_Media     | 2.71 | 80 | .008**          |
| Pair 2 | Family – Host Friend        | 2.92 | 80 | .005**          |
| Pair 3 | Home Friend – Host Friend   | 2.59 | 80 | .011**          |
| Pair 4 | Ethnic Friend – Host Friend | .77  | 80 | .442            |

\*\*. *t*-test is significant at the 0.01 level (2-tailed).

As far as interpersonal technology use, there was a significant difference between family contact and host friends contact ( $df = 80$ ,  $t = 2.92$ ,  $p < .01$ ), and between contacting home friend contact and host friend contact ( $df = 80$ ,  $t = 2.59$ ,  $p < .05$ ). The difference between ethnic friend contact and host friend contact was not statistically significant.

Table 11 Correlations of Various Technology-Based Activities

|                  | Home Media | Host Media | Family | Home Friend | Ethnic Friend | Host Friend |
|------------------|------------|------------|--------|-------------|---------------|-------------|
| 1. home media    | 1          |            |        |             |               |             |
| 2. host media    | .11        | 1          |        |             |               |             |
| 3. family        | .03        | .19        | 1      |             |               |             |
| 4. home friend   | .13        | .19        | .48**  | 1           |               |             |
| 5. ethnic friend | .42**      | .17        | .14    | .28**       | 1             |             |
| 6. host friend   | -.02       | .21        | .02    | .07         | .38**         | 1           |

\*. Correlation is significant at the 0.05 level (2-tailed).

\*\*. Correlation is significant at the 0.01 level (2-tailed).

The mutual exclusivity between ethnic technology use and host technology use was not supported by the findings from correlation analysis presented in table 11. Home mass media was positively, albeit insignificantly, correlated to host mass media. So were the correlations between all six types of technology-based activities, except the correlation between home mass media and host friend contact which was insignificant but negative ( $r = -.02$ ).

Interestingly, ethnic friend contact was significantly and positively related to host friend contact, suggesting that ethnic technology use might not necessarily prevent the participants from utilizing host technology. Without restricting themselves to one community, the students are possibly more interested in using technology to obtain informational and emotional support from whoever can provide that kind of support than using technology to prefer one community over another.

#### *Participants' Offline Host Community Engagement*

Table 12 summarized the participants' offline involvement with the host society. The results indicated that the international students were least likely to be part of sorority/fraternity (mean = 1.85) or ethnic student organization (mean = 1.83). The respondents participated in cultural

events almost on a monthly basis (mean = 1.91). The participants were more active in sports club and student organizations in general, with a frequency slightly higher than 2 (once a month). Overall, the participants' offline host society engagement was significantly less than either online host society engagement or online ethnic community involvement.

Table 12 Participants' Offline Host Society Involvement

|                                | Mean | Std. Deviation |
|--------------------------------|------|----------------|
| 1. Sport Club                  | 2.37 | 1.35           |
| 2. Greek Society               | 1.85 | 1.14           |
| 3. Student Organization        | 2.07 | 1.21           |
| 4. Ethnic Student Organization | 1.83 | 1.2            |
| 5. Cultural Event              | 1.91 | 1.05           |

### *Participants' Networks*

#### *Network Structure*

The average network size was 7.8 people per network, with a standard deviation of 2.72. More than half of the participants (54%) reported up to 10 social ties. About 15% reported less than 4 social contacts.

The participants tended to have more conationals (74%) than Americans (25%) or multinationals (20%) as their social contacts (some social contacts may simultaneously have two or more nationalities, therefore the total percentage of alters' nationality exceeds 100%). In other words, there were on average 26% of social contacts coming from countries that were not one's home country, with whom one is more likely to communicate in English. Interestingly, the participants reported an average of 54% of alters speaking English to some extent. No matter whether these English-speaking individuals were conationals, Americans or multinationals, all of whom might be helpful for the participants to improve English.

Table 13 Means and Standard Deviations of the Network Structure

| Compositional Variables | Mean  | SD    |
|-------------------------|-------|-------|
| Network Size            | 7.81  | 2.72  |
| English Tie             | 10.96 | 11.48 |
| Eng Tie Density         | .40   | .29   |
| Family Member Mean      | .27   | .35   |
| Same Age Mean           | .70   | .31   |
| Speaking English Mean   | .54   | .41   |
| Conational Mean         | .74   | .33   |
| American Mean           | .25   | .32   |
| Multinational Mean      | .20   | .33   |
| Same Gender Mean        | .60   | .28   |
| Same Major Mean         | .19   | .28   |
| Class Mate Mean         | .24   | .34   |
| Same Club Mean          | .25   | .38   |
| Same Religion Mean      | .43   | .44   |
| Same Church Mean        | .23   | .40   |
| Roommate Mean           | .31   | .29   |
| Work Mate Mean          | .11   | .27   |

Regarding the English tie density, the participants reported an average of 11 direct social links in their personal network that communicate in English. The mean English tie density was 0.40 with a standard deviation of 0.29, which was calculated by the ratio of actual English ties to possible English ties.

As to the network composition, 27% of the social ties were family members, suggesting that the participants interacted more with either ethnic friends or host friends rather than with family members for important matters after they arrived in America. Furthermore, the participants were

more inclined to interact with alters who shared the same age (70%), same gender (60%), same religion (43%), same living environments (31%), same club (25%), same class (24%), same church (23%), and same major (19%). The participants were least likely to interact with co-workers (11%), and a majority (92.6%) of the participants reported not working on campus. It remains unclear if the 92.6% of the participants (75 out of 81) work elsewhere outside the university, however, it seems clear from the data that working off campus contributes little to interpersonal interaction between the participants and their colleagues.

#### *Informal Interaction Intensity*

The amount of interaction for different purposes was summarized in Table 14. The numbers in Table 14 were the aggregated interaction intensity for each interaction type across all alters connecting to one participant. A comparison across four types of interactions indicated the participants reported more social talk (mean = 22.7; including hobby talk, cultural talk, personal talk, job talk, go out) than language talk (mean = 16.10; English chat, English help), instrumental talk (mean = 10.42; borrow money), and religion-related interaction (mean = 15.78). Because the measure for interaction intensity is a composite score, it is unfortunately difficult to interpret the score of intensity in terms of the original Likert scale. The mean intensity of social interactions all exceeded 20 whereas instrumental interaction had the lowest mean (mean = 10.42), followed by religious support (mean = 15.78) and English support (mean = 16.10).

Table 14 Means and Standard Deviations of Interaction intensity

| Interaction Type                        | Mean  | Std. Deviation |
|-----------------------------------------|-------|----------------|
| 1. <i>Instrumental Talk</i><br>Money    | 10.42 | 5.38           |
| 2. <i>Language Talk</i><br>English Chat | 16.10 | 9.06           |
| English Help                            | 17.27 | 10.48          |
| 14.93                                   | 9.13  |                |
| 3. <i>Social Talk</i><br>Hobby Talk     | 22.70 | 10.56          |
| 23.68                                   | 12.50 |                |
| Cultural Talk                           | 22.31 | 11.67          |
| Personal Talk                           | 21.49 | 11.20          |
| Job Talk                                | 22.57 | 11.00          |
| Go Out                                  | 23.46 | 12.60          |
| 4. <i>Religious Talk</i>                | 15.78 | 11.54          |
| 5. <i>Overall Interaction Intensity</i> | 65.00 | 29.09          |

### *Contact Frequency*

Contact frequency over five media was presented in Table 15. The results suggest that the participants used web 2.0 social media more often than all four other media, with a mean of 2.62 (out of 5 point scale), indicating that the contact frequency over web 2.0 was somewhere between a monthly basis and a weekly basis. F2f unscheduled meeting (mean = 2.5) and phone (mean = 2.49) followed web 2.0 as the second most popular communication media, which was utilized less than on a weekly basis but more often than on a monthly basis. Email was the least often utilized communication channel with a mean frequency of 1.5, meaning that on average the participants used email less than once a month to communicate with their social contacts. The

mean contact frequency across all media was 2.25, which means the participants utilized all five media for interpersonal communication slightly more often than once a month. In general, the contact frequency was low for the participants, since the contact frequency of neither of the five media reached a weekly basis.

Table 15 Means and Standard Deviations of Contact Frequency

|                              | Mean | Std. Deviation |
|------------------------------|------|----------------|
| 1. F2F meeting               | 2.50 | 1.09           |
| 2. F2F meeting (unscheduled) | 2.13 | 1.19           |
| 3. Phone                     | 2.49 | 1.13           |
| 4. Email                     | 1.51 | .94            |
| 5. Web 2.0                   | 2.62 | 1.39           |
| Total Mean                   | 2.25 | .86            |

### Regression Analysis Results

#### *Language Resource Influence Model*

The language resource model examines if English self-confidence is a function of one's language resources exposure which may vary with interaction types. Table 14 and 15 present the estimates of resource influence models with the interaction intensity as predictors and individual characteristics as control variables (i.e., Time 1 English self-confidence and offline local community engagement). The models were utilized to predict not only overall English self-confidence, but also self-confidence in listening, speaking, reading and writing skills.

Table 16 presents the findings of Model (1) in page 59 , in which the intensity of overall interaction (including all four types of interaction) had a marginally significant and positive relationship with overall English confidence as well as confidence in four subskills ( $p = 0.09 \sim 0.10$ ).

Table 16 Language resource influence model (1) of English self-confidence

|                                |             | English<br>Overall        | Listening                  | Speaking                  | Reading                   | Writing                   |
|--------------------------------|-------------|---------------------------|----------------------------|---------------------------|---------------------------|---------------------------|
| Overall                        | Interaction | .21 <sup>a</sup>          | .20 <sup>a</sup>           | .03                       | .22 <sup>a</sup>          | .21 <sup>a</sup>          |
| Intensity                      |             | [.004]<br>(.002)          | [.006]<br>(.003)           | [.001]<br>(.003)          | [.006]<br>(.003)          | [.005]<br>(.003)          |
| Time 1 English Self-Confidence |             | .46**<br>[.350]<br>(.081) | .52**<br>[.459]<br>(.090)  | .45**<br>[.328]<br>(.080) | .36**<br>[.327]<br>(.104) | .33**<br>[.34]<br>(.084)  |
| Cultural Event                 |             | -.14<br>[.09]<br>(.067)   | -.21*<br>[-.186]<br>(.092) | -.05<br>[-.034]<br>(.085) | -.08<br>[-.061]<br>(.090) | -.08<br>[-.053]<br>(.077) |
| Intercept                      |             | 2.453                     | 2.250                      | 2.70                      | 2.32                      | 2.591                     |
| Adj-R-sq                       |             | .199                      | .278                       | .166                      | .115                      | .104                      |

Note: the results presented here were standardized  $\beta$  with unstandardized coefficients in bracket [ ], and standard errors in parentheses ( ).

\*\*  $p < .01$ ; \*  $p < .05$ ; a  $p < .10$ .

Not surprisingly, prior English self-confidence was a most important predictor of the outcomes, with a standardized  $\beta$  ranging from 0.33 to 0.52 ( $p < .01$ ), suggesting a strong continuity in one's self-confidence in English especially within a short period of time.

What's surprising was that participating cultural events in the host community was negatively associated with the self-confidence in listening skills (standardized  $\beta = -.21$ ,  $p < .05$ ), but not with the participants' confidence in the other three English sub-skills and the overall English self-confidence. These results challenge to some extent the findings from other researchers who suggest that attending cultural events significantly increases the likelihood of international students' interaction with American students which potentially may contribute to their cross-cultural adjustment (Trice, 2004).

Table 17 Language resource influence model (2) of English self-confidence

|                                                              | Overall                                | Listening                            | Speaking                               | Reading                              | Writing                                |
|--------------------------------------------------------------|----------------------------------------|--------------------------------------|----------------------------------------|--------------------------------------|----------------------------------------|
| 1. Social Talk<br>(hobby, culture,<br>personal, job, go out) | -.24 <sup>a</sup><br>[-.014]<br>(.009) | -.16<br>[-.014]<br>(.012)            | -.27 <sup>a</sup><br>[-.020]<br>(.011) | -.12<br>[-.009]<br>(.012)            | -.20 <sup>a</sup><br>[-.013]<br>(.010) |
| 2. Language Talk<br>(chat, help)                             | .21 <sup>a</sup><br>[.014]<br>(.009)   | .20 <sup>a</sup><br>[.020]<br>(.013) | .03<br>[.002]<br>(.012)                | .25 <sup>a</sup><br>[.022]<br>(.013) | .14<br>[.010]<br>(.011)                |
| 3. Instrumental Talk<br>(money)                              | .06<br>[.007]<br>(.014)                | .06<br>[.009]<br>(.020)              | .07<br>[.009]<br>(.018)                | -.05<br>[-.007]<br>(.019)            | .13<br>[.015]<br>(.016)                |
| 4. Religious Talk                                            | .27*<br>[.015]<br>(.007)               | .19 <sup>a</sup><br>[.015]<br>(.010) | .25 <sup>a</sup><br>[.017]<br>(.009)   | .20 <sup>a</sup><br>[.014]<br>(.01)  | .25 <sup>a</sup><br>[.015]<br>(.008)   |
| Time 1 English Self-<br>Confidence                           | .50**<br>[.374]<br>(.082)              | .55**<br>[.482]<br>(.093)            | .47**<br>[.342]<br>(.081)              | .40**<br>[.361]<br>(.106)            | .34**<br>[.249]<br>(.085)              |
| Cultural Event                                               | -.22*<br>[-.135]<br>(.069)             | -.27*<br>[-.238]<br>(.097)           | -.11<br>[-.087]<br>(.088)              | -.14<br>[-.108]<br>(.095)            | -.15<br>[-.097]<br>(.080)              |
| Intercept                                                    | 2.53                                   | 2.34                                 | 2.85                                   | 2.39                                 | 2.71                                   |
| Adj-R-sq                                                     | .223                                   | .277                                 | .189                                   | .115                                 | .113                                   |

Note: the results presented here were standardized  $\beta$  with standard errors in parentheses with unstandardized coefficients in bracket [ ], and standard errors in parentheses ( ).

\*\*  $p < .01$ ; \*  $p < .05$ ; a  $p < .10$ .

As Table 17 suggests, different interaction types exert different degrees of impact on English self-confidence. Religious talk had the most significant and positive effect on overall English confidence (standardized  $\beta = .27$ ,  $p < .05$ ) and marginally significant effect on four sub-skills confidence as well (standardized  $\beta = .19, .25, .20, .25$ ,  $p < .10$ ), after controlling for the other three types of interactions. Language talk had a positive albeit marginally significant effect on English self-confidence. Instrumental talk had no significant effects on English self-confidence.

Social talk had a marginally significant effect on overall English self-confidence and confidence in speaking and writing skills. Unlike the other three types of interaction, social talk had a negative effect on English self-confidence, which will be discussed in more details in the next chapter. Further analysis revealed that social talk turned from a positive predictor (standardized  $\beta = 0.06$ , standard error = .006) to a negative predictor (standardized  $\beta = -0.24$ , standard error = .009) after adding instrumental talk, language talk and religious talk to the regression model. When including the other three types of interactions, the standard error of the variable “social talk” increased 50% from 0.006 to 0.009, which is an indicator of potential multicollinearity among the four types of interaction. This may render the estimate of social talk effect on English self-confidence less precise than if the predictors were not correlated with one another.

There are two notes regarding the interpretation of the above findings. First, the effects of the four types of “talk” at this point are unstable since other factors, such as language norm, technology use, are not taken into account yet. Second, although the effects of social talk, language talk and religious talk were relatively small in comparison to prior English self-confidence, their effects may be due in part to prior English self-confidence because of the strong predicting power that prior English self-confidence holds.

#### *Language Norm Influence Model*

The language norm influence model explores the question if English self-confidence is influenced by the language norm of one’s personal network. The model includes two indicators of a network’s language norm: English tie density and proportion of English speakers (native and non-native). The results for the language norm influence model are presented in Table 18.

Table 18 Language norm influence model of English self-confidence

|                                                        | Overall                   | Listening                              | Speaking                   | Reading                   | Writing                              |
|--------------------------------------------------------|---------------------------|----------------------------------------|----------------------------|---------------------------|--------------------------------------|
| Network Size                                           | .25 *<br>[.063]<br>(.032) | .23 *<br>[.086]<br>(.043)              | -.01<br>[-.004]<br>(.040)  | .32*<br>[.290]<br>(.040)  | .31*<br>[.083]<br>(.035)             |
| English Tie Density                                    | .07<br>[.142]<br>(.308)   | .16<br>[.498]<br>(.416)                | -.020<br>[-.053]<br>(.389) | .11<br>[.300]<br>(.386)   | -.09<br>[-.213]<br>(.333)            |
| % of social contacts<br>Speaking English<br>(weighted) | .09<br>[.010]<br>(.015)   | .08<br>[.013]<br>(.021)                | .18<br>[.025]<br>(.020)    | .08<br>[.012]<br>(.020)   | -.08<br>[-.009]<br>(.017)            |
| % of English<br>Native Speakers<br>(weighted)          | .09<br>[.010]<br>(.025)   | .04<br>[.014]<br>(.040)                | .01<br>[.004]<br>(.037)    | .24*<br>[.075]<br>(.037)  | .02<br>[.004]<br>(.032)              |
| Time 1 English<br>Confidence                           | .45**<br>[.336]<br>(.090) | .54**<br>[.467]<br>(.095)              | .48**<br>[.345]<br>(.087)  | .32**<br>[.290]<br>(.108) | .22 <sup>a</sup><br>[.155]<br>(.088) |
| Cultural Event                                         | -.13<br>[-.08]<br>(.071)  | -.21 <sup>a</sup><br>[-.182]<br>(.096) | -.07<br>[.055]<br>(.089)   | -.10<br>[-.073]<br>(.090) | .02<br>[.010]<br>(.078)              |
| Intercept                                              | 2.12                      | 1.662                                  | 2.65                       | 1.83                      | 2.53                                 |
| Adj-R-sq                                               | .200                      | .290                                   | .158                       | .154                      | .127                                 |

Note: the results presented here were standardized  $\beta$  with standard errors in parentheses with unstandardized coefficients in bracket [ ], and standard errors in parentheses ( ).

\*\*  $p < .01$ ; \*  $p < .05$ ; a  $p < .10$ .

Both overall English confidence and sub-skill confidence were found not significantly influenced by English tie density, the proportion of social contacts speaking English (native and non-native speaker), and the proportion of social contacts who were English native speakers. However, network size was a significant positive predictor for overall English self-confidence and confidence in listening comprehension, reading and writing. The positive effect of network size could suggest that other factors being equal, the larger one's network, the more confidence one was in their English skills. It could also be interpreted that those participants with a larger

network were more confident in their communication skills, either in the native language or in the foreign language, than those with a smaller network size.

Similar to the language resource influence model discussed earlier, the estimates of language norm indicators are not stable because other potentially influential factors are not taken into consideration yet. The actual power of the language norm indicators and network size might be larger than the current regression analysis suggests, due to the strong predicting power of prior English confidence.

#### *Technology Effect Model*

The technology effect model addresses the question if English self-confidence receives varied degree of impact via six types of technology use: home mass media, host mass media, family contact, home friend contact, ethnic friend (in the host country) contact, and host friend contact. Table 19 presents the estimates of the technology effect model with six types of technology usage as predictors. Technology effect model had a relatively high explanatory power on overall English confidence in contrast to the language resource and language norm models. The adjusted  $R^2$  of technology effect model was 0.33, which was 0.10 higher than the language resource influence model and 0.12 higher than the language norm influence model.

Regarding the overall English self-confidence, the significant and positive predictors were host mass media (standardized  $\beta = .30$ ,  $p < .01$ ) and family contact (standardized  $\beta = .40$ ,  $p < .01$ ), besides prior English confidence (standardized  $\beta = .42$ ,  $p < .01$ ). The results were consistent with the literature (Qian, 2008; Lee, 2005; Peeters & D'Haenens, 2005; Ye, 2005; Zhang, 2007) suggesting that host mass media contribute to English self-confidence because host mass media provide rich cultural information about the host society, offer a large amount of

authentic language exposure, and increase the likelihood of international students' acceptance of the host cultural values and language norms.

Contacting family with technology had almost as large a positive effect on English self-confidence as that of prior English confidence, possibly because of the emotional support that the participants gained from their family members.

A significant negative predictor was home friend contact (standardized  $\beta = -.30$ ,  $p < .01$ ), which echoes with Kim's cross-cultural communication theory where Kim notes that ethnic interpersonal communication might impede international students' communication competence (Kim, 2001)

Further, the technology effect model predicted the confidence in listening and speaking better than it did for reading and writing, with the adjusted  $R^2$  for listening and speaking models almost twice as large as that of reading and writing models. The listening model was similar to the overall model in terms of the nature of technology effects.

In the *speaking* model, home mass media, which was an insignificant predictor in the *overall* model, became a significant and negative predictor (standardized  $\beta = -.24$ ,  $p < .05$ ), indicating that using home mass media might impede one's confidence in speaking skills. Meanwhile, ethnic friend contact (standardized  $\beta = .28$ ,  $p < .05$ ) turned from insignificant predictors to significantly positive predictors in the speaking model.

The negative effect of contacting home friends decreased in reading and writing models. Host friend contact, however, had a negative effect on one's confidence in writing (standardized  $\beta = -.27$ ,  $p < .05$ ), although it had no negative influences on the confidence in listening, speaking, or reading. While cultural event participation had negative effects on listening (standardized  $\beta =$

-.22,  $p < .05$ ) and speaking (standardized  $\beta = .23$ ,  $p < .05$ ), it had neither significant negative or positive effects on the outcome.

Table 19 Technology effect model of English self-confidence

|                           | Overall                                | Listening                  | Speaking                   | Reading                                | Writing                    |
|---------------------------|----------------------------------------|----------------------------|----------------------------|----------------------------------------|----------------------------|
| 1. Home mass media        | -.06<br>[.026]<br>(.056)               | .03<br>[.022]<br>(.080)    | -.24*<br>[-.144]<br>(.069) | -.02<br>[-.011]<br>(.080)              | .05<br>[.026]<br>(.068)    |
| 2. Host mass media        | .30**<br>[.201]<br>(.072)              | .22*<br>[.213]<br>(.103)   | .21*<br>[.178]<br>(.089)   | .28*<br>[.241]<br>(.102)               | .24*<br>[.173]<br>(.086)   |
| 3. family                 | .40**<br>[.271]<br>(.078)              | .34**<br>[.342]<br>(.11)   | .27*<br>[.229]<br>(.097)   | .31*<br>[.268]<br>(.111)               | .31*<br>[.226]<br>(.093)   |
| 4. home friend            | -.30**<br>[-.174]<br>(.068)            | -.26*<br>[-.217]<br>(.102) | -.26*<br>[-.187]<br>(.086) | -.21 <sup>a</sup><br>[-.156]<br>(.098) | -.17<br>[-.103]<br>(.083)  |
| 5. ethnic friend          | .04<br>[.026]<br>(.092)                | -.05<br>[-.052]<br>(.132)  | .28*<br>[.253]<br>(.114)   | -.12<br>[-.114]<br>(.130)              | .02<br>[.012]<br>(.110)    |
| 6. host friend            | .032<br>[.009]<br>(.031)               | .12<br>[.046]<br>(.045)    | .18<br>[.061]<br>(.039)    | .04<br>[.014]<br>(.044)                | -.27*<br>[-.081]<br>(.066) |
| Time 1 English Confidence | .42**<br>[.312]<br>(.076)              | .47**<br>[.415]<br>(.089)  | .39**<br>[.284]<br>(.072)  | .33**<br>[.299]<br>(.103)              | .35**<br>[.255]<br>(.085)  |
| Cultural Event            | -.17 <sup>a</sup><br>[-.101]<br>(.070) | -.22*<br>[-.198]<br>(.100) | -.23*<br>[-.172]<br>(.086) | -.06<br>[-.049]<br>(.099)              | .01<br>[.007]<br>(.084)    |
| Intercept                 | 1.92                                   | 1.646                      | 2.01                       | 1.95                                   | 1.991                      |
| Adj-R-sq                  | .328                                   | .357                       | .343                       | .175                                   | .177                       |

Note: the results presented here were standardized  $\beta$  with standard errors in parentheses with unstandardized coefficients in bracket [ ], and standard errors in parentheses ( ).

\*\*  $p < .01$ ; \*  $p < .05$ ; a  $p < .10$ .

### *Final Model*

The final model presented in Table 20 was generated by a backward step-wise regression analysis that takes into account network-level predictors, technology-related predictors, as well as control variables. The final model not only allowed more precise estimates of the predictors, but also offered easier interpretation of individual predictors.

All results in Table 20 can be interpreted as the individual predictor's pure effect when all other predictors are equal. The standardized  $\beta$  means that when holding constant the other factors, a 1-point change in the standard deviation of the independent variables predicts a  $\beta$ -amount of change in the participants' English self-confidence. For instance, all other factors being equal, the participants would increase 0.26 in their English self-confidence (equivalent of a semester share of increase in the participants' English self-confidence), if their use of host media were one standard deviation higher. Compared to the aforementioned three models (language resource model, language norm model and technology model), the explanatory power of the final model (Adjusted  $R^2 = .42$ ) was higher than the language resource model (Adjusted  $R^2 = 0.22$ ), the language norm model (Adjusted  $R^2 = 0.20$ ) and the technology effect model (Adjusted  $R^2 = 0.33$ ). In other words, the final model had a better ability to explain the outcome's variance and predict the English self-confidence among the participants than the former three models.

In a comparison of the final models across the four *subskill* models and *overall* confidence model, the final model of *overall* English confidence had the best prediction power (Adjusted  $R^2 = 0.42$ ), same as the *listening* model (Adjusted  $R^2 = 0.42$ ). Speaking and reading models had a lower explanation power (Adjusted  $R^2 = 0.28, 0.29$ , respectively). The *writing* model explains the least variation of the self-confidence in writing (Adjusted  $R^2 = 0.20$ ). This set of findings,

deserves further discussion in the next chapter, seems to imply that environmental factors (social contacts and technology) of language learning has a stronger impact on confidence in listening comprehension than other skills. It probably takes a longer period of time than a semester for environmental factors to exert a noticeable effect on skills such as speaking, reading, and writing which is more difficult to improve than listening comprehension.

Table 20 Final Regression Model of Participants' English Self-Confidence

|                                        | Overall                                | Listening                  | Speaking                             | Reading                                | Writing                              |
|----------------------------------------|----------------------------------------|----------------------------|--------------------------------------|----------------------------------------|--------------------------------------|
| Host Mass Media                        | .26**<br>[.175]<br>(.065)              | .20*<br>[.196]<br>(.095)   | .19 <sup>a</sup><br>[.162]<br>(.091) | .23*<br>[.195]<br>(.092)               | .21 <sup>a</sup><br>[.152]<br>(.083) |
| Family                                 | .37**<br>[.255]<br>(.072)              | .33**<br>[.333]<br>(.106)  | .26*<br>[.226]<br>(.101)             | .29*<br>[.250]<br>(.103)               | .25 <sup>a</sup><br>[.187]<br>(.093) |
| Home Friend<br>(home)                  | -.24*<br>[-.140]<br>(.064)             | -.24*<br>[-.200]<br>(.096) | -.20<br>[-.146]<br>(.090)            | -.18<br>[-.131]<br>(.090)              | -.07<br>[-.045]<br>(.082)            |
| Social Talk<br>(hobby, go out)         | -.31*<br>[-.018]<br>(.009)             | -.20<br>[-.018]<br>(.013)  | -.27<br>[-.020]<br>(.012)            | -.30 <sup>a</sup><br>[-.022]<br>(.012) | -.21<br>[-.014]<br>(.011)            |
| Network Size                           | .41**<br>[.093]<br>(.032)              | .31*<br>[.104]<br>(.047)   | .16<br>[.044]<br>(.032)              | .45**<br>[.132]<br>(.046)              | .38*<br>[.094]<br>(.041)             |
| % of Speaking<br>English<br>(weighted) | .18 <sup>a</sup><br>[.020]<br>(.011)   | .19*<br>[.031]<br>(.016)   | .23*<br>[.032]<br>(.015)             | .20 <sup>a</sup><br>[.029]<br>(.016)   | -.11<br>[-.013]<br>(.014)            |
| Time 1 English<br>Confidence           | .41**<br>[.308]<br>(.071)              | .46**<br>[.402]<br>(.085)  | .44**<br>[.317]<br>(.075)            | .34**<br>[.303]<br>(.096)              | .28**<br>[.208]<br>(.081)            |
| Cultural Event                         | -.16 <sup>a</sup><br>[-.100]<br>(.058) | -.22*<br>[-.195]<br>(.085) | -.09<br>[-.066]<br>(.081)            | -.11<br>[-.082]<br>(.083)              | -.09<br>[-.061]<br>(.074)            |
| Intercept                              | 1.549                                  | 1.241                      | 2.009                                | 1.141                                  | 1.754                                |
| Adj-R-sq                               | .423                                   | .423                       | .284                                 | .290                                   | .202                                 |

Note: the results presented here were standardized  $\beta$  with standard errors in parentheses.  
 \*\*  $p < .01$ ; \*  $p < .05$ ; <sup>a</sup>  $p < .10$ .

In the *overall* model in which overall English self-confidence was the outcome, unsurprisingly, overall English self-confidence was significantly and positively predicted by host mass media usage (standardized  $\beta = .26$ ,  $p < .01$ ), family contact (standardized  $\beta = .37$ ,  $p < .01$ ), and network size (standardized  $\beta = .41$ ,  $p < .01$ ). It was also expected that home friend contact (standardized  $\beta = -.24$ ,  $p < .05$ ) turned to be a negative predictor: more home friend contact leads to lower self-confidence in English. What's unexpected was social talk (standardized  $\beta = -.31$ ,  $p < .05$ ) as a significant negative predictor, which means the more social talk the participants were engaged in, the less confident they were.

The proportion of social ties who could speak English was a marginally significant and positive predictor (standardized  $\beta = .18$ ,  $p < .10$ ), which means that more English speaking social contacts lead to slightly higher English confidence. However, the proportion of English native speakers was not included in the final model, which provides a partial answer to a question raised in the literature review: whether international students' English learning environment should target only at English native speakers or include both native and non-native speakers. Two points could be drawn from the finding that the proportion of English speaking social ties rather than the proportion of native English speaking social ties as a significant positive predictor: 1) non-native speakers also matter in developing English self-confidence; 2) international students' language learning environment might as well include both native and non-native speakers.

In the *listening model*, the significant positive predictors were host mass media use, family contact, network size, the proportion of English speakers (both native and non-native) and prior

English confidence. The negative predictors were home friend contact and cultural event participation.

Interestingly, social talk which was negatively associated with the overall English confidence (standardized  $\beta = -.31$ ,  $p < .05$ ) became insignificant for listening skills (standardized  $\beta = -.19$ ,  $p > .10$ ), suggesting that social network had less negative effects on the participants' confidence in listening comprehension. Meanwhile, cultural event participation seemed to have a particularly stronger negative impact on confidence in listening comprehension (standardized  $\beta = -.22$ ,  $p < .05$ ).

In the *speaking* model, while host mass media remain as a strong predictor (standardized  $\beta = .17$ ,  $p < .10$ ), its impact on speaking was weaker than that on listening (standardized  $\beta = -.18$ ,  $p < .05$ ), suggesting that mass media may be more beneficial for language input than output. Family contact remained equally strong on speaking self-confidence. Regarding the language norm effect on speaking confidence, the proportion of English speakers, including both native and non-native speakers, had a slightly stronger positive effect on speaking confidence (standardized  $\beta = .23$ ,  $p < .05$ ) than on overall English self confidence (standardized  $\beta = .19$ ,  $p < .10$ ).

Regarding the *reading* model, an interesting finding was that network size became the most powerful predictor (standardized  $\beta = .45$ ,  $p < .01$ ), even stronger than prior English self confidence (standardized  $\beta = .34$ ,  $p < .05$ ). This finding indicates that a larger network increases one's confidence in reading skills which could be possibly due to a larger or more diverse language and cultural exposure that one gains from a relatively expansive network. Host mass media and family contact have a positively but weaker effects on reading confidence than for overall English confidence. Social talk had a similarly negative effect on reading confidence

(standardized  $\beta = -.30$ ,  $p < .10$ ) as its effect on overall English confidence (standardized  $\beta = -.31$ ,  $p < .05$ ).

Finally, the *writing* model revealed that writing confidence was less likely to be influenced by technology use, language exposure and language norm. The only statistically significant predictor was network size (standardized  $\beta = .38$ ,  $p < .05$ ). Those significant and positive predictors for overall English confidence, such as host mass media, family contact and prior English confidence, became marginally significant for writing confidence. Meanwhile, the negative effects of social talk and home friend for overall English skills disappeared on writing confidence.

### Summary of Findings

On the large-picture level, the study has two messages to offer. First, language adjustment is a process involves more than linguistic factors. Interpersonal and technology-related factors play a significant role in language adjustment. Second, as the Chinese saying “good medicine tastes bitter; helpful advice sounds harsh” suggest, solutions to boost English confidence, such as interpersonal conversation about hobby and culture, often come with side-effects that are difficult to anticipate and address. Specifically, the study has the following findings.

Final model of this study suggests a number of variables boosting English confidence of international students: host mass media, family contact, network size, and proportion of English speakers (both native and non-native) in one’s personal network.

Host mass media enhances English confidence because it provides cultural exposure and multi-modes (textual, pictorial, audio, video) language exposure. The cultural and language exposure embedded in mass media are unlimited in terms of quantity and authentic and content-rich in terms of quality, which makes them unbeatable compared to those exposure in traditional

text-books or interpersonal interactions. Furthermore, technology allows international students the convenience to access mass media anywhere and anytime and to digest the cultural and language information at their own pace.

Family contact improves English confidence because it provides the emotional support that is irreplaceable by the support from home country friends, ethnic friends, and host friends.

The larger one's personal network is, the more confidence one seems to have in their English skills. The positive effect of network size is noticeable because it is almost comparable to the effects of prior English self-confidence. The positive effect may stem from the confidence in one's communication skills (or pro-social personality) in general, regardless of communicating in English or in one's native language.

The more English speakers one has in one's network and the more frequently one contacts with these English speakers, the more confidence one has in their English self-confidence. Note that English speakers here include both native speakers and non-native speakers.

This study also disproved a set of variables suggested by the literature that is beneficial to language adjustment.

Social talk, contrary to previous studies, does not necessarily generate immediate benefits for international students' English self-confidence.

International students' language confidence benefits not just from interacting with native English speakers, but also non-native English speakers. In SLA literature, native English speakers are traditionally emphasized as the language model. Analysis on the language norm in this study shows that it is the % of English speakers, instead of native English speakers, that has a significant and positive effect on English confidence.

Residence length in the US does not play a significant role in language adjustment. Residence of length may increase the degree of psychological or social adjustment, but won't automatically make one well-adjusted in English. To hone the language skills, it needs years of practice.

Although home mass media does not advance one's English confidence, it does not undermine the students' English confidence either. Home mass media provide valuable complementary resources for international students to understand the host culture. It is also an important alternative for international students to learn English.

Regarding technology use patterns, the study suggests that online home community involvement does not make one less interested in involving in host community. It also indicates that online host community involvement does not necessarily entail abandoning home and ethnic community engagement. International students seem to be more interested in obtaining informational, emotional and recreational resources than in drawing geo-cultural borders in the technological space.

Finally, the study shows that the development of confidence in overall English skills and four subskills (namely, listening, speaking, reading, and writing) depends on different conditions and factors.

**Listening:** Confidence in listening can be boosted by using more host mass media (e.g., TV shows, news paper), a larger network size, a higher proportion of English speakers in one's network, and family contact via technology. The data suggests that social talk and cultural event participation can temporarily decrease the participants' confidence in English listening comprehension.

Speaking: Unsurprisingly, confidence in speaking is the most difficult to enhance among the four subskills. The findings suggest that the participants has higher confidence in speaking only when their network has a larger number of English speakers who frequently contact one another.

Reading: Similar as listening comprehension (which all belongs to input skills), confidence in reading comprehension can benefit from host mass media usage, family contact. A larger network size can be especially helpful to develop confidence in reading skills.

Writing: it is relatively a more challenging task to enhance confidence in writing. A larger network size seems to be the most influential factor to writing skills, even larger than one's prior writing skills. Technology use (host mass media and family contact) only has a marginally significant and positive effect on writing confidence.

## CHAPTER 5 DISCUSSION

This chapter presents a discussion about the main findings for the four research questions as well as the relevance of these findings for policy, practice and future research on international students' language adjustment. The chapter concludes with the limitations of the study and a summary of the main findings.

### Discussion of the Main Findings

#### *Language Resource Effect*

The first research question argued that English self-confidence benefits differently from various types of interaction because each type of interaction would generate different level of language complexity and different amounts of language resources. It has two null hypotheses:

Null H1a: Informal interactions in general neither increase nor decrease international students' English self-confidence.

Null H1b: There is no difference in the effects on international students' English self-confidence among the four types of informal interaction.

#### *Conclusions*

The first null hypothesis was not rejected. Informal interaction in general neither increased nor decreased English self-confidence, which poses some challenge to the literature that emphasizes the positive role of informal interaction in language learning. This finding, to be discussed in further details below, seems to imply that informal interaction as a whole may have little significant impact on language adjustment. It could be that the benefits of some type of interaction are cancelled out by other types of interaction. It could also be that the overall effect of informal interaction takes a longer time to emerge than a single semester.

The second null hypothesis was rejected, suggesting that interaction type and its embedded language resources have differentiated effects on English self-confidence. Specifically, in the final model predicting overall English self-confidence (Table 20, page 80), only social talk was included as the significant and negative predictor. The other three types of interaction – instrumental, language and religious – were not selected into the final model by the stepwise regression analysis. When the four sub-skills of English were analyzed separately with the final model, social talk remained negatively associated with speaking and reading at a marginally significant level ( $p < .10$ ). However, the negative effect of social talk was lifted on the participants' self-confidence in listening comprehension and writing.

It should be noted that the effect of “social talk” variable needs to be interpreted with caution. In the final step of the step-wise regression analysis of the model, standard effort for the variable “social talk” increased 33% from 0.009 to 0.012, which was an indicator of potential multicollinearity. This might render the estimate of the social talk effect on English self-confidence less precise than if the predictors were not correlated with one another.

### *Discussion*

The literature reviewed in this study has seldom differentiated the language benefits that are associated with various types of informal interaction. The findings of this study suggest that language benefits for international students vary with the interaction types. Social talk, in particular, exerts a potentially negative, rather than positive, effect on English self-confidence. The more social talk about hobby, culture, job, and personal worries in which the participants were engaged, the less confidence the international students seemed to have in their English skills. Although the social talk's negative effects, as discussed earlier, should be interpreted cautiously because of the relatively small sample size and the potential multicollinearity issue, it

is a challenge to the previous findings in the literature that suggest a positive effect of social interaction on L2 learning and a linear relationship between social interaction and L2 learning.

The negative effect of social talk becomes reasonable after taking into account the unique pattern of cross-cultural adjustment as well as the background characteristics of the participants. One of the most popular and widely studied patterns of cross-cultural adjustment is U-Curve Theory of Adjustment (Black & Mendenhall, 1991). According to Black and Mendenhall (1991), U-Curve theory of adjustment consists of four stages: 1) *honeymoon stage*, which often occurs at the first few weeks in the new culture when individuals are fascinated by the new culture; 2) *cultural shock stage*, lasting up to two years after entering the host culture, is a period of disillusionment and frustration as the individual must seriously cope with living in the new culture on a day-to-day basis; 3) *adjustment stage*, which is characterized by gradual adaptation to the new culture and learning how to behave appropriately according to the cultural norms of the host culture; 4) *mastery stage* in which the individual makes small incremental improvements in their ability to function effectively in the new culture (p. 226). The U-Curve theory is supported by empirical studies of international students and expatriates all over the world (see a review in Black & Mendenhall, 1991). However, the evidence for U-curve theory mostly focused on psychological, social, and emotional adjustment instead of language adjustment.

The negative effects of social talk on English self-confidence may reflect to some extent the cultural shock that the participants encountered in the host culture. The low self-confidence in English arises because there is a high ratio of feedback to the individuals that they are exhibiting inappropriate behaviors relative to the new and appropriate behaviors they have learned, coupled with a low utilization of modeled and observed behaviors that are appropriate in the new culture (Black & Mendenhall, 1991, p.238). Cultural shock starts as early as the first few months in the

host country and can last as long as two years in the host culture (Ward et al., 2001). The participants of this study stayed in the host country for an average of 12 months with a standard deviation of 11 months, indicating that a majority of the participants are likely to be in the stage of cultural shock in language adjustment.

A factor exacerbating culture shock and the negative effect of social talk is the cultural distance between home and host cultures (Hofstede, 2001; Black & Mendenhall, 1991). The greater the home-host cultural distance, the more difficult it becomes for the individual to adopt appropriate behaviors in the host society. Meanwhile, the greater the dissimilarity between home/ethnic community and host community, the greater the likelihood that the individual will see the models (host nationals) as less attractive and pay less attention to the behaviors modeled by host nationals (Herman, 1961). As a consequence, the less likely the individual is to accurately retain and reproduce new behaviors appropriate for the host culture (Black & Mendenhall, 1991). As discussed in Chapter 3 (Table 2 in page 39), all participants in the study come from collectivist cultures which have a large cultural distance from American culture on the individualism-collectivism dimension. It is not surprising that social talk undermines the participants' English self-confidence after they became more aware of the profound differences in cultural values between their home countries and America. Social talk might even discourage them to spend time in honing their language and cultural skills if they find the host nationals' behaviors and words offensive and host culture unattractive.

A second important finding for language resource effect is the positive role that other types of informal interactions potentially play in enhancing English self-confidence. The fact that instrumental talk, language talk, and religious talk have no significant negative effects on

English self-confidence is a sign that these types of interactions are at least not harmful to English self-confidence.

Furthermore, these three types of interactions might be potentially beneficial for English self-confidence. A piece of evidence for this proposition is that in the language resource influence model (Table 17 in page 74), the standardized betas for instrumental, language and religious talk were positive. The regression coefficient of religious talk was even marginally significant. There are a few studies on immigrant adaptation arguing that religious participation makes a significant contribution to positive adaptation of immigrant adolescents to American society by increasing the immigrants' social capital (e.g., knowledge of host language, value system, acceptable behaviors, pitfalls in social interaction) (Carl L. Bankston & Zhou, 1995). Further research is needed to better understand the effects of religion-related interaction on language adjustment.

Further support on the potentially positive impact of the other three types of interaction is that when these three types of interaction were added to a simple language resource influence model that originally included only social talk as a predictor, social talk turned from a positive predictor to a negative predictor. An explanation for this change in the sign of regression coefficient is that the initial positive effect of social talk might have captured the positive effects that should have been predicted by the other three types of interaction.

In addition, there is a theoretical reason to believe that the other types of interaction might be potentially valuable for language adjustment. Multiple channels of informal interaction provide different language exposure that helps language learners to better retain situation-specific language behaviors that are appropriate in the host society. Generically similar language situation usually require very different language expressions in specific situations (e.g., greeting

close friends vs. greeting clients) (Gor & Long, 2009). L2 learners need abundant opportunity to observe and practice repeatedly how one is supposed to respond linguistically and behaviorally to diverse language situations, so that they can effectively internalize those situationally appropriate expressions and behaviors. This way the other types of informal interaction might be able to cancel off some of the negative effects associated with social talk on the development of language confidence.

In fact, different types of interaction are to some extent equivalent to resource generators. This idea is in parallel with the notion of *position generator* that Nan Lin argues in his social capital theory (Lin & Dumin, 1986). In Lin and Dumin's study, Lin states that individuals obtain different kinds of social capital in their career advancement from social contacts occupying different positions that hold diverse and valuable resources (occupational statuses, authority position, industrial sectors, etc) Knowing four people occupying four different social positions oftentimes generates a greater amount of and diverse types of social capital than knowing five people in the same social position. Likewise, within the same amount of time, a simultaneous involvement in four types of informal conversation provides more diverse and novel language situations and exposure for international students than an involvement in a single type of interaction. Thus, it is important for international students and the university staff and faculty members to become aware of what *language resource generators* are available and to provide multiple options of resource generators for international students with different language needs.

### *Implications*

An implication is that future research needs to explore the possibility that stages might exist in the course of international students' language adjustment. It would be interesting to understand if the stage of adjustment is a phenomenon universal to international students or

limited to specific groups of students. Treating language adjustment as a stage-wise phenomenon is helpful for researchers to identify key factors at different stages of language adjustment. Stage-oriented research is also helpful to identify the factors that are of value to shorten the *culturel shock* stage, so that international students can make a smoother and faster adjustment in that specific stage.

Meanwhile, it is worthwhile to further explore whether international students experience universally a u-curve adjustment including the aforementioned four stages. More research is necessary to understand whether the relationship between contextual factors such as informal interaction and language adjustment is linear or nonlinear.

A second implication is that future research should take into account interactions in multiple situations rather than clustering multiple types of interaction together. This approach is conducive for researchers to identify a number of language resource generators that are essential for language learning. At the same time, the negative effect of social talk needs to be confirmed by replication studies. The potential contribution from religious interaction, which is unsupported by the present study, needs further attention in future study.

Practically, university administrators and faculty members who support or work with international students need to have a realistic expectation of the role of informal interaction in international students' language adjustment. Social interaction is theoretically beneficial to language learning, however, the language benefits may come with psychological and emotional side-effects that might eventually suppress international students' desire to interact with host nationals. The psychological side-effects of informal interactions can be easily overlooked by the host nationals who are willing to engage international students in social interactions. Without the awareness of psychological and emotional burdens of social interaction for international students,

the enthusiasm of those host nationals who willingly extend a helping hand may be hurt when they notice that international students withdraw or avoid their invitation to conversations or social activities.

It is also important to educate international students from the beginning, in the orientation program, for example, about both the opportunity and challenges of exploring and engaging with the local community during the first two years in the host culture. It may help international students to understand that 1) it is normal to feel frustrated during the initial stage of interaction with the local community, 2) it is critical to persist despite of the negative feelings they may experience when interacting with host nationals, and 3) most important, personal efforts would make a difference in facing language challenges.

An experienced instructor of a graduate-level seminar shared with the author in a personal communication about the different strategies that the international students in his class undertook in the face of uncomfortable experiences of classroom discussion. The instructor said that *“...Some students respond by never speaking again. Others respond more constructively by recording the discussions, coming more prepared, writing their comments down ahead of time, and so on.”* It would be helpful to invite faculty who have extensive experience with international students and senior international students to share useful strategies to overcome the cultural shock in their language adjustments with newly arrived international students. As cliché as it may sound, it could not be more true when it comes to language learning that it takes time, experience, self-reflection, and patience to prevail those challenging and sometimes painful moments. However challenging it could be, qualitative change in the overall language confidence and proficiency is eventually brought about by the numerous errors and lessons that one accumulated in real life language exchanges and practices.

Meanwhile, it might be valuable for intervention programs to focus on providing opportunity for multiple types of language interactions. The existence of multiple language resource generators not only provide a diverse range of language models for international students to observe and imitate. More important, multiple language resource generators can balance one another's up and down sides, so that international students are less likely to be frustrated by certain type of interaction.

#### *Language Norm Effect*

To test if language norm exerts an effect on English self-confidence, two hypotheses were proposed:

H2a) an international student's English self-confidence increases when his or her network has a higher proportion of English-speaking individuals;

H2b) an international student's English self-confidence decreases when his or her network has a higher English tie density.

#### *Conclusions*

The first hypothesis was partially supported by this study. Controlling for participants' prior English confidence, language resource exposure, and technology use, a higher proportion of English-speaking social contacts was shown to be a significant and positive predictor for confidence in speaking skills. The effect of the proportion of English speaking contacts was moderate for overall English confidence, and the confidence in listening and reading (Table 20 in page 70). Network size had a strong effect (beta of 0.41) comparable to prior English confidence (beta of 0.41), both of which were significant. However, the proportion of English native speakers was not a significant predictor for English self-confidence.

Support was not found for the second hypothesis that argued that English tie density decreases English self-confidence. English tie density was not selected into the final model by the regression analysis.

### *Discussion*

The study found partial support that English self-confidence increases with the proportion of English-speaking social contacts weighted by contact frequency. In other words, when two networks have the same network size, the more English speaking individuals (regardless being native speaker or non-native speakers) one and the more frequently one talks to these English-speaking social contacts, the more confident one seems to become about their English skills. Additionally, the larger one's network size, the more confidence one has in English skills.

Social pressure is a potential reason why language norm (indicated by the proportion of English speaking individuals) influences international students' English self-confidence (Frank et al., 2004). Social pressure to conform to the group norm of English-speaking seems higher for those participants who have a higher contact frequency with English speaking individuals. In other words, English speaking social contacts, with whom one contact more frequently or share a stronger tie, provide a potentially stronger social pressure for international students to adopt English language (Note: in some social network studies, high contact frequency is as one of the proxies of a strong tie strength, though researchers have an ongoing debate about how valid to measure tie strength with contact frequency, see (Peter V. Marsden, 1990; Peter V. Marsden & Campbell, 1984) for instance).

Another plausible reason for the positive effects of language norm on English self-confidence has to do with group identification, an issue not addressed directly in the present study but worth further exploration. In a cross-cultural situation where international students live

simultaneously in two or more cultures, language becomes a crucial indication of group identification and group preference (Herman, 1961; Jia & Aaronson, 2003). On arrival, there are difficulties of using the host language but also satisfaction in being able to take the first step of identifying with local people by using the host language. Meanwhile, there is a strong need and desire to maintain one's ethnic identification and cultural roots by using ethnic language. This is the case with the aforementioned study by Jia and Aaronson (2003) where the older Chinese immigrant adolescents in the U.S. chose to speak Chinese with their Chinese friends more often because the Chinese identity remains as an important part of their personal identity, whereas the younger Chinese immigrant children preferred English over Chinese, because they want to be the same as their American friends. Thus, group identification may play a critical role in language choice and language confidence.

The study reveals that neither the number nor the proportion of *English native speakers* turn out to be a significant predictor for English self-confidence. This finding echoes with SLA researchers who argue that native speakers are not the only available and appropriate models of the target language to be mastered (Cook, 1999). As Cook notes, non-native speakers of English, including conationals and multinational friends, may be good language learning partners, because they can share learning resources, tips, and lessons, and provide timely suggestion and support in face of frustration.

Native speakers sometimes are not necessarily better language models than non-native language speakers, although language educators and learners often take for granted that the only appropriate language models are native speakers (Cook, 1999). Research suggests L2 learners pick up more and faster linguistic information, such as phonological information, when they practice the target language with someone who is a non-native speaker but shares an accent with

the learner, compared to the linguistic information that they picked up during their practice with native speakers (Leikin, Ibrahim, Eviatar, & Sapir, 2009).

Second, native speakers of English are not necessarily aware of certain aspects of the language that they are speaking everyday, such as grammar rules in formal terminology, whereas non-native language speakers can explain grammatical rules in formal way because it is part of their language learning process (Cook, 1999). Conscious awareness of language rules and production process might give non-native speakers an advantage as language learning partners. Meanwhile, given that the rapid changes in speaking and writing system of English in the web 2.0 era, English native speakers are not necessarily a better model of spelling, speaking, and writing than fluent English non-native speakers (Thurlow & Brown, 2002).

Moreover, non-native speakers who can fluently communicate in both the second language and native language can be very creative with the second language, which serves as a unique kind of inspirational role model for beginning-level language learners (Cook, 1999). For example, in the list of 20 writers under 40 years old issued by the New Yorker magazine in 2010, seven out of twenty (35%) writers are foreigners from all over the world (Nigeria, Peru, Latvia, China, Ethiopia, Yugoslavia, and Russia) (New Yorker Editors, 2010). In 2006, four out of the six coveted book prizes went to novels written in French by non-French authors (Riding, 2006). The foreign accomplished writers are credited with their unique style by bringing their culture and background to the adopted language. Although these accomplished writers are rare exceptions, there is no lack of examples of fluency non-native speakers who are creative language producers in daily life or work. It would be emancipating for L2 beginners to model after successful non-native speakers to become a creative language user, rather than aiming single-mindedly at imitating native-speakers. There is nothing wrong, of course, to imitate native speakers' accent,

vocabulary, and expressions. However, for adult international students, it is sometimes an impossible goal to reach the level of native speakers in some aspects of language learning, such as pronunciation. Such unrealistic goals could impose unnecessary burdens that are harmful to language confidence because it would always make L2 learners to see themselves as failed imitators of native speakers.

The study found no support for the disadvantages of language norm on English self-confidence. English tie density had neither positive nor negative predictor for English self-confidence. This contradicts Smith's (1996) argument that a dense network might seclude the expatriates sufficiently to prevent exposure to new vocabulary, phrasings, and sociolinguistic situations which result in lower English proficiency. It also provides no support for Schumann's (1978) assertion that smaller interpersonal distance leads to language acquisition. A possible reason for the insignificant results for English tie density in this study is that the benefits of close-knit network on language learning, such as providing a psychologically secure environment where one feels free to make mistakes without fear of embarrassment, is cancelled off by a dense network's disadvantage of providing limited language resources.

### *Implications*

There are a number of implications for future research on language norm and language adjustment. First, it is worthwhile to explore whether international students adopt host language because they feel obligated to conform to the language norm of the host society or because they are willing to do so because they have a desire to seek group identification in the host society. Meanwhile, social network research suggests that social pressure is most likely to flow from those with greater expertise to those with lesser expertise (Frank et al., 2004). It would be helpful to know if social contacts with higher English fluency exert higher social pressure, and how

international students react to the external pressure to conform linguistically, and whether or not the resultant high social pressure is beneficial to English learning.

Second, it would be a misleading oversimplification to say that the more one speaks English, the more one wishes to have a group identification with the host society, and conversely, the frequent use of home language and deep involvement in the home society signifies an unwillingness to enter the new society (Herman, 1961). A question to be addressed in future study is to explore how much international students desire to identify with the host nationals. A related question is whether language choice provides cues of group identification and contributes to a sense of belonging to local community. Meanwhile, qualitative research would provide in-depth information on how successful cross-cultural adapters balance between ethnic language loyalty and host language adoption, between ethnic community attachment and host community fitting-in.

Third, the actual linguistic effects of language norm vary with language learners' personality. The final model indicates that English confidence increases with network size, which might be due to the fact that students with larger network size may have a pro-social personality and have more confidence in their communication skills in general. Thus, it is necessary to explore the interaction effect between language norm of the interpersonal environment and individuals' personality as well as communication skills.

Fourth, it is important to include non-native speakers as an alternative language role model in SLA research. It is especially helpful to identify the unique linguistic contributions on language learning from non-native speakers that are otherwise unlikely to be provided by native speakers.

From the language norm perspective, there are implications for intervention programs serving international students' language learning as well. The findings suggest that building a social environment with a stronger norm of host language may accelerate the speed at which international students adopt English or the host language. The external social pressure is especially important for those students who are more passive in socializing with host nationals and less active in seeking opportunity to practice the host language.

University-based language supportive programs have relied primarily on involving native speakers of host language. For example, the peer program explored in Abe's (1998) study, which pairs up international students with domestic American students, is widely applied across American universities. The findings from this study suggest that supportive programs should not only include native speakers, but also involve other international students who are more fluent in host language and more knowledgeable of the host society and the host institute.

### *Technology Effect*

The third research question tests the following hypothesis:

H3: There is a mutual exclusivity between home technology use and host technology use.

The fourth research question explores the effects of technology use on English self-confidence with the following hypotheses:

H4a: Host mass media consumption results in a higher English self-confidence among international students, whereas home mass media consumption results in a lower English self-confidence.

H4b: Host friend contact results in a higher English self-confidence among international students, whereas family contact and home/ethnic friend contact result in a lower English self-confidence.

### *Conclusions*

The hypothesis regarding the exclusivity between ethnic technology use and host technology use was not supported. The correlations were positive between ethnic technology use and host technology use at both interpersonal level and mass media level. However, paired sample *t*-tests revealed that the participants used technology to read about home country more often than they read about host country on mass media. Additionally, the participants used technology to contact their home friends and ethnic friends in the host country more often than they contacted host friends with technology.

Hypothesis 4a was partially supported by this study. As Table 20 shows, host mass media was a positive and significant predictor for self-confidence in overall English skills and four sub-skills. However, home mass media had no negative effects on English self-confidence as the hypothesis predicted.

Regarding hypothesis 4b, host friend contact had no significant effects on English self-confidence. Home friend contact had a negative effect on the outcome, whereas family contact turned out to be a significant and positive predictor for English self-confidence.

### *Discussion*

There has been a concern that international students' deep attachment to ethnic community and home country prevents them from becoming an integral part of the host society (Ward et al., 2001). The concern is heightened when the Internet and other technology come into play, as technology makes it easier than ever for international students to keep in touch with their home community (Kim et al., 2010).

The findings from this study indicate that ethnic technology use is not necessarily in competition with host technology use in terms of time, attention and interests of international

students. Those international students who use ethnic technology are not less likely to use host technology than those who do not use ethnic technology.

This finding is in consistent with an idea advocated by several researchers that integration into one culture does not necessarily entail abandoning another (Gezduci & d'Haenens, 2007). The Internet and other technologies create an open space where borders can be crossed and multiculturalism can be celebrated (Fogt & Sandvik, 2008). Technology creates a space that not only allows one to track home and host society, but more important, transcends national boundaries and cultural identity (Kim et al., 2010). In such kind of space international students can conveniently compare and negotiate cultural differences that might be impossible several decades ago when the world was not wired with technology. For example, when Iranian president visited the United States, international students originally from Iran may encounter two or more than two drastically different sets of news coverage and public discussion regarding the event by accessing their home country media and by accessing American media. The multiple perspectives made accessible by the Internet are powerful for international students to understand their host and home country better. Similar situations as this example could happen to international students from any country as well as American domestic students. The open and multicultural space afforded by the Internet makes it possible to let cultural differences come into contact and conflict, which plays out right in front of the students on the screen.

This study also indicates that there is a strong attachment to ethnic and home community among international students, and technology may reinforce the home culture attachment by its convenience in providing news and information on home society. Although there is no exclusivity between ethnic and host technology use, there is a remarkable difference in the amount of usage between ethnic technology and host technology. The participants used ethnic

technology (both mass media and interpersonal contact) with a greater amount than they used host technology. Fogt and Sandvik (2008) also discovered that the most frequently-used Internet service among adolescent diasporas in Norway is emailing family, friends, and acquaintances residing in the home and the host countries. There is an especially large gap between the mean technology-based home society involvement (the mean was 3.5 which means somewhere between once a week and once a day) and offline host involvement (e.g., student organization, Greek society, sports club, and cultural events) (the mean was 2 which means roughly once a month).

It should be noted that using technology to contact ethnic community is not necessarily detrimental to language adjustment. To some extent ethnic technology use could be beneficial for international students' adaptation in the host country, because ethnic technology use is also an important means by which one learns norms and values of the host society (Gezduci & d'Haenens, 2007; Peeters and d'Haenens, 2005). This is probably the reason why this study found no negative association between home mass media and English self-confidence.

The study identified a significantly positive effect of host mass media on English self-confidence, which has been highlighted in the literature (Y. Kim, 2001; Melkote & Liu, 2000; Qian, 2009; C. Yang, Wu, Zhu, & Southwell, 2004). From the perspective of gratification theory (Bryant & Miron, 2004), international students are found to use host mass media mainly to fulfill acculturation needs. Host mass media provide immediate channels for international students to improve their listening skills, vocabularies and other knowledge about the host language. Meanwhile, it is a critical venue for them to learn the local cultural norms and value system better, which is important to language proficiency.

Host mass media is particularly vital for newly arrived international students to learn host language who have little social capital to access local people, information, and resources. On top of that, newly arrived international students are very likely to have a high degree of anxiety and uncertainty in interpersonal communications (Kim, 2001). In fact, a qualitative study on international students in Canadian universities shows that roughly 50%-70% of information the participants needed was obtained from host mass media, rather than directly from host nationals (Qian, 2009, p.237).

Although host mass media is a useful alternative as less stressful channel to improve English and knowledge about host society, Qian (2009) pointed out that the overall acculturative function of mass communication was relatively limited, less detailed, less personalized, and could provide little opportunity for instant and direct feedback. In addition, mass media can be loaded with bias, stereotypes, and unfaithful portrait of the host society and culture.

Host friend communication, on the other hand, offers a more direct way than mass media in terms of practicing host language and receiving timely feedback during language practice. This study, however, fail to find support for the link between host friend contact and English self-confidence. The results presented in the final model (Table 20) shows that host friend contact had neither positive nor negative effects on English confidence.

There are a number of possible reasons for the insignificant effect of technology-based host friend contact. First, it may takes a relatively longer time than three months for international students to build the kind of strong relationship with host nationals that can have meaningful impact on English confidence. Second, technology-based friendship with host nationals could be skin-deep than friendship with host-nationals in real life (K.-H. Kim et al., 2010; Kraut et al., 1998). Kim et al. (2010) found that the international students in South Korean did not appear

willing to spend the considerable time and effort required to form deep interpersonal relationships with South Koreans because their daily activities centered on goal-accomplishing activities. Third, limited English communication skills are another barrier for the participants to build deep relationship with host nationals. Thus, both the objective conditions (e.g., limitation in time) and subjective reasons (e.g., limited English skills, less willing to investing time to build strong relationship) result in insignificant effects of host national contact on English self-confidence.

A paradoxical finding was that family contact had a positive effect whereas home friend contact had a negative effect on the participants' English self-confidence. The benefit of family contact is not difficult to interpret, because family provides strong emotional support that is indispensable for international students, particularly at the early stage of their life in the new society. In addition, the participants in this study are on the low end of language proficiency, considering their scores on the university-based English placement test and the fact that they were enrolled in the English Remedial Program before starting academic degree and programs. Comparing to other international students with better English proficiency, this group of students may have a greater need for family members' encouragement to go through this difficult phrase of language adjustment.

It is puzzling to see a negative effect associated with home friend contact. On the one hand, maintaining an excessive close relationship with friends in the home country can potentially decrease one's English confidence and skills, if home friend contact decreases the interest of international students to build friendships with host friends and the opportunity to practice English. On the other hand, since friends residing in the home country serve as a source of

emotional support as family members do, it makes theoretical sense that home friend contact should at least be unharmed, if not helpful, to the students' English confidence.

A plausible reason that the participants' confidence fell as home friend contact increases is the contrasting situations before and after the participants arriving the host country, and the different situations facing themselves and their friends at home. Before arriving in the host country, the participants were likely to be elites or the ones who had high self-esteem because they had the ability, resources and opportunity to receive advanced education abroad. Arriving in the U.S. made them to face the tough reality that they were not qualified to start the academic program immediately and had to take an English remedial course, which could be depressing to their initially high self-esteem. At the same time, the participants might subconsciously make a comparison between their home friends and themselves. Situations for their home friends may remain the same, however, their own status seemed to fall from being an elite to someone falling behind the average student in the host institute. Some may ask why international students would keep comparing themselves to others if such comparison decreases their self-confidence. For international students from collectivist cultures, interpersonal comparison is a distinctive characteristics of collectivist culture where an important part of self-value stems from such kind of interpersonal comparison. Thus, the more contact they have with home friends, the less confidence one could possibly become in their English skills.

### *Implications*

The findings on technology effect on language adjustment have a number of implications for international students as well as the design of language intervention programs. First, given the strong and positive effect of host mass media on the development of language confidence, host mass media should be employed as an effective channel for international students to learn

about host society and host language. Host mass media might be particularly important for newly arrived students, because these students tend to have little social capital (e.g. interpersonal resources such as local contact people) and high level of anxiety about interpersonal communications.

In terms of the design of intervention programs such as language remedial courses, as what's already happened in many host universities, information on host country's radio, TV, newspaper, and the Internet should be included in the package handed out to newly arrived international students, and should be made readily accessible and noticeable on the university website.

What's less common in host universities is to design programs not only to facilitate newly arrived students to access and get used to the host media, but more important, to help them learn how to read between the lines and how to interpret host mass media. Vocabulary and linguistic skills related to host mass media might be taught in language remedial programs. However, it is also necessary for international students to build a deep understanding on host country's cultural values, social norms, and historic backgrounds, all of which are the key to better understand the host country's news stories. Host universities might be in a better position to help international students to initiate first contact with the "go-to" helpers, such as senior international students or American volunteers.

Second, it is important to further explore the effects of ethnic mass media's role in language adjustment. As mentioned earlier, the literature so far is inconclusive about the role of ethnic mass media in cross-cultural adaptation. The findings from this study suggest that ethnic mass media is neither helpful nor harmful to language adjustment. One reason might be that the time interval of this study (within one semester) is too short for the negative or positive effects to

emerge. Future research is needed to identify how ethnic mass media really impact language adjustment. Based on the findings from this study, ethnic mass media might be a valuable complementary tool for international students to learn about the host society and language.

Third, regarding technology-based activities at the interpersonal level, the findings suggest that what was expected to be harmful (i.e., ethnic friend (in host country) contact) might not be harmful, and what was expected to be helpful (i.e. host friend contact) might not be as helpful as expected. On the one hand, family contact turned out to have a predictive power equivalent of prior English confidence on the participants' language confidence. This indicates that it is important for international students to maintain one's existing personal communication networks. Family as a vital source of social and emotional support is fundamental for international students to settle down and to deal with expected and unexpected difficulties that they encounter in the host country.

On the other hand, host friend contact via technology turns to be an insignificant predictor for language confidence. This finding suggests that the potential benefits of host national contact do not easily emerge and come into effect. It might be helpful to utilize technology to expand one's host national networks, but technology does not necessarily make it easy to build deep relationships with host nationals. Such awareness should be raised among international students as well as university staff supporting international students. Technology might be a good complementary tool to initiate and sustain communication between international students and host national friends. However, to establish in-depth connections, technology should be utilized along with offline interaction.

The results on interpersonal-level technology effects should be interpreted cautiously though, because the study only explored language confidence change within four months, a short

period of time in the long process of language adjustment. Moreover, interpersonal-level technology usage is complicated and nuanced in terms of the participants' background, contents of conversation, the settings where communication takes place, etc. Survey study such as the current one is limited in its ability to uncover the details of interpersonal communication via technology. Thus, more research efforts, especially those of ethnographic and longitudinal nature, are important to better understand the effect of interpersonal-level technology use on language adjustment.

Fourth, this study also implies that home country-related technology use does not necessarily prevent international students from entering the host society, which is in line with recent studies on international students' technology use (K.-H. Kim et al., 2010). However, whether this result applies universally to all international students is still an open question.

In brief, these findings indicate that rather than being a singular tool, what technology really affords for language adjustment is a rich environment consisting of multiple channels, tools, spaces and communities. Whether it is family contact, home friend contact, host friend contact, host mass media usage, home mass media usage, all these technology-based activities probably have its own advantages and disadvantages. Thus, it might be more helpful to explore how to plan technology-based activities and customize technology environments in accordance to each international student's specific needs and backgrounds than being judgmental about whether or not technology as a whole is conducive to language adjustment.

#### *Development of English Subskills*

As the results on the development of confidence in English subskills (Table 20) indicate, informal interaction and technology had a stronger effect on listening and speaking than on reading and writing. As discussed in Chapter 2, informal interaction in f2f or online

environments by nature is more helpful to oral language skills such as listening and speaking. It takes relatively shorter time to improve listening and speaking skills than reading and writing skills, regardless of native or foreign languages.

The finding implies that there is no one-size-fit-all solution that can be equally effective in enhancing international students' self-confidence in all four subskills of English learning. This points to the necessity of building a system of language programs that addresses individual student's different language needs. For those who need to jump start on oral language skills, informal interaction via offline and online social networks might be a good option. For those who want to improve reading and writing skills, informal interaction and technology might not be as effective as expected. In terms of future research, it is important to take each aspect of English skills into account, rather than treating English self-confidence as a single-faceted concept.

#### Limitations of the Study

This study has several limitations. First, the study considered only international students' self-confidence in English as the outcome variable and an indicator of language adjustment, rather than the actual English proficiency. It is possible, however, that language proficiency itself is a function of individual and contextual variables that are different than the predictor variables for language confidence. Meanwhile, those with advanced English proficiency are not necessarily more confident than those with lower English proficiency. Thus, even though language confidence was presented as a desirable outcome in this study, it should be noted that language confidence is not in itself a guarantee of successful language adjustment in cross-cultural settings.

Another issue concerning the outcome variables is that while the study considered both overall English confidence and students' confidence in four individual subskills of English as the outcomes and used multiple items to create a composite for overall English self-confidence, only one item was used to generate the measure for the individual subskills, which has a concern of reliability.

Second, regarding independent variables, although the study made an effort to collect data on different types of informal interactions and technology-based activities, the data were primarily about the frequency and amount of informal interaction and technology usage. The data tell little about the actual contents of the participants' interpersonal interaction and technology usage. It is very likely that the quality of the actual interpersonal interaction and technology usage may either amplify or diminish the effects of the quantity of interpersonal interaction and technology usage.

Third, methodologically speaking, the study relied entirely on self-report by the students and it was not possible to check the veracity of their responses to the survey against their actual behaviors in the host institute and society. Reliance on self-report can be problematic and may threaten the validity of the findings. It is possible that the participants were biased in their replies, and that they may have felt uncomfortable or unsure in replying honestly to certain questions. For example, not all students have a clear-cut sense of their own self-confidence in using languages. Each participant may have their own definition of being self-confident. Meanwhile, self-report survey was limited in generating in-depth information on the process and contents of informal interaction and technology usage as well as students' concerns and thoughts about their experience with their personal networks and technological environments. Furthermore, the name generator and name interpreters, designed to generate social network data, might have been

cognitively challenging and time-consuming for the participants, which could possibly influence the quality of the students' responses to the survey.

Lastly, the study was conducted among the international students studying at the English Learning Center who tended to be less proficient in terms of their language skills than international students who are ready in regular degree-seeking programs after arriving in the host country. The sample size was relatively small which made the regression analysis limited in its explanatory power. In addition, the majority of the participants' country of origin belongs to a collectivist culture which exerts a distinctive impact on language and cultural adjustment. Because of these particularities of the participants, care must be taken in generalizing the findings of the study beyond the participants examined by this study.

### Conclusions

This study investigated the key factors that might enhance international students' confidence in English in general and four sub-skills in particular (i.e., listening comprehension, speaking, reading and writing). Specifically, the study investigated the effects of language resource, language norm and technology usage on the students' English self-confidence. The underlying assumption of the study is that international students' English self-confidence is build upon both their intrinsic characteristics and the behavior and attitudes of the individuals that they interact with (Frank, 1998). Drawing upon social network perspective, this assumption was investigated by a set of social influence models.

Three models were proposed based on an extensive review of the available literature on second language acquisition, computer-mediated communication, social influence theory, and cross-cultural adjustment: language resource model, language norm model and technology effect model. The models included the following three groups of variables as possible predictors of

international students' English self-confidence: language-resource influence model variables (instrumental talk, social talk, language help, and religious talk), language-norm influence model variables (proportion of English speakers, English tie density, network size), and technology effect model variables (home mass media usage, host mass media usage, family contact, home friends contact, ethnic friends contact, host friends contact). Additionally, the models controlled for three variables, including prior English self-confidence, residence length in the U.S., and local community involvement. Data were obtained by administering surveys twice to the same group of respondents at the beginning and end of the spring semester of 2010. The survey contained structured questions on the participants' technology use, demographic characteristics, as well as their social networks.

Despite its limitations, the findings of this study fill in a number of the gaps in the literature as discussed in Chapter 2. The main findings are as follow:

- Regarding language resource effect, different types of informal interaction exert different level of impact on international students' self-confidence in English. Social talk turned out to be a significant and negative predictor for English confidence, whereas the other three types of interaction (instrumental talk, religious talk and language talk) neither decrease nor increase English confidence.

The negative impact associated with social talk poses a challenge to a dominant assumption and claim in the literature that social interaction is conducive to language learning. Meanwhile, it points to a possibility that international students might go through different stages of language adjustment.

- Regarding language norm effect, English confidence increases as the proportion of English speaking individuals in a student's network increases. Both native and non-native English

speakers are valuable in establishing a language environment with a strong norm of English speaking.

- In terms of technology effect, host mass media usage plays a significantly positive role in boosting international students' English confidence, so does family contact which provides emotional support to build self-confidence in host language. Home friend contact has a negative effect on language confidence, however, host friend and ethnic friend contact did not exhibit significant influence on language confidence development.
- As to the mutual exclusivity between home and host technology usage, this study found no evidence to support the existence of mutual exclusivity between home technology use and host technology use. However, there is a strong support that international students are more technologically involved in ethnic community than in host community.
- As far as language subskills are concerned, listening and reading confidence received a stronger influence from informal interaction and technology use than reading and speaking confidence.

The following lessons can be drawn from this study for future research.

- It would be helpful for future research to make distinctions between different types of English skills, students at different stages of language learning, and students from different cultural backgrounds during examining language adjustment.
- Future research need to take into account the possibility that international students might pass through different stages of language adjustment, and each of these stages might be influenced by different sets of variables. A related issue is to understand whether these stages happen to all students or not.

- There is a need for future research to flesh out the actual process, experience, and concerns of international students regarding their interpersonal interaction in host country, technology-based activities and language adjustment.
- Given that English subskills received different degrees of influence from informal interaction and technology use, it is important to experiment with different kinds of designs of language and technology environments.

As the number of international students in the U.S. keeps climbing and exerts increasingly strong academic, social and cultural impacts on American campuses, efforts are being made to mobilize all possible resources, especially interpersonal communication and technology, to facilitate international students' language adjustment (Lee, 2010; Yum, 1982; Smith, 1996; Kim, 2001; Kim, 2010). Findings of this study have a number of implications for policy and practice as well.

First, in terms of interpersonal communication, the results of this study suggest that interpersonal communication has both pros and cons in the process of international students' language adjustment. This finding implies that university practitioners need to pay attention to the potential psychological burdens imposed on international students when they participate in cross-cultural communication, especially during the early stage of their adjustment. It is also important to prepare international students mentally and strategically for potential obstacles and challenges that they might encounter in interpersonal interactions with local people.

Meanwhile, university should not only recruit domestic American students but also senior international students in the design of intervention and supportive programs for newly arrived students. This strategy would not only keep senior international students connected in the host society. But more important, it provides newly arrived students with a network that not only help

them to get used to the host community's language norm cultural values, but also have easy access to ethnic community, which keep the newly arrived from being torn between host and home community.

Second, given that host mass media have a positive impact on language confidence of newly arrived international students, information about host country mass media, such as radio, TV programs, newspaper, and websites, should be made available and noticeable in orientation programs and online. More importantly, it is important for university to provide the kind of service and help that fosters international students' ability to understand and interpret the stories and information on host mass media.

While technology such as social media holds potentials of expanding international students' connection with host nationals, this study suggests that there is no guarantee that technology would necessarily create relationships strong enough to make an impact on English confidence and proficiency in a relatively short time period. The responsibility is on both university and students to utilize technology strategically along with other contextual factors to tailor language environments that addresses individual students' needs in language adjustment.

Third, it is necessary for practitioners and students to keep in mind that English involves multiple skills which might require different strategies and conditions. While social networks and technology might be especially helpful to foster listening and speaking skills, it is not necessarily the same case with reading and writing skills. Thus, there is a need for university-based intervention programs to be more fine-grained in terms of the specific skills that the programs focus on improving.

## APPENDICES

## Appendix A International Student Survey 1

ID (Internally Generated): \_\_\_\_\_

MSU International Student Campus Experience Survey (2010)

Please indicate the following information about yourself.

Your nationality: \_\_\_\_\_ Age: \_\_\_\_\_ Gender: Male \_\_\_\_ Female \_\_\_\_

How many credits have you taken at MSU? \_\_\_\_\_ credits

What is your high school GPA: \_\_\_\_\_; MSU grade average (GPA): \_\_\_\_\_

Do you work for pay on campus? Yes \_\_\_\_ No \_\_\_\_

Do you live on campus? Yes \_\_\_\_ No \_\_\_\_

What is your date of arrival in the U.S.? Year \_\_\_\_\_ Month \_\_\_\_\_

What is your TOEFL or IELTS score? TOEFL \_\_\_\_\_ / IELTS \_\_\_\_\_

What is your score for the English Placement Test at MSU? \_\_\_\_\_

Please put a circle on the number in the cell that indicates your agreement with the following statements, on a scale from 1 (disagree strongly) to 5 (agree strongly).

1 = disagree strongly; 2 = disagree somewhat; 3 = neutral; 4 = agree somewhat; 5 = agree strongly

|                                                  |   |   |   |   |   |
|--------------------------------------------------|---|---|---|---|---|
| I have confidence in my English writing ability. | 1 | 2 | 3 | 4 | 5 |
|--------------------------------------------------|---|---|---|---|---|

|                                                  |   |   |   |   |   |
|--------------------------------------------------|---|---|---|---|---|
| I have confidence in my English reading ability. | 1 | 2 | 3 | 4 | 5 |
|--------------------------------------------------|---|---|---|---|---|

|                                                   |   |   |   |   |   |
|---------------------------------------------------|---|---|---|---|---|
| I have confidence in my English speaking ability. | 1 | 2 | 3 | 4 | 5 |
|---------------------------------------------------|---|---|---|---|---|

|                                                    |   |   |   |   |   |
|----------------------------------------------------|---|---|---|---|---|
| I have confidence in my English listening ability. | 1 | 2 | 3 | 4 | 5 |
|----------------------------------------------------|---|---|---|---|---|

|                                                                   |   |   |   |   |   |
|-------------------------------------------------------------------|---|---|---|---|---|
| I have difficulty in seeing things from Americans' point of view. | 1 | 2 | 3 | 4 | 5 |
|-------------------------------------------------------------------|---|---|---|---|---|

|                                                            |   |   |   |   |   |
|------------------------------------------------------------|---|---|---|---|---|
| I have difficulty in making friends after arriving at MSU. | 1 | 2 | 3 | 4 | 5 |
|------------------------------------------------------------|---|---|---|---|---|

|                                                                     |   |   |   |   |   |
|---------------------------------------------------------------------|---|---|---|---|---|
| I have difficulty in communicating with people from other cultures. | 1 | 2 | 3 | 4 | 5 |
|---------------------------------------------------------------------|---|---|---|---|---|

|                                                                       |   |   |   |   |   |
|-----------------------------------------------------------------------|---|---|---|---|---|
| I have difficulty in seeing multiple sides of an intercultural issue. | 1 | 2 | 3 | 4 | 5 |
|-----------------------------------------------------------------------|---|---|---|---|---|

How often are you involved in the following activities since you came to MSU?

0 = never; 1 = once or twice/semester; 2 = once or twice/month; 3 = once or twice/week; 4 = once or twice/day; 5 = multiple times/day

|                                                                                              |   |   |   |   |   |
|----------------------------------------------------------------------------------------------|---|---|---|---|---|
| Read about your home country on the media (e.g. news, culture, history, entertainment, etc). | 1 | 2 | 3 | 4 | 5 |
|----------------------------------------------------------------------------------------------|---|---|---|---|---|

|                                                                            |   |   |   |   |   |
|----------------------------------------------------------------------------|---|---|---|---|---|
| Used phone or internet to contact your family members in your home country | 1 | 2 | 3 | 4 | 5 |
|----------------------------------------------------------------------------|---|---|---|---|---|

|                                                                             |   |   |   |   |   |
|-----------------------------------------------------------------------------|---|---|---|---|---|
| Used phone or internet to contact your friends staying in your home country | 1 | 2 | 3 | 4 | 5 |
|-----------------------------------------------------------------------------|---|---|---|---|---|

|                                                                                                            |   |   |   |   |   |
|------------------------------------------------------------------------------------------------------------|---|---|---|---|---|
| Used phone or internet to contact your friends from your home country who are currently living in the U.S. | 1 | 2 | 3 | 4 | 5 |
|------------------------------------------------------------------------------------------------------------|---|---|---|---|---|

|                                                                                                                        |   |   |   |   |   |
|------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|
| Used a mailing list or other forms of online groups that are developed for MSU students who are from your home country | 1 | 2 | 3 | 4 | 5 |
|------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|

|                                                                                                                            |   |   |   |   |   |
|----------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|
| Used a mailing list or other forms of online groups that are developed for Non-MSU students who are from your home country | 1 | 2 | 3 | 4 | 5 |
|----------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|

|                                                                                    |   |   |   |   |   |
|------------------------------------------------------------------------------------|---|---|---|---|---|
| Read about the U.S. on the media (e.g. news, culture, history, entertainment, etc) | 1 | 2 | 3 | 4 | 5 |
|------------------------------------------------------------------------------------|---|---|---|---|---|

|                                                                 |   |   |   |   |   |
|-----------------------------------------------------------------|---|---|---|---|---|
| Used phone and internet to contact your American friends at MSU | 1 | 2 | 3 | 4 | 5 |
|-----------------------------------------------------------------|---|---|---|---|---|

|                                                                            |   |   |   |   |   |
|----------------------------------------------------------------------------|---|---|---|---|---|
| Used phone and internet to contact your American friends not belong to MSU | 1 | 2 | 3 | 4 | 5 |
|----------------------------------------------------------------------------|---|---|---|---|---|

|                                                                      |   |   |   |   |   |
|----------------------------------------------------------------------|---|---|---|---|---|
| Played in a sports club/varsity/intercollegiate athletics on campus. | 1 | 2 | 3 | 4 | 5 |
|----------------------------------------------------------------------|---|---|---|---|---|

|                                             |   |   |   |   |   |
|---------------------------------------------|---|---|---|---|---|
| Participated in fraternity/sorority events. | 1 | 2 | 3 | 4 | 5 |
|---------------------------------------------|---|---|---|---|---|

|                                                          |   |   |   |   |   |
|----------------------------------------------------------|---|---|---|---|---|
| Participated in a student organization and its meetings. | 1 | 2 | 3 | 4 | 5 |
|----------------------------------------------------------|---|---|---|---|---|

|                                                                         |   |   |   |   |   |
|-------------------------------------------------------------------------|---|---|---|---|---|
| Participated in an ethnic/racial student organization and its meetings. | 1 | 2 | 3 | 4 | 5 |
|-------------------------------------------------------------------------|---|---|---|---|---|

|                                                                                                    |   |   |   |   |   |
|----------------------------------------------------------------------------------------------------|---|---|---|---|---|
| Attended a campus concert, artistic performance, cultural event on campus or at East Lansing area. | 1 | 2 | 3 | 4 | 5 |
|----------------------------------------------------------------------------------------------------|---|---|---|---|---|

Looking back over the past 6 months , who are the people with whom you discuss matters important to you or who are the person you really enjoy socializing with? Please think of as many as 10 people and write down their initials. (C indicates Contact; C1 = Contact 1; C10= Contact10)

|    |    |    |    |    |    |    |    |    |     |
|----|----|----|----|----|----|----|----|----|-----|
| C1 | C2 | C3 | C4 | C5 | C6 | C7 | C8 | C9 | C10 |
|----|----|----|----|----|----|----|----|----|-----|

Initials of your contact person

How much have you engaged this person in in the following activities on a scale from 1 (not at all) to 5 (great deal)?

1 = not at all; 2 = a little; 3 = moderately; 4 = very much; 5 = a great deal

|    |    |    |    |    |    |    |    |    |     |
|----|----|----|----|----|----|----|----|----|-----|
| C1 | C2 | C3 | C4 | C5 | C6 | C7 | C8 | C9 | C10 |
|----|----|----|----|----|----|----|----|----|-----|

Borrowed a large sum of money from this person

Chatted with this person in English

Asked this person to help you improve English

Talked about your hobbies with this person

Discuss about issues of current world affairs, culture , diversity,  
etc. with this person

Talked about personal worries with this person

Talked about your important decisions, such as job or academic  
pursuit with this person

Learned about or kept your religious practices together with this  
person

Had social activities with this person (e.g. party, go out for a  
walk/chat/coffee/movie/sports, etc. )

Please place an "X" in a cell if a pair of your social contacts know each other. (See example below)

Example:

|                                     | C1 | C2 | C3 |
|-------------------------------------|----|----|----|
| C1 knows C2 but C1 DOES NOT know C3 |    | X  |    |
| C2 knows C3                         |    |    | X  |
| C3                                  |    |    |    |

|    | C1 | C2 | C3 | C4 | C5 | C6 | C7 | C8 | C9 | C10 |
|----|----|----|----|----|----|----|----|----|----|-----|
| C1 |    |    |    |    |    |    |    |    |    |     |
| C2 |    |    |    |    |    |    |    |    |    |     |
| C3 |    |    |    |    |    |    |    |    |    |     |
| C4 |    |    |    |    |    |    |    |    |    |     |

C5

C6

C7

C8

C9

C10

How often do you discuss about important matters or socialize with this person on internet, phone or in person?

0 = never; 1 = once or twice/semester; 2 = once or twice/month; 3 = once or twice/week; 4 = once or twice/day; 5 = multiple times/day

C1 C2 C3 C4 C5 C6 C7 C8 C9 C10

In face-to-face meetings (unscheduled)

In face-to-face meetings (scheduled)

By phone

By email

By Internet (e.g. MSN, QQ, Facebook, Twitter, blogs)

Is your contact person listed here ... ? (indicate with 0 = no; 1 = yes; 2 = not sure)

Your family member

Same age range (e.g. approximate  $\pm 5$  years)

Speak English

From your home country

American citizen

From neither your home country nor the U.S.

Same gender

Same major

Your classmate

Same recreational/student organization club

Same religion

Same church/synagogue/temple/mosque

Roommate or neighbor (same floor, building)

Work colleague

Thank you very much for your participation.

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