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Better Speakers Make More Friends: Predictors of Social Network Development Among Study-Abroad Students

J Wyatt Brockbank
Brigham Young University - Provo

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J. Wyatt Brockbank

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Rob Martinsen, Chair
Cherice Montgomery
Dan P. Dewey

Department of Spanish and Portuguese

Brigham Young University

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ABSTRACT

Better Speakers Make More Friends: Predictors of Social Network Development Among Study-Abroad Students

J. Wyatt Brockbank
Department of Spanish and Portuguese, BYU
Master of Arts

Social network development has been studied in the social sciences for the last several decades, but little work has applied social network theory to study-abroad research. This study seeks to quantitatively describe factors that predict social network formation among study-abroad students while in the host countries. Social networks were measured in terms of the number of friends the students made, the number of distinct social groups reported, and the number of friends within those groups. The Study Abroad Social Interaction Questionnaire was compared against these pre-trip factors: intercultural competence, target-language proficiency, prior missionary experience, gender, study-abroad program, neuroticism, extroversion, agreeableness, openness to new experience, agreeableness, and conscientiousness. Results showed that pre-trip oral proficiency in the target language was the strongest predictor of the number of friends made in-country. Certain programs showed stronger predictive statistics in terms of size of largest social group, number of social groups, and number of friends made. A distinction is made between total number of friends and number of friends who are more likely to be native speakers. Neither intercultural competence nor personality showed a significant correlation with the number of friendships made during study abroad.

Key words: study abroad, social networks, predictors, dispersion, density, egocentric, social network analysis, study abroad social interaction questionnaire, SASIQ, OPI, IDI, NEO-FFI, BYU, China, Egypt, France, Mexico, Russia, Spain, Chinese, Arabic, French, Spanish, Russian, intercultural competency, intercultural sensitivity, social interaction, personality, language proficiency, neuroticism, extroversion, openness to new experience, agreeableness, conscientiousness, target language, second language, gender, returned missionary, missionaries, language use, correlation, regression

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J. Wyatt Brockbank
Brigham Young University

Chapter 1: Introduction

Metaphors for Social Networks

The idea of a social network is a powerful thing. It means people are connected to people, and thereby are empowered to extend their spheres of influence, and to breach stagnation. In karma-like fashion, network members can give in new ways, and receive from others what they may not have known existed.

Social networks are like fabric and knots because of how they interlock, and how the members are interdependent. They are like webs for the same reasons, and because one person is usually connected to many groups and people simultaneously. Social networks are also described as circles with cores (Milroy, 1980; Moreno, 1934; Scott, 2000), which suggest contextual groups, and varying levels of cohesion.

The idea may even be more exciting than reality. The fact that researchers are so prone to employ metaphors to discuss the nature of social networks illustrates a network's lack of tangibility. Researchers often use metaphors such as *fabric, webs, circles, spaces, clusters, knots, cliques, groups,* etc., to carry the ideas, but a definition of what constitutes a network has been harder to nail down.

Formal definitions of social networks provided in the research literature, in many ways, raise just as many issues as their more metaphorical counterparts. Consider the following examples: A social structure is "a system of formal and informal groupings by which the social behavior of individuals is regulated" (Warner & Lunt, 1941, p. 14), including the ties and exchange between residents of a neighborhood (Browning, Feinberg, & Dietz, 2004). A social network is a set of social actors and a set of relational ties connecting pairs of these actors. The network's nodes (or network members) can be individuals, groups, or organizations (Kazdin, 2000; Knoke & Yang, 2008).

In previous decades, sociologists and social anthropologists used the terms *social structure* or *social network* to express the idea of the interwoven fabric of one's friends and relatives – some of whom knew each other, and some who shared a common friend but were unacquainted with each other (Milroy, 1980; Scott, 2000). Mitchell writes that a social network is "more of an idea than a reality," (1974) and notes how the idea of the social network seemed to generate more excitement and activity than empirical research on social networks. Much work went into redefining ideas and shepherding words (Mitchell, 1974).

More recently, the term "social network" has taken on a different connotation, to specifically mean the collection of contacts one establishes through online websites, such as Facebook, Google+, Twitter, and MySpace. Although online social networking has come into vogue, forming relationships and meeting new people has always been a powerful way for people to connect with each other.

In keeping with the academic literature that uses the term *social networks* to refer to *social circles* or *groups of friends*, this thesis will use *social network* in a broader sense –

hearkening back to the earlier metaphors of *fabric* and *web*. It will not be limited to online contacts of friends and relatives. After all, online networks are usually reflections of contacts made in-person: people that the subscriber actually knows from work, from high school, from a conference, or other places (Dubner, 2011; Kanai, Bahrami, Roylance, & Rees, 2011). Further, the data from the questionnaire given to the study-abroad (SA) students in this study pertains to friends they spoke with in person while in country.

Belonging to others' social networks can bring considerable benefits: material goods, ideas, opportunities, affect, power, influence, social support and social control, all of which flow between people or groups within the network (Kazdin, 2000; Moreno, 1934). One's access to such opportunities and benefits increases as one's network grows. Media professionals, business professionals, and career counselors frequently encourage and engage in networking with others; they understand how networking enhances one's personal and work lives in ways that are impossible for one to do alone (Bolles, 1999; Putnam, 1993). Professionals within many industries have long traveled outside their familiar haunts to attend professional conferences for the purpose of meeting people and getting a fresh dose of ideas and information. Traveling can also benefit students for similar reasons. The number of students who travel abroad to study language, business, literature, etc., each year has recently been on the rise (Institute of International Education, 2010). Studying abroad, therefore, becomes a way for students to form new relationships.

Social networks and study abroad have in common that they both allow people to make new friends and acquaintances, to receive information and ideas, and to connect with others in new ways. Both activities may provide additional opportunities for interaction with people who

are experts on one's area of focus. The experiences gained from either social networking or studying abroad can enrich lives, but one must participate actively, to some extent, to reap the benefits (Isabelli-García, 2006; Llanes & Muñoz, 2009; Whitworth, 2006). One of the benefits many students who study abroad are hoping to maximize is gains in language proficiency. However, just being in a place, "the osmosis myth" (Davidson, 2010), is not enough to acquire measureable language growth (Gass, 1997). This is why the intersection of social networking and SA is a valuable area for study. Foreign- and second-language educators could use the benefits of participating in social networks to foster their students' growth in language proficiency and cultural awareness. Reasons will be discussed below.

One of the hallmarks of successful language learners is their ability to create with the language (Cherednichenko, 2009; Hadley, 2001; Philp & Tognini, 2009; Swain, 1993). For example, the oral proficiency guidelines set out by the American Council on the Teaching of Foreign Languages (ACTFL) separate Intermediate speakers from Novice speakers by their ability to create with the target language, as opposed to using memorized phrases (Liskin-Gasparro, 1984). Perhaps one of the apices of this ability to create is the increased power to form new relationships with speakers of a foreign language: such relationships move beyond a simple exchange of information into the realm of interacting with other humans in a meaningful way, and sometimes results in lasting friendships.

In order to learn language, interaction must be meaningful. For example, Kuhl (2010) found that among babies, social interaction is required to learn language; exposure to audiovisual sources resulted in zero language gain. Face-to-face interaction seems to be central to the process of language acquisition (Gass, 1997; Tarone, 2005). The sociality of language learning seems to

extend to adults too: Brecht, Davidson, and Ginsberg (1995) found that one of the best ways to gain proficiency in a foreign language is to spend time with one person, speaking only in the target language (hereafter TL).

Because the context of study abroad (hereafter SA) physically distances students from their family, friends, and the familiar ways of home, it provides an excellent opportunity to study how students form new relationships. The SA students find themselves in unfamiliar places, knowing few or no local residents, and find their own linguistic identities and social roles (Pellegrino-Aveni, 2005) challenged in ways that are often unexpected. Often it is cultural differences (such as social roles, stereotypes, or differences in logistics of daily life) rather than linguistic misunderstandings that cause confusion (Wilkinson, 1998). The foreign culture may have patterns of interaction and social mores that may be very different from the students' own. Outside of their home culture, they have opportunities to interact meaningfully (and maybe clash) with native speakers from other cultures, and they have limited contact with their loved ones at home. While easy for some, making new friends may be difficult for others, and the difficulty may be compounded when the task is to form new social bonds in a foreign language, and in a foreign country, with people of a different culture. Another connection between SA and social networks is that one's group relations, as well as one's geographic and linguistic choice of SA, serve as both limitations and opportunities for one's actions within that realm (Moreno, 1934). In other words, students may have different opportunities, and different access to social capital, based on the people to whom they know and have access. Each place comes with its own context, culture, and interlocutors.

This thesis seeks to explore some of the factors that may lead to greater development of social networks among study-abroad students. The following pre-trip factors will be considered and discussed as they relate to the formation and/or development of social networks while studying abroad: gender, previous missionary experience outside one's home culture, oral proficiency in the TL, intercultural competence, personality, and the university-sponsored SA program in which the student participated.

Chapter 2: Literature Review

The Importance and Effects of Social Networks

Chapter 1 discussed and offered definitions for the idea of a social network, and showed how it could be valuable to study the development of social networks within the study-abroad context. Chapter 2 will elaborate on some of the factors that may serve as predictors for such development and reasons for their consideration. This section will discuss the nature, the importance, and some of the generalized benefits of social networks. A suggested logical connection to SA follows.

A social network, as has been discussed, is the web of relationship connections between all the individuals that comprise a community or society. They may be bound by shared beliefs or interests (such as a political party or a church), or by informal associations (such as members of a golf club or a bar). Prominent social psychologist Kurt Lewin argues that social groups exist in a field: a social "space" that comprises the group together with its surrounding environment," (Lewin, 1936; quoted in Scott, 2000). This "space" is not independent of the group; rather, the environment that really matters to the group members is the *perceived* environment. "A woman who holds a menial job requiring little initiative in an office may be the dynamic leader of her neighborhood association and an assertive PTA participant" (Knoke & Yang, 2008, p. 5). This "space" or context in which the group operates is very important to the group members and influences the language they use in that space. Members of the group use different language when talking with each other than they do with outsiders, "in spite of long-term pressure from the standardized code" (Milroy, 1980). Behavior and language inside a space may be considered

inappropriate when used outside that space. For example, when my friend did semi-professional wrestling, he assumed a character role, Justus, to perform for the matches. My friend was out shopping with his son one day when another man passed by the aisle, saying "Justus sucks." My friend told me about his own internal reaction: "I'm at *Wal-Mart* … I'm here with my kid! Can I just be here with my kid?" (K. Branham, personal communication, circa 2003).

This notion of social relations being based in a specific context is applicable to SA students because most enter as strangers to the area, and during the course of their stay, become part of local social networks. These relations may change because of the student's inclusion and participation, but will largely continue in their "space" when the student returns home.

This study will largely use the egocentric view of each network, focusing on the networks from the perspectives of the students who participated in the study.

Human social networks have a layered structure, with successive grouping layers increasing in size but decreasing in the intensity of their typical relationship (Roberts, Wilson, Fedurek, & Dunbar, 2008, p. 955). What keeps the layers and cores together? It could be considered that the networks' cohesion comes from their social capital, which is defined as a resource embedded in social relationships, also defined as "features of social life — networks, norms, and trust—that enable participants to act together more effectively to pursue shared objectives," (Putnam, 1993).

Because social networks are made of people that the central person considers friends or acquaintances (to some degree), social networks tend to have few steps of classification, usually either two or three. A division of two, described by Rausch and Ferry (2001), categorizes every member as "close friends and family" and "everyone else." Davis, Gardner, Warner, and

Gardner (1941) suggested three areas: the core, plus two peripheral circles. People in the primary outer circle may frequently participate in the same activities as those in the core, but never without the core members. Those in the secondary outer circle are almost non-members of the group.

Networks are frequently analyzed using the psychologist Moreno's (1934) "sociogram," often reminiscent of the electrical diagrams from the study at the Western Electric Company in Chicago; in this case, geometric points represent people, and lines indicate relationships.

One's experience of the world depends upon the structure of the social network in which he or she resides. Social networks are like living things, for how they influence people and change over time (Christakis, 2010). The main benefit to members of a social network or group is the flow of ideas and access to goods and opportunities that they get because of their membership. Creating new network connections, whether between individuals, groups, or both, opens up new opportunities and flow of information and goods that potentially benefits all members of the network.

In this study, I will use the terms *size, density,* and *dispersion* to describe particular kinds of social networks (Knoke & Yang, 2008; Scott, 2000). A network large in size is one with a greater number of individual friends (regardless of the number of groups). A *dense* network is one indicated by many friendships within a single social group, and the friends are likely to know one another. Density is also measured by the number of people in the respondents' *largest* social groups, and by the *average* number of people in the respondents' groups. Dispersion refers to the number of social groups listed on the Study Abroad Social Interaction Questionnaire (Appendix B).

The larger one's social network, the more access one has to knowledge and opportunities. Access to information alone is a valuable element of social capital, with distinct benefits: information diversity, information volume, and information richness (Koka & Prescott, 2002). Contrastingly, if one's friends are the only group with whom one spends his or her time, the group becomes more homogenous, since everyone in the group knows basically the same things as the others.

Social networks hold important consequences for every member (Kazdin, 2000), and they can influence human behavior in dramatic ways. "Network effects are nonlinear and asymmetric, suggesting that networks provide information primarily through social learning, rather than by exerting social influence." (Behrman, Kohler, & Watkins, 2002, p. 713) Sub-groups, or cliques, in workplaces have been known to be effective media for managing employees, spreading information, and dealing with problems (Scott, 2000). The inter-related nature of cliques should not be ignored: as one person may be a member of several cliques, "almost the entire population of a community may comprise a single vast system of clique relations" (Warner & Lunt, 1941).

How might social networks influence human behavior in the SA context? Ding and Li (2010) saw that students who had similar academic merit and similar family background did not choose to attend (or were not admitted to) the same universities. Rather, they went to an array of different universities. These status factors alone did not account for the different mutual decisions between students and universities. In general, a student will likely apply to a university with which she or he has some connection, and a university tends to accept students whose recommenders are known or connected. Ding and Li found that their participants had extra motivation to attend universities with which they had a connection, because of the elevated cost

of their search, and because of the Chinese cultural emphasis on personal connections, called *guanxi*. The researchers found that social networks have a strong positive and significant effect on the number of Chinese students hosted in a university in the U.S. The students in our study chose to attend BYU, BYU accepted them, and they chose to study in one of the six SA programs. Although this study will not delve into such reasons, it is possible that personal connections, and /or group connections influenced each link in those chains of decisions.

Social Networks and the Study-Abroad Context

Research suggests that integration into social networks may offer significant benefits to SA participants (Castañeda & Zirger, 2011). Benefits (social capital) include social support, gains in vocabulary development, language proficiency, and cultural sensitivity. Social networks are support networks. Having a dense network can be a comfort to a student living in a foreign country, as it allows rapid access to support when one needs help. Integration into social networks is also considered an important indicator of community integration (Rauch & Ferry, 2001). Integration brings additional opportunities for one to interact and negotiate with others, whether it be in business, a social setting, or in SA. Greater integration means increased opportunity to interact and negotiate meaning with native speakers, which is recognized as very valuable to language learning (Hadley, 2001; Krashen, 1981; Swain, 1993). Creating new networks can be difficult for participants, particularly during a short stay, but it appears to be worth it: those who broke into an acquaintance's circle of friends were more likely to develop more specialized vocabulary (Isabelli-García, 2006). Dewey et al. (to appear) found that the closer the students' friendships with natives were, the more likely they were to gain in their Arabic. Martinsen (2011) writes that interaction with native speakers predicts development of

cultural sensitivity. His findings also suggest that developing a social network could foster this type of cultural learning. Through personal experience I found, while studying in Spain, that it was helpful to have native-speaking friends to consult regarding local linguistic meanings, intonation, pronunciation, and culture questions.

Many students stay with host families. The host family, and its accompanying social connections, can be very important to a student's gaining access to language and culture, particularly during a short stay. The host family is the guest's principal source for language and culture. It can provide access to networks in the community that multiply the learner's access points to language input (Castañeda & Zirger, 2011, pp. 546–547). In one study, students reported relying upon the people who were home during the day for much of their language input: the children and the hired help. They also spoke with members of the extended family, friends, vendors, etc.: all experts on the target culture and the TL with whom they came into contact by way of the host family (Castañeda & Zirger, 2011).

In light of all these positives, it is understandable why Isabelli-García (2006) recommends that students should be tutored in ways to build social networks. The ways that being part of social networks enhances living and learning abroad are numerous, and can potentially change the students' experience from staying in a foreign *country* to living in a new *community*. How can we set up our students for that kind of success?

No studies to date have looked at predictors of social network formation within study-abroad programs. Predicting social network development could be valuable to SA administrators and to students: administrators could prioritize and plan those activities that would be most beneficial for their students. The students could enrich their SA experiences by enjoying more of

the benefits listed above (e.g.: emotional and social support, greater linguistic gains), and possibly make more friendships. This study uses the following pre-trip factors to analyze social network development: SA program, student gender, target language proficiency, prior missionary experience, personality, and intercultural competence.

Prior missionary experience.

Previous study of foreign language and culture can prepare SA students in valuable ways. For example, one of the best ways to mitigate the stress of culture shock is to have coped with it before, or to have studied a language (Jarvis, 1975). Some studies have found that prior SA or immersion experience is predictive of both intercultural learning and language gain during SA (Brecht et al., 1995; Vande Berg, Connor-Linton, & Paige, 2009).

Many participants in the present study had lived either abroad or in the U.S., working as full-time missionaries (a.k.a. ministers). This is particularly relevant to this study because BYU's student population includes a large number of returned missionaries who are members of The Church of Jesus Christ of Latter-day Saints. Most missionaries who are members of the Church live and work in a country for between 18 and 24 months. Some study foreign languages, and some live among people who speak a different dialect of the missionaries' native tongues (e.g.: a native English speaker born in the U.S. may minister in the U.K.). The language(s) studied are not always the dominant tongues of the geographic regions where the missionaries live (e.g. speaking Spanish in Oklahoma City, or speaking Chinese in New Zealand). Regardless of foreign language(s) studied, if any, former missionaries have likely had extensive experience talking to strangers, speaking in public, engaging in disciplined study, and forming both new friendships and working relationships. They will have had practice learning *how* to learn

language and/or culture. Students who are former missionaries or who have previously studied abroad may have an additional advantage in adapting to new cultures if their prior missionary or SA experiences were positive (Paige, Jorstad, Siaya, Klein, & Colby, 1999).

Because of the variation of prior language experience and the difficulty of comparing the relative values of prior TL experience (e.g.: study accrued in high school vs. college vs. internships vs. full-time ministry, and combinations thereof), we decided to include only the binary status of a participant's having served a mission: yes or no. A former missionary who studied a foreign language will likely – but not always! – begin SA with a higher rating on the Oral Proficiency Interview (OPI) than someone who studied foreign language only in academic classes (Dewey & Clifford, 2012). Therefore, the inclusion of both of the factors TL proficiency and prior missionary experience is relevant in trying to gain a more accurate prediction of who will build new social networks.

Gender and culture

One of the primary motivations that students report for going to study abroad is to gain proficiency in a TL (Isabelli-García, 2006). One assumption of this study is that gender and social network development may be related, because gender and language proficiency may be related – depending on the cultural climate of the country (Brecht et al., 1995). For this reason, it may be useful to look at the combined factors of gender, program country, and language proficiency, as have Davidson (2010) and Brecht et al. (1995). In SA, student gender does seem to have an effect on language learning, but has yielded inconsistent results. For example, one study found no difference between the sexes in TL listening (Carroll, 1967, p. 139), yet in

another study, females gained more language proficiency than their male counterparts (Vande Berg et al., 2009).

There appears to be more involved than student gender. The differences in social mores, gender roles and stereotypes from a student's home country vs. those of the host country seem to make a greater difference than gender alone. A particular pair of studies may shed some light on the issue: in Brecht's Davidson's and Ginsberg's (1995) study, female SA students in Russia gained less than the males. Davidson (2010) conducted an update to the 1995 study, and found a reduced gender effect. He attributed that reduction to administrators' special attention to cultural education of the female students bound for Russia. Perhaps the difference between female and male students' language gain in Russia may be explained by sexist treatment the female students encountered there, as well as bias in the language tests (Polanyi, 1995). This suggests that environment is critical.

Because of different social gender roles and stereotypes, female and male students may have very different experiences in their SA sojourns. Females may have a more difficult time adjusting to the culture (Freed, 1995; Twombly, 1995). A female SA student in Russia felt that "being a woman resulted in less conversation practice, particularly when the topic was 'intellectual'" (Brecht & Robinson, 1993, p. 17), and Siegal writes, "It cannot be dismissed that there is institutionalized gender bias in Japan which plays a role in how the learners view the Japanese language" (1995, p. 234).

Social access.

It appears that whether a female student is willing or unwilling to abide by cultural gender norms can grant or block her access to social circles and situations that include both men

and women. This interaction includes language tutoring from either gender, and coaching from other women in how to navigate various social situations with culturally appropriate female behavior (Freed, 1995; Whitworth, 2006). Students who try to flout the gender roles risk isolation (Brecht & Robinson, 1993).

It is important that culture, gender, language proficiency development, and social network development all be considered together. Social access is influenced by gender. Both social access and language proficiency may make a difference in social network development. If gender affects the SA student's perception of the culture (Freed, 1998; Twombly, 1995) – and how members of the host culture view the student – it could also affect the student's intercultural sensitivity (discussed later) and the student's ability to form new social networks in-country.

Female networks vs. male networks.

Based on social psychological literature, one would expect to find some differences between the social networks formed by females and males: "The classic description … which has been both employed and reproduced in some sociolinguistic research, finds girls' friendship circles to be smaller, closer, and more exclusive than boys' … Boys' groups are generally described as larger networks incorporating greater diversity of age, status, skills, and social power" (Woolard, 1997, p. 534).

Others find differences in composition of networks, and differing benefits to membership by sex. In their work, "women earn higher incomes when they find jobs through close relatives and close friends, as compared to women who go directly to the employer to find a job. However, there are no significant relationships between personal network type and income for males," (Aguilera, 2008). Age, gender, and ethnicity are significantly related to network size and

frequency of interaction (Pugliesi & Shook, 1998). There is some tendency for students to segregate their social groups by gender (Roberts et al., 2008).

Still other researchers find elusive or inconclusive differences, concluding that the field has been unable to agree on whether gender plays a role (Marsden, 1987; Pugliesi & Shook, 1998). Roberts et al. (2008, p. 961) found that extroverted women were more likely than extroverted men to have a larger support clique, but when they partialled out participant age, there was no significant difference.

Gender and change in language proficiency may be related, depending upon the cultural climate visited; a cultural gender divide may limit what the students of either sex can do (Brecht et al., 1995; Davidson, 2010; Twombly, 1995). "American women may have fewer – and qualitatively different – opportunities to speak in a mixed gender setting than American males" (Brecht & Robinson, 1993). However, the reverse may also be true. In gender-divided Egypt and Jordan, the women had access to a wide variety of social activities from which men were forbidden to enter (Olsen, 2007).

Another example comes from a female participant in Russia: One male and one female SA participant met with two Russian students to practice conversing about politics, or more abstract ideas. Denise wrote, "My presence was largely ignored by the two new Russian students. One of them never even made eye contact with me. When I would speak he would look either at the floor or at one of the other boys, and then respond to Donald, as if he'd made the comment. I've never had an experience like that in America, and I was upset that the two boys seemed to have a preconceived idea that I wasn't worth listening to" ("Denise," personal communication, May 27, 2011).

Program by country

A student's choice to participate in a given program may be another factor in the development of social networks. Participation in a social network both limits and allows interaction and flow of ideas, goods, and opportunities between network members. The same might be said of program choice. Most, if not all, of the activities a student participates in during SA are couched in the location and design of the SA program, and the student's choice to go abroad with *that* group.

Program design is so important that even though program design was not central to Davidson's study, it was still central to his study's findings (2010, p. 8). Nearly all of Engle and Engle's (2003) seven most salient features of SA programs are touched upon in the multi-faceted nature of program choice: (1) Length of student sojourn, (2) Entry target-language competence, (3) Language used in course work, (4) Context of academic work, (5) Types of student housing, (6) Provisions for guided/structured cultural interaction and experiential learning, and (7) Guided reflection on cultural experience.

SA program may also affect language use. The SA program was shown to be the most salient factor in Gold's (2011) study of language use.

A study-abroad program in itself is multifaceted**,** like a personality: Each program has its own director, with different activities planned and required, within a given country, and the country (or region) contained its unique mix of cultures, history, languages, and people. The local residents may have differing attitudes toward students from the Unites States, and the students may have differing attitudes toward the local residents. Therefore, the complicated

nature of the program itself represents many variables in one. Because participants in this study participated in six different programs, SA program will be an important factor to consider in this study. Some of the facets that may affect social network development are program duration, type of student housing, amount of required language use (if any), and host culture norms.

In this study, some programs lasted about seven weeks, and others lasted twice as long. (See Appendix A.) If a longer time spent studying abroad led to greater attainment of TL skill level – as Carroll (1967) and Brecht et al. (1995) found – then the programs with longer durations might also show denser and/or larger social networks. Might those students who participated in programs of longer duration rate their friendships formed in-country as closer than those who spent less time abroad? Might those students form larger, more dense, or more disperse networks?

Language Skill

Entry TL competence is an important element to consider in classifying various types of SA programs (L. Engle & Engle, 2003). Students who arrived in Russia with greater linguistic proficiency were more likely to use "Russian only" (or the TL only) than those who arrived with less proficiency (Brecht et al., 1995; Magnan & Back, 2007). "If the amount of language contact is related to linguistic ability, then students at higher proficiency levels, likely with more coursework, might have an advantage" (Magnan & Back, 2007, p. 45). Although immersion alone is insufficient for language gain (Davidson, 2010; Whitworth, 2006), participating in social, community behaviors while studying abroad (such as participation in sports teams, playing with an orchestra, or holding down a part-time job) does contribute to linguistic gain

(Fraser, 2002, cited in Dewey et al., to appear; Siegal, 1995). If language proficiency level at arrival does indeed predict amount of linguistic gain, might not high proficiency also give an advantage in developing one's social network?

"The more Russian one has, the more one uses – and in turn, the more one uses, the more one gains. These findings may be interpreted as indirect evidence that the more language competency one has before immersion, the more one gains in-county" (Brecht & Robinson, 1993, p. 10).

Students who begin their SA experience with a higher proficiency level will also likely have an advantage in participating in social activities, and thereby have greater access to interaction with native speakers, which can lead to greater social integration. Increased social integration can yield increased access to social resources (i.e., more opportunities for feedback and support from sympathetic TL experts when language breaks down). This feedback and support gained through social networks promotes increased confidence and accuracy in TL use, which may also lead to greater language gains. In fact, it may be critical to have the regular contact and negotiation of meaning with native speakers that social networks provide (Brecht & Robinson, 1993).

Therefore, it is anticipated that language proficiency may be a factor in developing social networks; the lesser the student's oral proficiency, the more energy the native-speaking listener must expend to carry on a conversation. This translates into a greater cost of time and energy for the sympathetic native speaker. This greater expense for the native speaker – and limiting factor on possible conversations – would decrease the size, dispersion, and/or density of social

networks that a lower-level learner could form, compared to those possible for a higher-proficiency learner.

Personality and Network Size

Peoples' internal characteristics affect their task performance, whether at work, or on SA. Therefore, certain personality traits may help or hinder a person's social network development. In this study, forming social networks tended to occur naturally, even though it was not an explicitly assigned task. (It might be considered an exception that participants in Egypt were assigned to speak to people daily, which would likely lead to social network formation.) In order to see what relationship or predictive value personality might have upon social network formation in a study-abroad context, we used the NEO-FFI's categories (neuroticism, extroversion, openness to new experience, agreeableness, and conscientiousness) to measure personality for this study.

Personality.

Personality is related to network size, with Agreeableness being correlated with the two inner, most intimate layers of the network: support clique and sympathy group size (Roberts et al., 2008; Tomlin, 2011). (Some definition may help here: A support clique is made of one's "'best friends' or intimates: those individuals from whom one would seek advice, support or help in times of severe emotional or financial distress," and a sympathy group is "the principal circle of friends, commonly defined as all those whose sudden death would be greatly upsetting" (Roberts et al., 2008, p. 955). In the work environment, employees' level of conscientiousness

plays an important role in enhancing friendship networks and contextual performance. [Contextual performance includes "interpersonal skills and the motivation to maintain good working relationships" (Lee, Yang, Wan, & Chen, 2010)]. Logically, it can be assumed that conscientiousness will also influence formation of social relationships in SA. When Clarke et al. (2009) compared the SA students to a home campus group, the SA students showed greater global mindedness and openness to diversity. Such openness to diversity may be related to the NEO-FFI's measure of "openness to new experience," which may affect network size, density, and dispersion. Openness to new experience may have a significant effect on social network formation, since SA tends to expose participant to a wealth of new linguistic and cultural experiences, in a setting far from the comforts and familiar things of home.

Although neuroticism and extroversion are commonly believed to influence human social skills (Roberts et al., 2008), others have found no correlation between neuroticism and the size of the social groups (Russell, Booth, Reed, & Laughlin, 1997).

There is some debate in the field regarding whether introverts (Ehrman & Oxford, 1989) or extroverts may learn a TL better. According to Gass and Selinker (2001), extroverts may be more likely to learn the TL better, because they will take more risks and engage in more talking and social activity in the TL than introverts do. If extroversion does grant certain students such an advantage in language proficiency and social activity, then extroverted students may also have an advantage in building larger social networks than introverts build. Indeed, even though researchers have previously found extroversion to be correlated with social network size, Roberts, Wilson, Fedurek, and Dunbar (2008, p. 961) "call into question the widely held view that there is a positive relationship between extroversion and network size." They found that

extroverted women were more likely than extroverted men to have larger support cliques, but when they took into account participant age, there was no significant difference. Extroversion was correlated with the size of one's support clique, but not with the size of one's sympathy group (Swickert, Rosentreter, Hittner, & Mushrush, 2002).

To summarize, students' personalities may influence how they learn the TL, but it is unclear whether they will influence size of students' social networks.

Intercultural competence

Cultural proficiency is "the knowledge, skills, and attitudes and beliefs that enable people to work well with, respond effectively to, and be supportive of people in cross-cultural settings" ("AAFP," 2011).

Intercultural proficiency reflects a broad philosophical and behavioral approach to cultural diversity that guides and prescribes individual behavior toward "cultural others" (Wells, 2000, quoted in Clarke et al., 2009). Intercultural competence involves being able to interact while being while being aware of differences and similarities, and preventing overemphasis on foreignness or stereotyping (Elola & Oskoz, 2008). For this study's semantic purposes, the following terms will be considered synonymous when paired with *intercultural* or *cross-cultural: competence*, *sensitivity*, *proficiency*, and *development*. Although the researchers tend to give intercultural competence various names, with overlapping meanings, they tend to agree on the importance of students' becoming "citizens of the world" (Elola & Oskoz, 2008) as they interact with people of other cultures (L. Engle & Engle, 2003). Intercultural competence is often considered to be a part of global citizenship (Ogden, 2010).

SA results in global mindedness, cultural pluralism, and interconnectedness "As such, SA students may have a better understanding of culture and how it influences worldviews and behavior" (Clarke et al., 2009). It seems clear that there is activity happening during SA with intercultural development; there has been strong support to show that study-abroad programs have a positive short-term impact on the intercultural development of students (Anderson, Lawton, Rexeisen, & Hubbard, 2006; Rexeisen, Anderson, Lawton, & Hubbard, 2008). Prior exposure to different cultural environments, in and of itself, did not predict intercultural proficiency (Vande Berg et al., 2009), but will it affect the formation of a social network?

Intercultural sensitivity is crucial to enabling people to live and work with others from different cultural backgrounds. A student's intercultural sensitivity may have a powerful effect on whether a student builds a large or a small social network while studying in another country. Even a short-term (four-week), non-language based SA had a positive impact on intercultural sensitivity (Anderson et al., 2006; Clarke et al., 2009; Landis & Bhagat, 1996).

Intercultural sensitivity helps fill in the gaps where simply decoding the spoken words is not enough. Language learners can still experience conflicts in their interactions, even when they successfully decode a string of words uttered by their native-speaking interlocutors. The problems come not from linguistic misunderstandings, but from cross-cultural differences (Wilkinson, 1998). If an incomplete intercultural competence resulted in such alienation, then possessing higher levels of it might help students avoid such conflicts, and build larger and/or more dense, more disperse social networks.

Study Abroad & Social Network Development

Many researchers have looked at language gain during study abroad (SA), but few have looked at students' social network development. None that I have found have looked at factors that may predict such social development within the SA context.

In this literature review, I have stressed the importance of social networks. I have discussed how, although unseen, they permeate society, and exert great influence on people's behavior. Those who study foreign language pedagogy tend to study many things that cannot be directly touched or seen, that seem to be inextricable, and that influence each other. We have tried to predict which observable pre-trip factors had the strongest relation to students' development of their new social groups that they would then form in-country. These factors are prior missionary experience, gender, SA program choice, language skill, personality, and intercultural competence.

Research Questions

These are the research questions posed:

RQ1: What is the nature of the social networks that students form when they go abroad, in terms of number of friends and in strength of friendship?

RQ2: How much time do the students spend with their new friends speaking in both their native and in the target languages?

RQ3: Which of these pre-trip factors [intercultural competence (measured by measured by the IDI), TL proficiency level (measured by the OPI), prior missionary experience, gender,

study-abroad program, neuroticism, extroversion, agreeableness, openness to new experience, agreeableness, and conscientiousness], if any, relates to developing a more dense network? Which, if any, relates to developing a more disperse network?

RQ4: Which of the pre-trip factors listed above, if any, relates to developing a larger network (where a "large" network is one with a greater number of friends listed on the social interaction questionnaire)?

RQ5: Which of the factors listed above, if any, predicts intensity of friendships?

RQ6: Is language use with friends in-country related to social network development in a study-abroad program?

Chapter 3: Methods

Participants and Programs

All participants were undergraduate students attending Brigham Young University in Provo, Utah. Their ages ranged from 18 to 29 (SD = 2.282). Students reported having been recruited to study abroad with BYU's International Study Programs SA through word-of-mouth, the Internet, open houses, and/or advertisements. The researchers then recruited the existing group of students for participation in the study. Students in the university-sponsored programs traveled to six countries (China, Egypt, France, Mexico, Russia, and Spain), studying the following five languages: Chinese, Arabic, French, Russian, and Spanish. Researchers contacted the directors of the various programs, visited their pre-departure courses, and asked the students to participate in our study. The students who went to China, Russia, and Egypt lived in apartments or dormitories (Appendix A); those who went to Spain, Mexico, and France lived with host families.

Students took from three to nine university credits as part of participating in the study-abroad programs and completing academic assignments. Although students were given credit for participating in the program, their participation in the study was voluntary and was not linked to academic credit.

Data Sources

In order to measure the constructs of intercultural competence, personality, and oral proficiency in the target language, data for this study were collected using these instruments: the Intercultural Development Inventory (IDI), the NEO Five-Factor Inventory (NEO-FFI), the SASIQ, and the Oral Proficiency Interview (OPI).

Intercultural competence (IDI).

The widely used Intercultural Development Inventory (IDI), developed by Mitchell Hammer, is a 50-item test. Its website states that the IDI assesses one's "predominant level of intercultural competence along with a detailed textual interpretation of that level of intercultural development" (Hammer, 2011; Hammer, Bennett, & Wiseman, 2003). The results of the IDI are reported on a continuum between three monocultural, or ethnocentric, mindsets (Denial, Polarization, Minimization), and two intercultural mindsets (Acceptance and Adaptation). The test also finds the difference between testees' Perceived Orientation (where the testees think they are on the continuum) and their Developmental Orientation (where the test finds them to be).

Personality (NEO-FFI).

The Neuroticism-Extroversion-Openness Five-factor Inventory, or NEO-FFI, test seeks to measure one's neuroticism (N), extroversion (E), agreeableness (A), conscientiousness (C), and openness to new experience (O). Paul T. Costa, Jr., and Robert R. McCrae (1985) developed the test, and its validity was confirmed by Haider et al. (2002). It

uses a self-reported, five-point Likert scale that participants use to declare to what extent each of the 60 statements is true for them. This process sheds light on the above five aspects of a participant's personality.

The Study Abroad Social Interaction Questionnaire (SASIQ).

After returning home, students were asked to complete a social network questionnaire. The Study Abroad Social Interaction Questionnaire (Appendix B) was created by Dewey, et al. (to appear) for their study on social network development.

Respondents were asked to list from memory the names of their new friends, how they met, and how close of a friendship they considered it to be. Respondents were asked how much time, on average, they spent with each person per week; what percent of that time was spent using the target language; and what percent was spent using English. (See Appendix B.) Students were also asked to rate the interlocutor's English proficiency. The SASIQ was written in English. From these data, the group sizes, intensity, durability, density, and dispersion were extrapolated. Intensity is the student's rating of the closeness of each friendship on a Likert scale of 1 to 8.

Durability, a term from the SASIQ, refers to the amount of time spent with the interlocutor on a given week. Dispersion refers to the number of social groups.

Two facets of density were measured: the number of people in the respondent's largest social group, and the average number of people per social group. The size of the student's largest social group is often the most informative variable to describe a social network's density (D. P. Dewey, personal communication, June 11, 2011).

Although the SASIQ's calculations count only groups of two or more, I will count groups with only one member as groups for these reasons: first, each social group represents its own space, or social context, in which the student achieved some degree of integration (Knoke & Yang, 2008; Rauch & Ferry, 2001; Lewin, 1936, quoted in Scott, 2000). Each context has its own linguistic register and lexicon (Milroy, 1980). Counting only groups of two or more would ignore those single friendships, with the accompanying linguistic and social developments that the students made. Further, including all groups of friends will give a more accurate picture when calculating the number of social groups (Dispersion) and the average Density thereof.

For example, if a student made three friends at church, and also made friends with a restaurateur at whose café he or she regularly ate, those are different social contexts, and should both be counted. Secondly, some students listed multiple groups with one member each. If those groups were not counted, yet their members were included in an average, then the measures for Dispersion and Average Density would be thrown off by "phantom" groups. For example, one student had one group of six friends, and three groups of one friend each. That gives a total of nine friends who comprise four groups, and the average size of the groups is (6+1+1+1)/4 = 2.25. If only groups of one were counted, all nine friends would be counted in the total, but three distinct groups (of one friend each) would be ignored. This would give an incorrect average of nine friends per one social group: (6+1+1+1)/1 = 9. The 2.25 average is a more accurate representation of the student's social network and SA experience with those friends, in those contexts.

The Oral Proficiency Interview (OPI).

The Oral Proficiency Interview (OPI) was used to evaluate students' oral proficiency levels in the target language before their departure. The OPI is a nationally and internationally used test of a speaker's overall oral language proficiency. It was created by the American Council on the Teaching of Foreign Languages (ACTFL), as a by-product of a federally funded commission that sought to determine what should be taught and measured in foreign language classes (Liskin-Gasparro, 1984). The OPI and ACTFL's Proficiency Guidelines resulted from this effort. The OPI is a 30- to 45-minute, open-ended interview between an expert speaker and the participant, conducted in the TL. Although the OPI tests whether a speaker can narrate in all major time frames, it does not target specific grammar points or vocabulary. Rather, the OPI seeks to find the participant's "ceiling" (the highest level at which she/he can function) and "floor" (the level at which he/she can consistently speak). The results are reported in the primary ratings of Superior, Advanced, Intermediate, and Novice.

Data Collection

This data is part of a larger study. Funds were made available for data collection through the College of Humanities and the Center for Language Studies at Brigham Young University. Data was collected before, during and after the students' stays abroad. Students took several tests prior to departure, such as the OPI, the NEO-FFI, and the IDI. At the end of the programs, they were asked to respond to the Study Abroad Social Interaction Questionnaire (SASIQ), against which the other factors will be compared.

A student participating in each program was hired to facilitate data collection. The embedded students' follow-up with their fellow students was crucial to securing completion of the post-tests, and to collect participant data.

Many of the respondents included fellow students from BYU, as well as BYU professors, in their lists of friends. Because the original intent for using that data in this study was to help describe the new networks that SA students would form among native speakers, we attempted to distinguish between the total number of people listed as friends on the SASIQ, and the number of those friends who were likely to be native speakers of the TL. Therefore, we will include two counts of network size: total number of friends (Size), and those friends who are more likely to be native speakers (NS Friends). This filtering was done using the lists of participant names, and the respondents' (a) lists of friend names and (b) descriptions of how they had met those friends. BYU professors and fellow BYU SA students' names were subtracted from each respondent's total Size when it was reasonably clear that the person listed was in the same SA program. (An exception is that one of the professors who went to France with the group is a native speaker of French. His name was included in the adjusted Native-speaking Friends.) The list of Native-speaker Friends is likely to include friends who are *not* native speakers, because their names could not be eliminated based on the available data. When in doubt, the friends were counted as native speakers (e.g.: ex-patriots from other countries and missionaries working in the same locale) because we could be more certain that the BYU students and professors (except the one) were *not* native speakers.

Because we performed this adjustment after the students took the SASIQ, the time durations in the TL and the participants' native language (which was most often English) reflect the conversations had with all friends about whom they gave responses (the total Size).

Chapter 4: Results

Results for each of the research questions will be presented in Chapter 4.

RQ1: What is the Nature of the Social Networks That Students Form When They Go Abroad, in Terms of Number of Friends and in Strength of Friendship?

The SASIQ was used to measure the Size of participant networks. The questionnaire has 20 blanks in which participants write their friends' names from memory. "Size" refers to the total number of friends each participant listed on the Study Abroad Social Interaction Questionnaire (Dewey et al., to appear). Participants listed a mean of 11.45 friends each.

About 23% of the people listed as friends on the SASIQ were fellow students or professors from BYU, as identified from lists of participants and directors. The other 77% were those who were more likely to be native speakers (see "NS Friends" in Table 1). When the numbers were adjusted to remove BYU professors and fellow students who were in the same SA program as the respondents, the mean was 9.17 friends per participant, the mode was 4, and the median was 8.

The mode for Size (all friends) was 20, the maximum possible. The median was 10, as shown in Table 1. There was wide variation in the Size of participants' total networks, with ranges of 18 for Size, and 19 for NS Friends. The standard deviations for Size (6.25) and NS Friends (5.54) were high, considering that in each measure the SD exceeded half of the mean number of people in the network.

Table 1: Descriptive statistics: Size of network

	Number of Respondents	Min.	Max.	Mean	Median	Mode	SD
Size	103	2	20	11.45	10	20	6.25
NS Friends	99	1	20	9.17	8	4	5.54

In order to describe the nature of social networks that students would form during SA, respondents were also asked to organize their friends into social groups, according to how their friends would know each other. (See Appendix B.) Such organization allows an analysis in terms of Dispersion, Density, and Size. Dispersion is the number of one's social groups (i.e.: contexts of school, church, host family, work, etc.), and Density is the number of friends per social group. Density is further subdivided into two forms: the *average* number of friends within a student's social groups, and the number of friends in a student's *largest* social group.

Often, the density of one's largest social group is the most informative variable to describe a social network density (D. P. Dewey, personal communication, June 11, 2011). Social groups with only one member were allowed. The density of respondents' largest groups ranged from one friend to 19, with a standard deviation of 3. (See Table 2.) The average size of each student's largest social group was 3.94 friends. Among all respondents, the mean Dispersion was 2.88 and the mean Density of the Largest Groups was 3.94.

Table 2: Descriptive statistics: Dispersion and Density

	Number of Respondents	Min.	Max.	Mean	SD
Dispersion (No. of groups)	82	1	5	2.88	1.47
Density of largest group	86	0	19	3.94	3.22
Avg. Density of groups	82	1	19	2.88	2.31

Students rated the closeness (Intensity) of each friendship (Table 3), and the reported values ranged from 3 to 8 (where 8 was the maximum possible). The students considered many to be close friends: on average, each students' highest-rated friendship was 7 out of 8.

Table 3: Descriptive statistics: Intensity (closeness) of each friendship

	Number of Respondents	Min.	Max.	Mean	Median	Mode	SD
Avg. Intensity	89	2.71	8.00	4.89	5.36	5	0.94

Participants took the Intercultural Development Inventory (Table 4) before departing. Descriptive statistics showed a mean of 90.2, a standard deviation of 14.77 and a range of 93.43.

Table 4: Descriptive statistics from the pre-trip Intercultural Development Inventory (IDI)

	N	Range	Minimum	Maximum	Mean	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
PreIDI_DO	165	93.43	64.15	157.58	90.1994	1.14979
Valid N (listwise)	165					

	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
PreIDI_DO	14.76928	218.132	.959	.189	2.250	.376
Valid N (listwise)						

RQ2: How Much Time Do the Students Spend with Their New Friends Speaking in Both Their Native and in the Target Languages?

In the SASIQ, students reported the average number of hours they spent with each friend on their list in a given week. To compute the average, each student's total hours was then divided by the student's number of friends (Size). Therefore, the mean in Table 5 is an average of the averages.

For each friend, respondents also reported what percent of those hours were spent in English, and what percent were spent in the TL. It should be noted that some participants, particularly those in the China program, were able to converse in more than two languages. However, the SASIQ does not collect data for such situations; only hours and percentages in English (L1) and the TL (or L2) were recorded. This is why some students' percentages do not add up to 100. For example, one student in China reported spending about 57% of his time speaking with friends in the TL, and 34 % of his time in English, for a total of 91%.

The reported numbers include conversations with all friends, including those with professors and fellow students in the program. If the respondent normally spent time with two or more friends simultaneously, those same hours may have been counted multiple times. The row labeled "Friend's English Proficiency" refers not to an OPI rating, but the respondents' estimate on a five-point Likert scale on the SASIQ.

Students reported speaking with friends a mean of nearly 79% of their time in the TL, and 17% of their time in English. As is also shown in Table 5, there was more variance and a greater standard deviation in the percent of the time students spent using the TL versus in English with each friend. Respondents estimated their interlocutors' English proficiency an average of 2.91 out of 5.

Table 5: Reported language use for a sample week

	Number of Respondents	Min.	Max.	Mean	SD	Variance
Average hours per week spent with friends	83	1	54.35	9.14	9.79	95.82
% of time spent in TL	83	1.31	100	78.61	24.21	586.35
% of time spent in L1	83	0	100	17	19.72	389.03
Friend's English Proficiency	92	1	5	2.91	1.08	1.16

RQ3: Which of These Pre-Trip Factors, if any, Relate(s) to Developing a More Dense Network? Predictor Variables Include Intercultural Competence, TL Proficiency Level, Prior Missionary Experience, Gender, Study-Abroad Program, Neuroticism, Extroversion, Openness to New Experience, Agreeableness, and Conscientiousness.

This study measures network Dispersion (the number of one's social groups), and Density. Density takes two forms: the number of friends in a student's largest social group, and

the average number of friends in a student's social groups. In all regressions and correlations for RQ3, the measures of Dispersion and Density allow social groups to consist of a single member.

As an initial step to understanding this question, we produced a correlation matrix (Table 6), which provides a first look at the relationships between the variables in question. It showed the following: Participation in the Spain program showed a negative and significant correlation with Dispersion ($p \leq 0.01$), with a large effect size (Cohen, 1988). Going with the program to Mexico was the variable with the highest correlation with both Density of Largest Group, and with Average Group Density. The effect size of the Mexico program's correlation with Density of Largest Group was large, and the effect size in its correlation with Average density of Groups was medium (Cohen, 1988). Participation in the Egypt program was positively correlated with Dispersion at the $p \leq 0.01$ level. It also showed a negative correlation with both the Density of one's Largest Social Group and the Average Group Density. Egypt's relationship was less significant than Mexico's in those two measures, but it was significant.

Table 6: Pearson correlations with Dispersion and Density

		Dispersion	Density of Largest Group	Avg. Density of Groups
Male	Pearson Corr.	.198	-.023	-.109
Spain	Pearson Corr.	-.517**	-.111	.011
Mexico	Pearson Corr.	.125	.410**	.308**
	Sig. (2-tailed)	.254	.000	.005
France Spr	Pearson Corr.	-.162	.039	.086
France Fall	Pearson Corr.	.[a]	.[a]	.[a]
Russia	Pearson Corr.	.233*	.144	.025
Egypt	Pearson Corr.	.301**	-.236*	-.242*
	Sig. (2-tailed)	.005	.028	.029
China	Pearson Corr.	.128	-.088	-.109
Returned Missionary	Pearson Corr.	.225	-.063	-.168
PreOPI	Pearson Corr.	.218	.266*	.220
PreIDI_DO	Pearson Corr.	-.061	-.016	-.002
Neuroticism	Pearson Corr.	-.067	-.084	-.090
Extroversion	Pearson Corr.	-.127	.053	.085
Openness to new experience	Pearson Corr.	.143	-.204	-.191
Agreeableness	Pearson Corr.	-.138	.172	.209
Conscientiousness	Pearson Corr.	-.004	.021	.123

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
a. Cannot be computed because at least one of the variables is constant.

Some patterns emerge from these results: the most highly correlated variables with Dispersion and Density were all SA programs. Students who went with the program to Spain tended to make friends that spanned fewer social groups than those who studied with the other programs. Students who went with the program to Mexico tended to form social groups that had more friends than social groups formed by participants in the other SA programs. Students in

Egypt, on the other hand, tended to form more social groups, but those groups tended to contain fewer friends.

To understand the forces at work behind the dispersion and density of networks and the preselected variables (above) more clearly, we also used a regression model. A regression model is useful because it shows which variable, or which combination of variables, best predicts the dependent variable. The model helps to reduce the "noise," and show which factor(s) really account(s) for the change. For example, even though several factors are all significantly correlated with the dependent variable, they may not all account equally for the changes therein.

Therefore, in order to see which factors might predict Dispersion, the data was entered into a regression model (Table 7). Results showed that going with the program to Spain was the only significant predictor of Dispersion. In other words, among all the variables in the regression, going to Spain had the largest effect size for the number of social groups a participant formed. It was a negative predictor, with a medium effect size and an R^2 value of .336, $F(1,55) = 27.83$, ($p < .0001$), $f^2 = .506$. An R^2 value of .336 means that the model accounts for 33.6% of the variance in the variable.

Table 7: Regression coefficients; Dependent variable: Dispersion

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.545	.189		18.792	.000
	Spain	-2.084	.395	-.580	-5.275	.000

In order to compare the six SA programs' Dispersion, an analysis of variance (ANOVA) was used. An ANOVA tests for significant differences between means, and allows us to see more clearly how each of the SA programs compares in number of social groups. A post-hoc Tukey test, with Dispersion as the dependent variable, showed the following (Table 9): Spain and France Spring had the least Dispersion (i.e. fewest social groups), followed by Mexico, Egypt, and China. Russia had the greatest Dispersion of the six groups, and was significantly different from Spain and France Spring.

Table 8: Tests of between-subjects effects; Dependent variable: Dispersion by program

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	72.640[a]	5	14.528	9.101	.000	.365
Intercept	528.752	1	528.752	331.222	.000	.807
SA Program	72.640	5	14.528	9.101	.000	.365
Error	126.113	79	1.596			
Total	854.000	85				
Corrected Total	198.753	84				

a. R Squared = .365 (Adjusted R Squared = .325)

Table 9: ANOVA with post-hoc Tukey test: Dispersion by program

Tukey HSD[a,b,c]

SA Program	N	Subset 1	Subset 2	Subset 3
Spain	20	1.35		
France Spr	12	2.17	2.17	
Mexico	11		3.27	3.27
Egypt	30		3.40	3.40
China	7		3.43	3.43
Russia	5			4.20
Sig.		.700	.235	.575

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = 1.596.
a. Uses Harmonic Mean Sample Size = 9.993.
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.
c. Alpha = .05.

Regression models were also used to see which factors might predict the Density of respondents' Largest Groups (Table 10), and again for Average Density of Groups (Table 11). The only predictor returned for both Density of Largest Group (Table 10) and for Average Density of Groups (Table 11) was going with the program to Mexico. Density of Largest Group had a medium effect size, with an R^2 value of .247, $F(1,56) = 18.40$, $p < .0001$, $f^2 = .328$. The Average Density of Groups had a small effect size, with an R^2 value of .168, $F(1,54) = 10.93$, $p < .01$, $f^2 = .202$.

Table 10: Regression coefficients; Dependent variable: Density of Largest Group

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.686	.430		8.565	.000
	Mexico	5.314	1.239	.497	4.289	.000

Table 11: Regression coefficients; Dependent variable: Average Density of Groups

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.578	.345		7.463	.000
	Mexico	3.230	.977	.410	3.306	.002

RQ4: Which of These Pre-Trip Factors, if any, Relate(s) to Developing a Larger Network? Predictor Variables Include Intercultural Competence, TL Proficiency Level, Prior Missionary Experience, Gender, Study-Abroad Program, Neuroticism, Extroversion, Openness to New Experience, Agreeableness, and Conscientiousness.

"Large" networks are considered here to be those with a greater number of friends listed on the SASIQ, which measure is reported here in two forms: Size (total friends listed) and NS Friends (those friends who are more likely to be native speakers of the TL). A Pearson correlation matrix (Table 12) was created in order to see if there were any relationships between variables, and if so, how strong.

The analyses were run using Meredith's (1990) Scale 5, with numbers that better reflect the non-incremental nature of the OPI ratings. Of all included variables, the Pre-OPI score had the highest correlation with both Size and NS Friends. This relation was significant ($p \leq 0.0001$) and its effect size was large. SA program was also related; the two programs with the largest effect sizes were Spain and Mexico. The program to Mexico was significantly ($p \leq 0.0001$), positively correlated with both Size and NS Friends, while the Spain program was significantly ($p \leq 0.0001$), negatively correlated with the same two variables. Those effect sizes were medium (Cohen, 1988).

Table 12: Pearson correlations with Size and NS Friends

	Size	NS Friends
Male	.108	.131
Spain	-.357**	-.330**
Mexico	.359**	.270**
France Spr	.037	-.086
Russia	.265**	.249*
Egypt	-.117	.092
China	-.017	-.117
Returned Missionary	.182	.215*
PreOPI	.493**	.420**
PreIDI_DO	-.091	-.190
Neuroticism	-.110	-.094
Extroversion	-.013	-.071
Openness to new experience	-.091	.052
Agreeableness	.094	-.051
Conscientiousness	.039	.032

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
a. Cannot be computed because at least one of the variables is constant.

A regression model was run with stepwise selection, to show predictors of Size (Table 13), and again for NS Friends (Table 14). The Pre-OPI was by far the strongest single predictor, for both Size and NS Friends. The following may give perspective: the second model returned

for Size consisted of the combination of Pre-OPI and Mexico, and the second model for NS Friends consisted of the combination of Pre-OPI and Spain.

The first model returned for Size had a medium effect size, with an R^2 value of .235, $F(1,65) = 20.01$, $p < .0001$, $f^2 = .307$. The second model for Size had a large effect size, with an R^2 value of .314, $F(2,64) = 14.62$, $p < .0001$, $f^2 = .458$.

The first model for NS Friends had a small effect size, with an R^2 value of .185, $F(1,62) = 14.09$, $p < .0001$, $f^2 = .227$. The second model for NS Friends had a medium effect size, with an R^2 value of .258, $F(2,61) = 10.59$, $p < .0001$, $f^2 = .348$.

There was too little information available to include the combination of China and Personality in the regression models for Size and NS Friends, and the author chose to include China alone.

Table 13: Regression coefficients; Dependent variable: Size

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.743	1.051		8.322	.000
	PreOPI	.003	.001	.485	4.473	.000
2	(Constant)	8.716	1.003		8.688	.000
	PreOPI	.002	.001	.392	3.597	.001
	Mexico	4.931	1.825	.295	2.702	.009

Table 14: Regression coefficients; Dependent variable: NS Friends

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.469	1.009		7.401	.000
	PreOPI	.002	.001	.430	3.754	.000
2	(Constant)	8.454	1.052		8.038	.000
	PreOPI	.002	.001	.397	3.570	.001
	Spain	-3.719	1.524	-.271	-2.440	.018

The output showed that in terms of the scores on the pre-trip TL oral proficiency test (OPI), the means of the programs to Spain and Mexico were statistically different. The Pre-OPI regression coefficients of .002 (Tables 13 and 14) indicate that for every 1,000-point increase on Meredith's "Modified ACTFL Scale" No. 5 (1990, p. 292), participants made 2 additional friends who were more likely to be native speakers (NS Friends), or 2 more friends overall. For example, if Student Q was rated Advanced (American Council on the Teaching of Foreign Languages, 1999), and Student R was rated Intermediate-Mid, that would mean a difference of 2,100 points on Meredith's scale. Therefore, while living abroad Student Q would likely make about 4 more friends than Student R, whether counting NS Friends or total friends.

The data further show that participants who went to Mexico were likely to make 4.93 more friends than those who did not go to Mexico (Table 13). Those who went to Spain (Table 14) were likely to make 3.7 fewer friends than their counterparts.

To compare differences in the Sizes of social networks across the SA programs, we ran a one-way ANOVA with a post-hoc Tukey test with Size as the dependent variable (Table 15), and SA Program as the independent variable. This analysis revealed an effect of SA program F(5,99)

= 7.811, p = .0001, η_p^2 = 0.287. These results show that Spain and Egypt had the smallest network Size, followed by China and France Spring. Mexico and Russia had the largest Size of the six groups.

Table 15: ANOVA with post-hoc Tukey test; Dependent variable: Size

Tukey HSD[a,b,c]

SA Program	N	Subset 1	Subset 2
Spain	22	7.18	
Egypt	35	10.43	
China	9	11.11	11.11
France Spr	15	12.00	12.00
Mexico	14		17.07
Russia	8		17.13
Sig.		.202	.054

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = 29.263.
a. Uses Harmonic Mean Sample Size = 13.386.
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.
c. Alpha = .05.

A repeat of the same test, but with NS Friends as the dependent variable (Table 16), revealed a significant effect of study abroad program F(5,98) = 5.548, p = .0001, η_p^2 = 0.230. The groups differed in the number of native speaker friends in the following way: the participants in the Spain and China group had the fewest friends who were more likely to be native speakers, but there was no significant difference between the two groups. The other four groups differed from each other and are listed from fewest to most NS friends: France Spring, Egypt, Mexico, Russia. In other words, participants in the Russian group had the most friends

who were likely to be native speakers of the TL. No difference between the mean of Egypt and any other group was observed in NS Friends.

Table 16: ANOVA with post-hoc Tukey test; Dependent variable: NS Friends

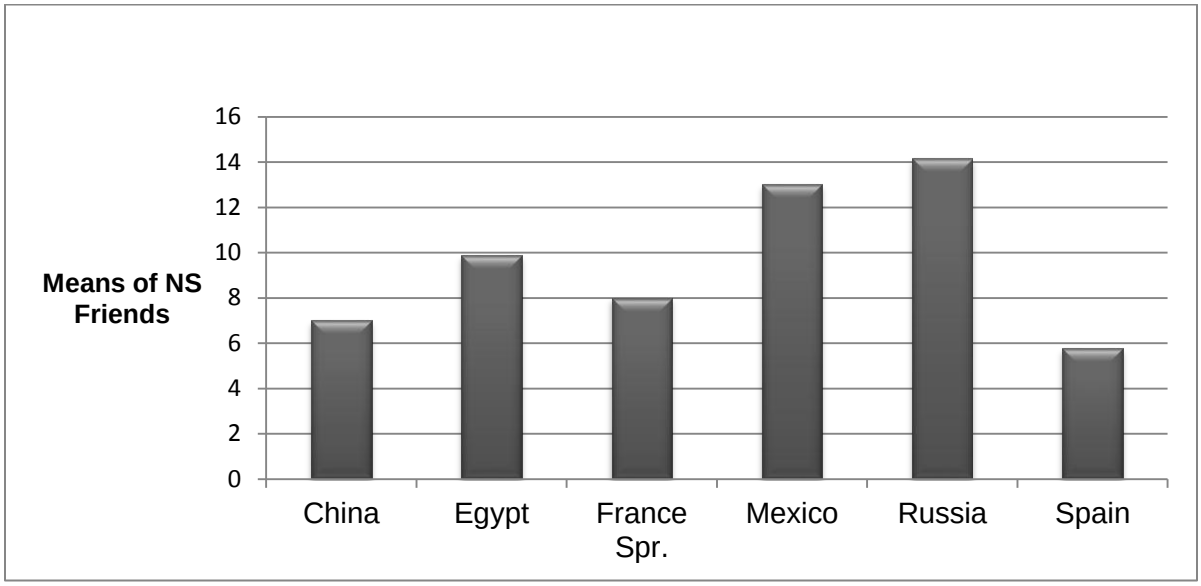
Tukey HSD[a,b,c]

SA Program	N	Subset 1	Subset 2	Subset 3
Spain	22	5.77		
China	8	7.00		
France Spr	14	8.00	8.00	
Egypt	35	9.86	9.86	9.86
Mexico	13		13.00	13.00
Russia	7			14.14
Sig.		.337	.141	.284

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = 24.914.
a. Uses Harmonic Mean Sample Size = 12.239.
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.
c. Alpha = .05.

Figure 1 is a graphical representation of the means of NS Friends, by SA Program (in alphabetical order).

Figure 1: Means of NS Friends by SA Program



RQ5: Which of the pre-trip factors, if any, predicts Intensity of friendships? Predictor Variables Include Intercultural Competence, TL Proficiency Level, Prior Missionary Experience, Gender, Study-Abroad Program, Neuroticism, Extroversion, Openness to New Experience, Agreeableness, and Conscientiousness.

A Pearson correlation matrix (Table 17) was created to look for relationships between Average Intensity, Maximum Intensity, and the other variables. The only variable from RQ5 that had a significant correlation ($p \leq 0.05$) with average Intensity of friendships was being a returned missionary. Of all variables observed, the strongest and most significant correlation ($p \leq 0.01$) with Average Intensity was with a variable outside the scope of RQ4: Duration of Average Time, and its effect size was moderate (Cohen, 1988).

Table 17: Pearson correlations with Intensity

	Average Intensity	Maximum Intensity
Female	-.202	-.197
Spain	-.040	-.275**
Mexico	.001	.082
France Spr	-.126	.008
Russia	-.001	.079
Egypt	.114	.159
China	.025	-.015
Returned Missionary	.231*	.248*
Friend's Engl. Proficiency	.164	.171
PrelDI_DO	-.131	-.013
PreOPI	.164	0.171
Neuroticism	.028	.156
Extroversion	.088	-.032
Openness to new experience	.109	.080
Agreeableness	-.001	.080
Conscientiousness	-.181	-.058
DurAvgTime	.304**	.151

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
a. Cannot be computed because at least one of the variables is constant.

In order to look for factors that might predict measures of Intensity, data was entered to create a regression model. It returned no predictors of Average Intensity, and no model could be created.

RQ6: Is Language Use with Friends In-Country Related to Social Network Development in a Study-Abroad Program?

Data was entered into a correlation matrix (Table 18), to see whether there was a relation between language-use variables, Size variables (including NS Friends), Dispersion, and the Density variables. The Duration of Time in L2 (number of hours spent speaking with each friend

in the TL) was significantly and moderately correlated (Cohen, 1988) with both the Density of Largest Group and with Size. The Average Duration of Time spent with each friend was negatively correlated with NS Friends and with Dispersion. NS Friends, in turn, was also negatively correlated with the percent of time spent using English (L1) with friends. There was also a significant, moderate relation between respondents' estimates of their Friends' English Proficiency and the Average Density of Groups. The total speaking time (DurTotTime) was also moderately and significantly related to both the Density of Largest social Groups, and with Size.

Table 18: Pearson correlations with Language Use, Dispersion, Density, and Size

	Dispersion	Density of Largest Group	Avg. Density of Groups	Size	NS Friends
DurAvgTime	-.253*	.022	.036	-.005	-.363**
DurTotTime	.030	.286**	.179	.368**	-.084
DurPerL2	-.131	-.135	-.057	-.202	.024
DurPerL1	-.113	.054	.114	.015	-.323**
DurTimeL2	.046	.326**	.163	.388**	.025
DurTimeL1	-.002	.168	.147	.262*	-.198
Friend's Engl. Proficiency	-.027	.272*	.302**	.269**	-.153

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

These results exhibit the following trends: first, the more hours students spent speaking the TL, the more friends they gained overall, and the more friends they added into what would become their largest social groups. It could also be considered that the more friends students had – whether in a single social group (Density of Largest Group) or overall (Size) – the more time

they spent talking with them in the TL. Second, as students spent more time with their friends on average, the less likely the students were to have friends in their network who were more likely to be native speakers (NS Friends). It could also be seen that the higher respondents tended to rate their friends' English proficiency, the more friends they added to their groups, on average. Third, the participants who had fewer NS Friends in their networks were more likely to do two things: spend more time, on average, with their friends, and speak a greater percent of their time with their friends in English.

Chapter 5: Discussion

The previous chapters addressed research questions that dealt with the nature of social networks; predictive factors of dispersion, density, size, and intensity of social networks; and predictors of language use. This chapter will summarize the findings of this study, discuss pedagogical implications for administrators and students in SA programs, and discuss the study's limitations.

This study has added to the description of the SA experience, and contributed to the knowledge of what students and administrators can expect from their SA experience(s).

Discussion Points

Prior to drawing conclusions, the following topics pertinent to the study will be discussed: making friends, TL proficiency, language use, study-abroad program, having prior missionary experience, personality, and intercultural competence. For our purposes here, we cannot separate SA programs from the local cultures in which they occurred.

Making friends.

One of the descriptors this study sought to examine was the number of friends students would make during their SA sojourns, and the students succeeded: Many participants filled all 20 vacancies on the SASIQ's list from memory, and none rated the intensity of any friendship as weaker than 3 on the scale of 8. These were not just acquaintances, but people the students considered friends. This supports Schilaty's (2011) findings that students would generally make friends within the available contexts, as well as other researchers who found that students might

fall back on relationships from native speakers of their own language (Dewey et al., to appear; Polanyi, 1995; Wilkinson, 1998).

The potential that SA offers to make new friends should be a source of pride for program administrators, and a tangible benefit that the students can, and should, feel excited about. They should feel excited because each new friendship carries social capital, which may include access to a richness of ideas, goods, and/or opportunities. Part of that social capital includes the fact that many of those friends are (or become) sympathetic experts on the target language and culture. These sympathetic experts can become a valuable resource to the language learners, especially since learning the TL better is one of the reasons that students frequently report for going on SA. Before the trip, students usually know why they want to go study abroad, but they may not know about the potential, mutual benefits to be found through making friends abroad, much less how doing so can help students accomplish their pre-trip goals. The students may come away from SA with eyes opened to a world of opportunities. This is why, both before and during SA, directors and recruiters should advertise and teach the mutual benefits of making native-speaking friends.

These findings highlight a major potential benefit of SA: the ability to build social networks. It is not surprising that SA has been increasing in popularity it recent years (Institute of International Education, 2010). Bearing in mind the prospect of geographically extending their social networks with mutually beneficial relationships – in addition to reaping linguistic and cultural experiences – what surprises this author is that *more* students do not participate in study abroad each year.

TL proficiency predicts number of friends.

None of the examined pre-trip variables (intercultural competence, TL proficiency level, prior missionary experience, gender, study-abroad program, neuroticism, extroversion, agreeableness, openness to new experience, agreeableness, and conscientiousness), came close to TL proficiency for predicting the number of friends one would make while studying abroad – both among fellow students and among local, native speakers. The regression model returned TL proficiency (as measured by the OPI) in the first model, and the combination of TL proficiency and going with the program to Mexico in the second model. In predicting number of friends who were more likely to be native speakers (NS Friends), the regression model again returned TL proficiency in the first model, and the combination of TL proficiency and going with the program to Spain in the second model.

It stands to reason that the students' pre-trip oral proficiency in the TL would be so influential upon building large, dense, or disperse social networks. In SA situations, speaking and listening are the primary modes of exchanging information. It stands to reason therefore, that students with greater TL skill would be better able to function within social circles populated mainly by native speakers; the students would have more linguistic and lexical tools within reach, and they would also have more confidence. Further, speaking with a student with greater TL proficiency is less costly to a native speaker in terms of effort, time, and sympathy required to carry on a satisfying conversation. A pattern of less efficient, costlier conversations could limit the level of friendship the two might form. Our results indicate that students who cannot move beyond small talk and basic phrases may not be able to form equally large, dense, or disperse

social groups within the same SA time frame, as compared to students with greater TL proficiency.

Greater TL proficiency may also unlock greater access to social events, and greater chances of meeting one friend through another, thereby increasing the Density of one's social group and overall network. Having more friends means more access to the flow of opportunities, information, and goods that occurs among friends.

Another benefit of TL proficiency may be manifest through interpretive and written communication while abroad. Oral proficiency affects other modes of communication (Hadley, 2001; Larson, 1983; Rubin, 1994). Therefore, participants with greater speaking and listening skills may have more success reading signs and maps, or writing letters and thank-you notes to friends and host families, which can enrich the students' overall SA experience.

Language use.

This study also found that speaking more total hours in the TL was positively correlated with having more total friends, and more friends in one's largest social group. Speaking a greater percent of one's time in English was negatively correlated with making friends who were likely to be native speakers. (See Table 18.) Those who want to make more native-speaking friends should speak more in the target language. Although the occasional breaks from TL use may be necessary for students to process what they're learning (Wilkinson, 1998), these results give further evidence that students should be encouraged to use the TL in the immersion setting.

There was also a significant correlation between having a greater average number of friends per social group and the respondents' rating of their friends' English proficiency, which corroborates Dewey et al (to appear). This suggests that the better their interlocutors spoke

English, the easier it was for students to make friends within their social circles. This could be due to several factors affecting communication between friends. For example, a friend with greater English proficiency could more easily negotiate meaning with a SA student. The two might have a greater mutual understanding of culture, and they might experience less of a cognitive load in communicating – or in other words, have less "expensive" conversations. It is also possible that as participants gravitated toward friends that had greater English proficiency, they found it easier to make friends with those people's friends, and that in times of communicative difficulty, one friend might step in to help the other two friends understand each other.

SA program by country.

Because there was significant difference between the study-abroad programs in terms of total number of friends, number of social groups, and number of friends per group [as shown in Tables 9, 15, and 16] the programs themselves merit some discussion here.

Other differences emerged in the correlations with friends listed on the questionnaire. Programs in Mexico, Russia, and Spain all showed significant correlations with both total friends ($p \leq 0.01$), and with friends who were more likely to be native speakers (NS Friends) ($p \leq 0.05$). Spain was negatively correlated, while the other two were positively correlated. Therefore, students who went to Russia or Mexico tended to make more friends, while students who went to France Spring and Spain tended to make fewer friends overall, and fewer NS Friends.

It seemed that in the study-abroad programs that facilitated more interaction with local, native speakers, participants were more likely to build networks that were larger overall, had more NS Friends, and greater density. For example the programs that went to Spain and China

did more travelling, and made the least friends. It appeared that one of the goals of the program to Spain was to educate participants about high culture, and view many of its artifacts. Such excursions are certainly desirable, but riding in a bus would impede students' fostering friendships with the locals. The students in France spent the last two weeks travelling. By way of contrast, the students who went to Egypt made more native-speaking friends than those in France Spring, China, or Spain. All students in Egypt were required to read newspapers and to speak to people in the community daily. Several students held jobs in Egypt. The programs that went to Mexico and Russia had the most friends – both in total friends and in those more likely to be native speakers. Students in Mexico did less travelling, and performed local, community service, which resulted in hours of interaction with native speakers. The program to Russia had two tracks that students could follow: an academic Russian 201 track, and a professional track. Several students in Russia, therefore, worked at internships.

These findings do not diminish the value of any of the programs included in the study, but rather they highlight the importance of a program's structure and how differences in program design lead to varying outcomes. Some programs had different goals than the variables that were observed in this study. Indeed this study focused on entirely one outcome, the development of social networks while studying abroad, and other important goals, such as high culture learning, cross-cultural communication, language gain, and motivation were not considered. This means that the programs here may have excelled in other areas and achieved their purposes.

Another possibility for difference in social network development among SA programs could be length of stay (Mendelson, 2004). The three programs that stayed the longest were the same three programs that had the most disperse networks: Russia, China, and Egypt. The

program to Russia had the most disperse networks, followed by China, followed by Egypt. In addition to greatest dispersion, the program to Russia showed the statistically largest networks in both Size and NS Friends. Because the programs to Egypt, Russia, and China lasted roughly twice as long as the others (about one semester versus one term), those students had a longer window of opportunity to build and cultivate social relationships. It is also possible that the students in the longer-staying programs adopted a different attitude toward their stay, compared to students' views from other programs. If the longer-term students saw themselves as something closer to students-in-residence, and less like temporary tourists, that could have affected their motivation toward their studies and their attitudes toward local residents. If their longer stay related to their attitudes, they may have made more effort to branch out into more social contexts within their adopted communities. Under such a scenario, it is also possible that the local residents saw the students less as tourists, which attitude could have affected how the native speakers interacted with the students. A greater length of stay did seem to produce networks with more social groups, yet it did not seem to translate into larger networks. Although programs to Egypt and China lasted longer, they were the second and third smallest for overall Size of network (Table 15), and varied more in NS Friends (Table 16). The program to Mexico was a shorter program, it had a moderate correlation with Size, and it was the only predictor variable for both density of largest group and for average group density. Therefore, program duration alone cannot account for the difference in number of friends.

Neither can we say, from these results, that the number of friends made (whether native speakers or not) was related to living arrangements: students stayed with host families in Spain, Mexico, and France, while students in China, Russia, and Egypt stayed in dorms or apartments

with other SA students. It is true that programs to China, Russia, and Egypt all stayed in dorms or apartments, and the same three had the most disperse networks, but their extra length of stay in-country seems a more viable explanation for having more social groups. Furthermore, the Mexico SA program's duration was about half that of the program to Russia, and participants in Russia only had a few more friends than the participants in Mexico. (See Table 15.) The two programs that strongly predicted dispersion and density were Spain and Mexico. Both were home-stay situations, for shorter terms, but Spain showed a negative correlation for both Dispersion and Density of Largest Social Group, while Mexico was positively correlated in both. It would seem that whether students stay in homes or dorms does not matter to the size of their social networks. Perhaps what the students do during their days matters more than where they sleep. It may also be that students tend to make a limited number of friends in the context of where they sleep at night, because there is a limited number of people under each roof.

Another possible explanation that the program did not show a stronger predictive factor could be that culture may also have played an important, unseen role in social network formation.

Culture may influence how members of the host culture view males and females, how they view Americans, how the students viewed the members of the host culture, and how the SA participants responded to the cultural differences (Polanyi, 1995; Twombly, 1995). Local residents in countries such as China and Russia may have shown more interest in the students because they were Americans, whereas local residents in France and Spain may have seen the students in a less prestigious light. A favorable or unfavorable stereotype may have helped or hindered network formation.

Because the SA program is the basis for many of the activities that students will do and situations that they will encounter, program structure and culture cannot be ignored.

Having prior missionary experience.

Starting as veterans.

Former missionaries represent a package of several variables that may contribute to building larger social networks. For example, they tend to begin with a higher OPI rating, and they have likely had previous experience talking and working with people from foreign cultures. It is also likely that they have had more practice using social skills, such as meeting new people and building relationships with them, and that they have more experience in public speaking in a second language. According to Jarvis (1975), this prior experience with culture shock gives former missionaries an upper hand in dealing with new, unfamiliar situations. In essence, returned missionaries who study abroad have start as veterans.

However, in our data, having been a missionary was not a predictor of number of friendships. Having been a missionary was, however, strongly correlated with both being male (0.829 correlation with $p \leq 0.0001$) and with greater pre-trip oral proficiency. Yet in the regression analysis, having been a missionary was not a predictor. This suggests that the reason that having served a mission was highly correlated with making friends was because returned missionaries tended to have better language skills. TL proficiency was by far the strongest predictor of Size, and was significantly correlated with NS Friends. The program to Russia

serves as an example: it had the most students per capita who had previously been missionaries (85%), and it exceeded all other programs in measure of Size and NS Friends.

Given that an ex-missionary is someone who has essentially already done SA, it is surprising that having prior ministry service did not have more of an effect. One possible explanation that prior missionary service made less of a difference than did TL oral proficiency is that all participants had engaged in TL study, which would have lent them a linguistic and cultural preparation to navigate the social mores and communicative challenges. Perhaps the prior missionary experience would have been an even more salient factor if the other students by comparison had had less formal or academic training.

Another aspect of the former missionaries that might have affected social network development was that many more returned missionaries were male, which might have lent them an advantage (or a disadvantage) in social access, depending upon the local culture. In prior research, gender sometimes made a difference, especially when the local culture played a role (Brecht et al., 1995; Davidson, 2010; Polanyi, 1995; Twombly, 1995). However, in this study it appears to have made no difference. If gender did play a role, it is likely that it was overshadowed by TL proficiency.

What implications can be drawn from this? While the former missionaries show definite preparatory advantages, those who have had little experience interacting with people of other cultures – but who still desire to study abroad – should take heart in the finding that one does not have to serve a mission in order to build up a sizable network of friends in a foreign country. Many of the non-missionary students successfully did.

Personality.

Ultimately, personality was not significantly correlated with social network development. This runs counter to intuition. It suggests that language may be more important than a learner's personality. It is also possible that outside factors obscured the effect(s) that personality may have had. Additional research is necessary before we can draw conclusions.

Intercultural competence did not make a difference.

Pre-trip intercultural competence was neither a predictor nor was it correlated with social network development in the data. Like the results from personality, this was also surprising, considering that cross-cultural differences between people can be strong enough to cause incomplete understandings and alienation between interlocutors (Wilkinson, 1998). One could logically expect that students with greater intercultural competence might be better equipped to navigate social mores, traditions, and protocols, which might lead to larger, more dense, and more disperse network formation during the SA sojourn.

Why did intercultural competence not seem to make a difference? It could be argued that intercultural competence did not predict any of our dependent variables because the students started at similar levels of intercultural competence, especially in light of the facts that all the participants self-selected, all had to want to live abroad for months at a time, and all had to pass the initial interview process. However, this did not appear to be true, as shown in Table 4, so the lack of difference cannot be attributed to lack of variation in the student sample. In spite of their range of scores on the IDI, our participants made a mean of 9.17 NS Friends, within periods of about 7 or 14 weeks. The findings that intercultural competence did not have an effect on social

network formation seems to contradict findings by Anderson et al. (2006), Rexeisen et al. (2008), and Martinsen (2011).

One possible interpretation that these data suggest is that one does not need to already understand a foreign person's culture in order to forge a friendship with him or her. Perhaps it is just that condition of not knowing, yet wanting to decrease the social distance between two people, that provide an impetus and a gateway to get to know new people, and to become friends. Perhaps the question is not "Why didn't intercultural competence make a difference in making new friends?" but rather, "Why should it *have to* make a difference?" It could also be that intercultural competence is less necessary in creating a bond of friendship than it is in maintaining that bond, which may be a suitable area for further study.

Finally, another possible explanation for the lack of intercultural competence's influence is that, again, outside factors may have obscured any difference in the data that intercultural competence may have made. If such is true, and if unseen factors overshadowed the influence of things that are believed to be as influential as intercultural competence or personality, then those factors must be truly powerful, and would merit further study.

Implications

Results seem to indicate that, in terms of social network development, the most successful programs contained a favorable combination of student characteristics, program structure, and program culture. The more successful programs seemed to be populated by students who were proficient speakers, and whose prior experience(s) made them begin as if they were veterans of study abroad. Another possible explanation is that it may be helpful when the program's target culture either has positive views of Americans, or at least does not seem to feel

ambivalence or enmity toward us. It is recommended that directors consider the geography's accompanying culture when selecting sites for SA trips.

The results of this study seem to indicate several things for program administrators. First, there was significant statistical difference between study-abroad programs, as shown in Tables 15 and 16. Therefore, if the directors' goals include helping students to make more friends, particularly with native speakers, it is recommended that directors look carefully at the structure and content of their programs, and the experiences they will provide.

The findings that target language proficiency was such a strong predictor of, and showed a large and significant correlation with making friends abroad, highlight the importance of the program's structure. Therefore, those students with low TL proficiency and without prior SA experience will need extra help in building social networks, and it would be incumbent upon program designers to plan such support for those students. This suggestion lies in accordance with Isabelli-García's (2006) counsel that students should be encouraged to create social networks, and should be tutored in ways to do so.

Lastly, directors should preach to their recruits before and during the SA sojourn about the importance and the benefits of social network formation. It will not likely be foremost on the students' minds, and it will be incumbent upon the directors to bring social networking into the discussion. If the students can catch the vision of social capital and motivate themselves to start interacting with native speakers, they can start to reap benefits from of the SA experience that they did not even know they could or should expect.

Limitations

This section will discuss four limitations pertinent to this study. First, as Carroll (1967) states, those who complete any test or survey are different from those who do not. Therefore, our participants who took and completed the social network questionnaire may be different from those who did not complete it. We might have had different results if our data had been more complete.

A second limitation was introduced when several SASIQ respondents listed their fellow students and professors from Brigham Young University among their friends. Listing fellow respondents affects many variables used in the SASIQ, including the total number of friends, the number of social groups, and language use reports. This limitation is the reason that the category "NS Friends" was created, to better distinguish the two types of friends.

Third, language use is further limited in that if respondents had conversations with multiple friends simultaneously (regardless of whether they were locals), it is possible that those same conversation hours were counted multiple times. This would add to the total hours per week of speaking time with native speakers.

Fourth, missionary data was compiled from university records and from respondents. While the data was incomplete, it was the best available data at the time.

Conclusion

These results seem to indicate that potential SA students can generally expect the following during the foreign sojourn: they will make many friends, both within the SA groups, and in the community. They will consider many of those friendships to be close ones. It is likely that students will also meet friends by way of other friends that they meet in-country. The more proficiency the SA students have in the TL, the more friends they will likely make in the country. The more hours they spend each week speaking in the TL, the larger their social groups are likely to be. Participation in certain programs seemed to create environments that were conducive to social network development; the programs tended to motivate their students to interact meaningfully with local residents.

For students who are considering studying abroad, these findings should simultaneously encourage those with experience, and comfort the uninitiated. Although those who start out speaking the TL better will likely reap the fruits of their labors and make *more* friends, making friends does not appear to be limited by prior missionary service, specific personality scores, gender, or intercultural competence. For example, the two programs that showed the greatest gains in native speaking friends, and in most friends overall, were Russia and Mexico. Mexico's program showed a negative correlation with participants being returned missionaries, while Russia's had a positive correlation.

These results speak to the essence of meeting new people and making new friends. It is easy to see why study abroad is considered for many a capstone of language study: it is a prime opportunity to make new linguistic and cultural connections with people across borders – an opportunity that one has been working so hard to prepare for while studying at home.

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Appendix

Appendix A: Study-abroad Program Characteristics

The following table notes some of the program characteristics pertinent to this study.

Table 19: Study-abroad Program Characteristics

Program	Duration	Living Setting	Characteristics
China	Spring term (approx. 7 weeks)	apartment or dorm	
Egypt	Approx. 4 months	apartment	Students in Cairo were required to do two hours of talking with native speakers, plus two hours of reading newspapers, five days each week (G. Olsen, personal communication, May 5, 2011).
France	Spring term = approx. 7 weeks. Fall semester = approx. 13 weeks.	host family	
Russia	Spring/Summer 2010 (approx. 3 months)	apartment or dormitory	Two tracks: (a) Russian 201, and (b) professional track, often with an internship
Mexico	Spring 2010. 7 weeks.	host family	Many participated in community service.
Spain	Spring 2010. 7 weeks	host family	Extensive travel

Appendix B: Study Abroad Social Interaction Questionnaire

Social Interaction Questionnaire (Part 1)

Your Name (First and Last):

Email address:

In this questionnaire you will be asked about people you spoke with in your target language (the language spoken in your study abroad country) and in English while participating in study abroad. Please respond carefully to each of the items based on your recollections of your experience abroad. Your best recollections are acceptable.

On the back of this page you will find a table where you will list the names of people you became acquainted with while abroad. Please fill out that table according to the instructions given and use it to answer the questions on the second part of this survey (Pages 3-10—stapled together separately so you can flip through the pages and keep your list of names separate for reference).

In the table on page 2 (see back), please write, from memory, the names of friends or acquaintances who you spoke with in your target language (the language spoken in the country where you studied abroad). You may also write the names of native speakers with whom you regularly spoke in English who fit the following description:

- You at least occasionally spoke your second language to them.
- You know them well enough to have spent at least some time socializing with them.

If you had more than twenty friends with whom you at least occasionally spoke your second/target language, please simply list the twenty with whom you that language most regularly.

To help you think about individuals you could name, think about people you met at school, at clubs or formal organizations, in the community, through internships, etc. Think also of people you lived with, as well as people you were introduced to through friends or others.

These names are for your reference only and will not be used by the researchers in their reports, etc. For this reason, you may use first names, last names, initials, etc. The purpose is to help you think about the people you associated with.

Again, you will use this part of the survey (Part 1) to fill out the rest of the survey (Part 2).

1. Give the names of the native speakers you became acquainted with, following the instructions on the first page (see reverse side).

	Name (first, last, or both)
Person 1	
Person 2	
Person 3	
Person 4	
Person 5	
Person 6	
Person 7	
Person 8	
Person 9	
Person 10	
Person 11	
Person 12	
Person 13	
Person 14	
Person 15	
Person 16	
Person 17	
Person 18	
Person 19	
Person 20	

Please keep this page handy so you can use it to fill out the questions in the second part of this survey (pages 3-10)

Social Interaction Questionnaire (Part 2)

2. Please circle the option below that describes how well each person in your list spoke English (English Proficiency). Refer to your list on Page 2, Part 1.

	Level of English Proficiency
Person 1	1-Not at all 2-Poorly 3-OK 4-Somewhat Well 5-Very Well
Person 2	1-Not at all 2-Poorly 3-OK 4-Somewhat Well 5-Very Well
Person 3	1-Not at all 2-Poorly 3-OK 4-Somewhat Well 5-Very Well
Person 4	1-Not at all 2-Poorly 3-OK 4-Somewhat Well 5-Very Well
Person 5	1-Not at all 2-Poorly 3-OK 4-Somewhat Well 5-Very Well
Person 6	1-Not at all 2-Poorly 3-OK 4-Somewhat Well 5-Very Well
Person 7	1-Not at all 2-Poorly 3-OK 4-Somewhat Well 5-Very Well
Person 8	1-Not at all 2-Poorly 3-OK 4-Somewhat Well 5-Very Well
Person 9	1-Not at all 2-Poorly 3-OK 4-Somewhat Well 5-Very Well
Person 10	1-Not at all 2-Poorly 3-OK 4-Somewhat Well 5-Very Well
Person 11	1-Not at all 2-Poorly 3-OK 4-Somewhat Well 5-Very Well
Person 12	1-Not at all 2-Poorly 3-OK 4-Somewhat Well 5-Very Well
Person 13	1-Not at all 2-Poorly 3-OK 4-Somewhat Well 5-Very Well
Person 14	1-Not at all 2-Poorly 3-OK 4-Somewhat Well 5-Very Well
Person 15	1-Not at all 2-Poorly 3-OK 4-Somewhat Well 5-Very Well
Person 16	1-Not at all 2-Poorly 3-OK 4-Somewhat Well 5-Very Well
Person 17	1-Not at all 2-Poorly 3-OK 4-Somewhat Well 5-Very Well
Person 18	1-Not at all 2-Poorly 3-OK 4-Somewhat Well 5-Very Well
Person 19	1-Not at all 2-Poorly 3-OK 4-Somewhat Well 5-Very Well
Person 20	1-Not at all 2-Poorly 3-OK 4-Somewhat Well 5-Very Well

3. In the boxes below, briefly describe how you met each person. For example, you might write statements like "She was my host mother," or "He was a friend of my American roommate, who introduced us" or "He lived in the same dormitory."

	How you met (e.g., "She was one of the study buddies our program set us up with.")
Person 1	
Person 2	
Person 3	
Person 4	
Person 5	
Person 6	
Person 7	
Person 8	
Person 9	
Person 10	
Person 11	
Person 12	
Person 13	
Person 14	
Person 15	
Person 16	
Person 17	
Person 18	
Person 19	
Person 20	

4. Please answer the questions in each column heading in the boxes corresponding with the names on your list (Question 1, Page 2, Part 1).

	On average how many hours did you spend with this person per week?	What percentage of that time did you spend doing activities in the target language? (speaking, doing homework, listening to music, watching movies or TV, etc.)	What percentage of that time did you spend doing activities in English. (speaking, doing homework, writing, listening to music, watching movies or TV, etc.)
Person 1			
Person 2			
Person 3			
Person 4			
Person 5			
Person 6			
Person 7			
Person 8			
Person 9			
Person 10			
Person 11			
Person 12			
Person 13			
Person 14			
Person 15			
Person 16			
Person 17			
Person 18			
Person 19			
Person 20			

5. For each of the people in your list, please indicate the level of your friendship, ranging from mere acquaintance to very close friend/confidant.

Note that in terms of communication, level of friendship ranges from engaging in occasional friendly exchanges (low on the scale) to sharing one's deepest feelings or asking for advice regarding personal challenges (high on the scale). Refer to the diagram below to help interpret the range.

	Level of friendship (1-8)
Person 1	
Person 2	
Person 3	
Person 4	
Person 5	
Person 6	
Person 7	
Person 8	
Person 9	
Person 10	
Person 11	
Person 12	
Person 13	
Person 14	
Person 15	
Person 16	
Person 17	
Person 18	
Person 19	
Person 20	

For the items 6-12, if you need more paper, feel free to attach additional sheets (be sure to number your answers).

6. Choose three people from your list above that you marked as being the closest of friends (highest score). Pease tell why you think you were able to develop good friendships with these people? What allowed you to move up the scale from acquaintance to friend, etc.

7. Choose three people from your list above that you marked as being lowest in terms of friendship level. Please tell why you think you were not able to develop stronger friendships with these people? Describe anything that may have inhibited friendships with these people.

8. What were some obstacles that kept you from speaking your second language with these people?

9. What did your study abroad program do to help you make native speaking friends or acquaintances while abroad?

10. What more could your study abroad program have done to help you make native speaking friends or acquaintances while abroad?

11. What sorts of things did *you* do to make friends with native speakers of the target language?

12. What advice would you give to students who participate in the study abroad program after you regarding how to make friends with locals?

SOCIAL GROUPS

For this item you will help us identify which people know each other and how they know each other by grouping together the people you listed according to where they should know each other from (and possibly where you got to know them). For example, if three of the people are host family members, you would group them together by writing their names in the box "Group 1" and labeling it "Host Family." If four of the people worked at your internship site and knew each other as a result, you would group them together by dragging their names to the "Group 2" box and then giving the box "Group 2" the label "Internship Site" in the blank below. Clubs, community organizations, etc. could also be used as group labels.

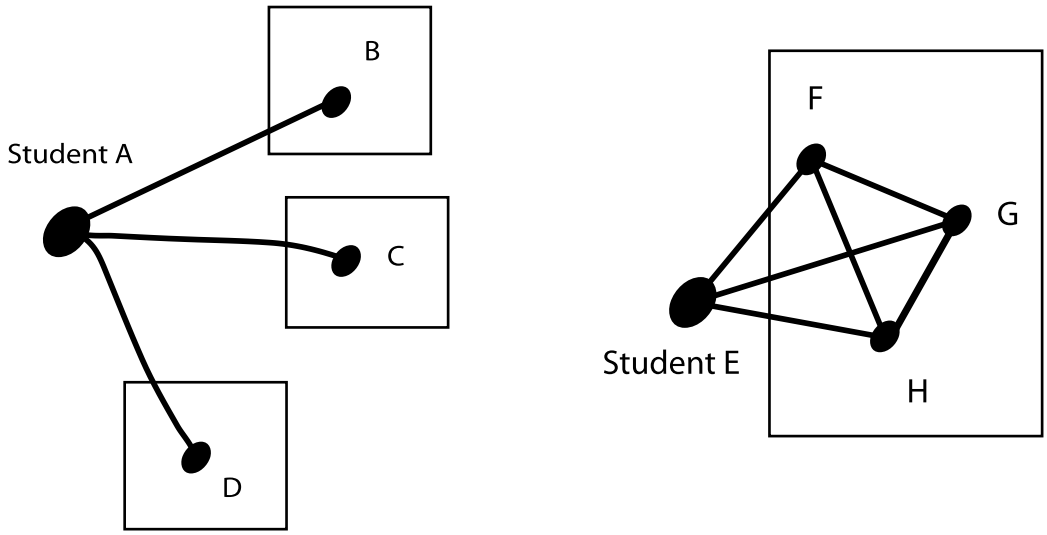
If people belong to more than one group, go ahead and write them in to each group, but mark what you would consider secondary groups (not as important for that person) by placing a number 2 next to the person's name for secondary groups.

As you list people to their groups, please be sure to define each group by writing the group name in the box so that we can understand how the people know each other. If you have more groups than there are boxes, please write these on a separate sheet of paper and attach them to your survey.

Group 1 Label:	Group 2 Label:	Group 3 Label:
Group 4 Label:	Group 5 Label:	Group 6 Label:

Appendix C: Size, Dispersion, and Density of Networks

Figure 2: Graphical Representations of Social Networks



In the above diagrams, Student A's and Student E's networks are the same Size: i.e. they both have three friends. Student A's friends (B, C, D) may not know each other. On the other hand, the Student E listed Persons F, G, and H in the same social group, indicating that they all know each other. Therefore, while Student A's and Student E's networks are the same size, they show different aspects of Density and Dispersion. The networks of Student A and E, respectively, have Dispersions of three and one. Student E's has greater Average Density, and a greater Density of Largest Group.

Appendix D: Glossary

1. SA – study abroad, used as a noun, e.g.: "a study-abroad program" becomes "a SA program"
2. Social network – used as one would discuss a traditional "circle of friends." Does not specifically reference online networks such as those found in Facebook, Google+, and Twitter.
3. Dispersion – the number of social groups the participant listed on the SASIQ
4. Density of Largest Group – How many friends did the participant list in that social group?
5. Average density of groups – the average number of friends in each participant's social groups
6. Size – the total number of friends the participant listed in the SASIQ. *See also: NS Friends.*
7. NS Friends – the number of those friends listed who were *not* part of the BYU study abroad group, and who are therefore more likely to be native-speaking friends. One BYU professor in the French program was an exception, because he was a native speaker of French. *See also: Size.*
8. Tukey HSD – Honestly Significant Difference test

9. Only France_Fall and France_Spring need to have their time frames distinguished in this study, as those were the only with overlapping names and times in 2010.
10. PreIDI_DO – the IDI gives several categories of results: the Perceived Orientation, the Direct Observation (DO), and the difference between those two. The result of the IDI's Direct Observation is where the test-takers actually are in the continuum. The "Pre" prefix refers to the test the students took prior to traveling.
11. PreOPI – the participants had an Oral Proficiency Interview before traveling.