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**Examination of Saudi Students' Social Network and Language Development: A Social
Network Analysis of Saudi International Students and the Input Hypothesis**

by

Thana Abdullah Aljumaah

A Thesis

Submitted to the Graduate Faculty of

St. Cloud State University

in Partial Fulfillment of the Requirements

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Master of Arts in

English: Teaching English as Second Language

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Thesis Committee:

James Robinson, Chairperson

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Abstract

The number of Saudi international students pursuing higher education in the United States has risen significantly over the past decade. Research indicates that people's social networks are an important source of language input. In this study, our main focus was the language input that Saudi students receive while studying in the United States. This study analyzed the social networks of 20 Saudi students enrolled in undergraduate and graduate programs at four Midwestern universities.

The aim of this analysis was to understand the choices that Saudi learners of English establish beyond the regular classroom, to explain and even predict the development of learners' oral communication skills. The sample included 76 people across the 20 social networks, only 19 of whom were native speakers of English. The Saudi students in this study spent an average of 672 hours in weekly interactions with friends within their social networks. The interaction time was divided as follows: 150 hours spent talking to native speakers of English, 101 hours with non-native speakers of English, and 421 hours with Arabic speakers. The analysis of the social networks highlighted Saudi students' interactional forms. Research findings are discussed based on the Social Network Analysis and on Krashen's $i+1$ Input Hypothesis.

Dedication

I dedicate this thesis to my dear parents, beloved husband, and two children. Without them, none of my success would have been possible. I am grateful to have them all in my life.

Acknowledgment

Achieving a master degree in TESL and linguistics has been a great personal and professional experience. It is a journey that cannot be completed alone and requires a tremendous amount of professional, moral and social support, encouragement and inspiration from other people.

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Chapter 1: Introduction

Many researchers believe that studying in a host environment creates many opportunities to use the target language, and to naturally improve one's productive oral ability (Collentine, 2004; Lennon, 1990; Milleret, 1990; Polanyi, 1995; Segalowitz & Freed, 2004). A host environment provides a natural setting for language learners to interact with native speakers in their social networks (Isabelli-García, 2006). An individual's social network refers to the informal relationships that the learner develops with various other people.

The social network of a second-language (L2) learner is considered a “very important source for linguistic input” (Koffi et al., 2017). Language input, according to Krashen (1985), is the crucial element of second-language acquisition. Krashen stated that “all other factors thought to encourage or cause second language acquisition work only when they contribute to comprehensible input” (Krashen, 1985, p. 4). An effective way of examining the amount of language exposure and interaction of language learners is through a social network analysis. Social network analysis is an established approach in the field of sociolinguistics; it measures participants' social relations and indicates their degree of integration into a specific group (Milroy, 1987).

The aim of this thesis is to explore the choices that Saudi English learners make in terms of establishing their social networks. The study investigated the Saudi English learners' social networks to explain and forecast their level of language proficiency based on the Input

Hypothesis. The assumption made in this research is that the social network to which Saudi second-language learners of English belong is linked to the students' linguistic development. Furthermore, it can help to explain and even to predict the development of learners' oral communication skills.

Research Questions

The aim of this study was to discover and identify the following:

1. What types of social networks do Saudi students establish in the target culture?
2. What factors might hinder Saudi learners' interactions with native speakers of English?
3. Based on Saudi learners' social networks and the Input Hypothesis, do different types of social networks predict a learner's language proficiency?

Chapter 2: Literature Review

This chapter provides a detailed definition of “social network” and discusses fundamental concepts in social network analysis, including measures of social networks. Studies that have explored the influence of a social network on second-language acquisition are then reviewed; this includes an overview of the Input Hypothesis and related studies. Lastly, a brief overview of the Saudi scholarship program is presented, including the aim of the King Abdullah Scholarship Program. A review of the social and cultural factors that inhibit Saudi students from making connections with the target culture is also presented.

The Concept of Social Network

A person’s social network refers to the group of people who are related to the person in different ways (Wardhaugh & Fuller, 2015). The phrase “social network” is defined as “the aggregate of relationships contracted with others, a boundless web of ties which reaches out through social and geographical space linking many individuals, sometimes remotely” (Milroy & Gordon, 2003, p. 117). In other words, it is the interaction between people who encounter each other either directly or indirectly for various reasons (Milroy, 1987). A social network is also described as “a set of actors or nodes along with a set of ties of a specified type (such as friendship) that link them ... through shared end points” (Borgatti & Halgin, 2011, p. 1169). Hence, social network is expressed in terms of relations, that is, the linkage among units in the network.

Social network analysis is aimed at understanding the structure of relationships among individuals and identifying the role of each actor in the network (Zappa-Hollman & Duff, 2015). The social network structure consists of a limited set of actors as well as connections that focus on relational information (Wasserman & Faust, 2009). Prell (2012) defined the social network as “a set of relations that apply to a set of actors, as well as any additional information on those actors and relations” (p. 9). Actors and relations are central components in any social network structure: “social structure can be represented as networks—as sets of nodes (or social system members) and sets of ties depicting their interconnection” (Wellman & Berkowitz, 2008, p. 4).

Fundamental concept in social network analysis. Social network analysis is derived from the social sciences. However, networks are found in many fields, such as ecology, physics, genetics and computer science (Borgatti, Everett & Johnson, 2013). The actors studied are thus typically human but could be different species and types of organizations (Borgatti et al., 2013). Social network analysis is a methodological tool that is used in sociolinguistics to measure people’s social relations and to determine the degree of social interactions among them (Lanza & Svendsen, 2007; Milroy, 1987; Scott, 2000). Concepts that are fundamental to social network analysis include the following: actor, relational tie, dyad, triad subgroup and groups (Wasserman & Faust, 2009).

Actor: The pivotal element of a social network is the actor. Actors can be individual people or social entities such as corporate groups or organizations (Wasserman & Faust, 2009)

Relational Tie: Relational ties refer to the range of social connections that might exist within one relationship (Robins, 2015). Actors connect to each other through broad ties, and the main feature of such ties is to create linkages among a group of actors (Wasserman & Faust, 2009).

Dyad and Triad: A dyad refers to two actors; the ties between those two actors are analyzed. “Dyad” basically means a pair of actors and the possible relations between them. Triad analysis is concerned with a larger subgroup of actors, namely three actors and the possible relations among them (Wasserman & Faust, 2009).

Subgroup: A subgroup implies the study of relations among a large subset of actors (more than three) and the links between them (Wasserman & Faust, 2009).

Group: A group analysis is concerned with the study of the relationships among a collection of actors, an organization or a whole system.

Notation for Social Network Data

Analyzing social network data relies on various measures of the relationships associated with one actor or a pair or group of actors. The notation system is aimed at allowing precise communication among researchers. Many ways have been developed to describe social networks in mathematical terms. The most common are graphic theoretic notation, sociometric

notation and algebraic notation (Wasserman & Faust, 2009). According to Wasserman and Faust (2009),

Graph theoretic notation is most useful for centrality and prestige methods, cohesive subgroup ideas, as well as dyadic and triadic methods. Sociometric notation is often used for the study of structural equivalence and blockmodels. Algebraic notation is most appropriate for role and positional analyses and relational algebras. (p. 70)

In this study, graph theoretic notation was used to analyze the network data. Thus, the following section is concerned only with describing the graph notation.

Graph theoretic notation. A graph consists of two elementary sets of nodes, also called points or vertices, and lines—also called arcs or edges. The notion of the graph theory is to present the pattern of relations among points, to refer to the properties of the actor nodes and lines (Scott, 2000). The symbol \mathcal{N} represents the set of actors in a graph:

A set \mathcal{N} of g nodes (actors): $\mathcal{N} = \{n_1, n_2, \dots, n_g\}$.

For example, a group of five ESL students – Sara, Tom, Ryan, Windy and Nora—can be shown as $\mathcal{N} = \{n_1 = \text{Sara}, n_2 = \text{Tom}, n_3 = \text{Ryan}, n_4 = \text{Windy}, n_5 = \text{Nora}\}$. The group of five actors are referred to by symbols. When two nodes are connected by a line, they are “adjacent to one another” (Scott, 2017, p. 78). An example of this graph is shown in Figure 2.1. The five nodes present the five ESL students, and the lines represent their interactions in the target

language. To show the intensity and frequency of interactions on the graph, the thickness of lines can be varied to show the strength of relations (Yang, 2008).

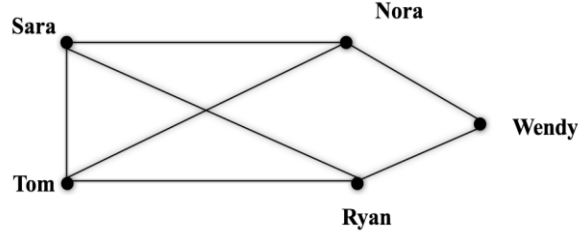


Figure 2.1. A graph of five actors and their interaction in the target language.

The symbol \mathcal{L} represents the set of lines that link either an ordered pair of nodes or a non-ordered pair nodes (n_i, n_j) $\mathcal{L} = \{l_1, l_2, \dots, l_g\}$ (Wasserman & Faust, 2009). Lines correspond to different types of relational data, either ordered, non-ordered, directed or non-directed.

Assuming a pair of actors n_i, n_j in an ordered relation, the actors are joined by lines, where n_i is the sender or chooser and n_j is the receiver or chosen. Hence, the order of actors matters in a relationship. There is a crucial distinction between a pair of actors $\langle n_i, n_j \rangle$ and a pair of actors $\langle n_j, n_i \rangle$ in an ordered relation. The order of the actors is considered a significant element of collection of pairs. The elements in \mathcal{L} can be represented graphically by drawing lines with single-headed arrows, from the first actor to the second; these arrows are called arcs and they indicate a “directed graph”.

A directed graph means that the relation is directed from one node to another. There are non-directional, non-ordered relations in which one cannot distinguish the tie order between $\langle n_j, n_i \rangle$. Hence the measurement to be made in a non-directed graph has a maximum

of $(g^2 - g)/2$ pairs. By contrast, the measurements in a directed graph contain a maximum of $(g)(g-1) = g^2 - g$ lines, namely the number of ordered pairs (Wasserman & Faust, 2009, p. 72).

Multiple relations. If more than one relation exists in the network, either directional or uni-directional, the graph theoretic notation represents the multiple relation by a set \mathcal{R} , where R represents the number of relations. For example, one set might indicate “friendship” relationships and a second set “work” relations (Wasserman & Faust, 2009, p. 73).

Diagrams. If relations are directed from one actor to another, they can be represented in a directed graph, also referred to as a “diagram”. According to Scott, “A directed graph is represented in drawn form by attaching an arrow head to each line, the direction of the arrow indication the direction of the relation” (Scott, 2000, p. 65). The line direction might represent choice, liking, and exchange. Non-directed graphs have no arrowhead (Wasserman & Faust, 2009). Figure 2.2 shows a simple diagram.

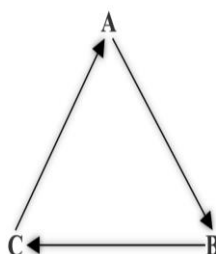


Figure 2.2. Simple network diagram.

Measures of Social Network

Multiplex and uniplex networks. A network is considered multiplex when people are linked through more than one social event. For example, in a multiplex network, people go to

school together, work together, marry each other's siblings, or are involved in certain activities together. Generally, these networks produce strong social cohesion, feelings of solidarity and a sense of identity (Wardhaugh & Fuller, 2015, p. 71). By contrast, social networks are uniplex when people in the network are linked through simple relations or isolated social events. People in uniplex networks are more likely to reduce their opportunities for social cohesion and have weak feelings of solidarity and identity (Wardhaugh & Fuller, 2015, p. 71).

Density. The network is considered dense if the people in an individual's social network interact with each other. If the people do not know each other, the network is considered loose (Wardhaugh & Fuller, 2015). Milroy (1980) used various terms to describe density, such as "high density network" and "low density network". Figure 2.3 shows X with a dense network; people who interact with X are shown as points and linked by lines. By contrast, Figure 2.4 shows X with a loose network.

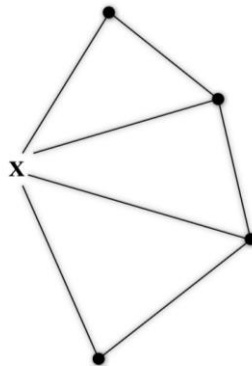


Figure 2.3. High-density closed personal network structure. X is the focal point of the network. (Milroy, 1987, p. 20).

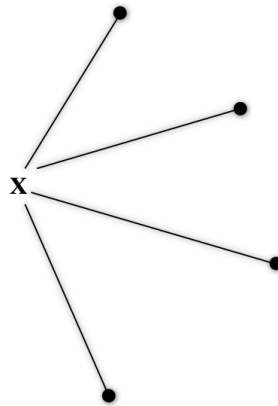


Figure 2.4. Low-density open personal network structure. X is the focal point of the network (Milroy, 1987, p. 20).

Density is the most widely used measure in social network analysis. According to Scott (2017), “the intensity of the relation is an important consideration and can be represented by a numerical value” (p. 76). Density describes the general level of linkage among the nodes in a graph. To measure density, the number of actual links is divided by the number of possible links. For example, Figure 2.1 shows 7 out of 10 possible links, so the density is 0.70 (Chambers, 2003).

The density of a graph refers to the number of lines in a graph; it is defined as a proportion of the possible number of lines, referred to as Δ . The density of a graph can also be calculated as $\Delta = 2L/g(g-1)$ (Scott, 2000). Figure 1 has 5 nodes and 7 lines, so $L = 7$, $g = 5$. According to this formula, the density is again 0.70. Nevertheless, the results generated from the two methods are comparable. Based on the literature, researchers have different opinions about the density of a valued graph.

Nodal degree. The degree of the node refers to the number of line incidents with the node. The degree is easy to calculate by counting the line incidents with the nodes; for example, the degree of the node X in Figure 2.3 is 2.4. The mean nodal degree of all nodes is the average degree of the nodes in a graph (Iacobucci, 2009).

Signed graph. A signed graph carries additional information, such as a positive or negative sign (+ or -). For example, signed graphs use signs to represent oppositions and agreements among actors, with signed lines representing actors in agreement (+) or in opposition (-) (Iacobucci, 2009).

Valued graph. A valued graph is a graph that represents a numerical quantity. The lines of a valued graph determine a numerical value. For example, the value of a graph relates to a proper measure of intensity, such as the frequency of relationship among actors (Scott, 2000).

Social Network and Second Language Acquisition

Linguistic practices emerging within an individual's social network has been a main concern in the field of sociolinguistics (Chambers, 2009; Eckert, 2000; Kurata, 2010; Milroy, 1987). A wealth of research has examined the impact of L2 learners' social networks on the acquisition of the target language (Dewey, Ring, Gardner, & Belnap, 2012; Pellegrino, 2005; Whitworth, 2006). The social network approach facilitates studying many relevant discursive contexts in learners' personal networks; it provides an ideal tool to measure language

competence (Smith, 2002). An individual's relation with others is considered a dominant factor in second-language learning "because the person is a social being" (Kurata, 2010, p. 382).

Krywulak (1995) found that international students' social networks involved both conational and host national networks. The study showed that conational social networks helped the students with initial adjustments such as living arrangements, school registration, and sharing and discussing foreign-environment experiences. However, these networks hindered long-term language development. By contrast, host national networks were found to improve language proficiency and to develop students' understanding of the host society. The findings of the study supported the view that forming strong relations with host nationals was a crucial factor in students' linguistic competence.

Fraser (2002) determined that learners who participated in community interactions in L2 contexts, such as joining a sports team or playing in an orchestra, demonstrated better language development on measures of reading and writing competency, compared with learners who followed traditional classroom-oriented programs. Whitworth (2006) also found that engaging in activities outside of the classroom contributed to L2 learners' development of proficiency.

Wiklund (2002) studied the relationship between the quality of immigrants' social networks and L2 language learning, to assess the importance of diverse social networks in the

development of L2 proficiency. Wiklund (2002) studied the social networks of immigrant adolescents in Sweden by examining a subset of their three best friends from three different groups: Swedish, own ethnic group, and “other” (people who were not Swedish and did not belong to the student’s own group). The role of these social networks in L2 development and school achievements was evaluated. The researcher measured the social-network scores for density, multiplexity, and frequency of interaction, and compared these scores with the students’ performance in Swedish. Wiklund reported that students who had strong network relations with the Swedish or “other” groups tended to perform better in Swedish.

Dewey et al. (2012) also reported that social-network intensity or level of friendship was an important predictor of L2 development. In their study on the social network formation of Arabic learners in the Middle East, they found that learners of Arabic who had strong friendships with native speakers showed better development in L2. Hence, relationships among the members of an individual’s social network are critical in determining L2 development and language gain.

Isabelli-García (2006) examined the role of extra-linguistic factors—such as motivation, attitudes and social interaction—on the speaking performance of four Spanish-language learners in Argentina. The study used diaries, questionnaires, and social network logs to gather data on the amount of interaction with native speakers as well as the students’ attitudes and motivation. The participants completed pre-tests and post-tests to assess their speaking

proficiency. The findings of the study showed that a positive relationship existed between interaction with native speakers and speaking performance. The researchers concluded that informal contact with native speakers can greatly enhance second-language acquisition.

Segalowitz and Freed (2004) investigated the role of context and contact in second-language acquisition. They examined the oral proficiency of 40 Spanish learners in two learning contexts: at-home university and study-abroad setting. The results showed that learners in L2 contexts made greater gains in oral proficiency. This result confirms the importance of individual interaction with native L2 speakers.

Overall, social networks are likely “to correlate closely with how learners envision themselves in the host culture” (Isabelli-Garcia, 2006, p. 231). According to Isabelli-Garcia (2006), second-language learners for whom a segregation of two cultures exists in their social network cannot expect to learn and integrate fully into the target environment.

The literature indicates that students who maintain strong relationships with their family and conational friends while studying abroad fail to create strong relationships with native speakers of the target language. This obstructs their linguistic achievements. Generally, researchers recommend that international students should establish relations with native speakers of the target language. The more the student interacts with native speakers, the more input they receive and the better their proficiency in spoken English becomes.

There is a strong relation between Krashen's Input Hypothesis and an individual's social network. Krashen's theory states that learners progress and improve when they receive input from people who have greater language proficiency than they do (Krashen, 1985). Thus, a second-language learner's social network reflects their L2 improvement and allows for predictions related to their language acquisition. In the next section, Krashen's Input Hypothesis—which is the most important theory about the role of input in second-language acquisition—is discussed further.

The Input Hypothesis

Krashen's theory of second-language acquisition consists of five main hypotheses, as follows:

- Acquisition-learning hypothesis
- Monitor hypothesis
- Natural order hypothesis
- Input hypothesis
- Affective filter hypothesis.

Krashen's Input Hypothesis has become the most important theory about the role of input in second-language acquisition (Young, 1989). It attempts to answer “the crucial question of how we acquire language” (Krashen, 1985, p. 168). Krashen's theory is also “one

of the most controversial theoretical perspectives in SLA in the last quarter of the twentieth century” (Brown, 2000, p. 277). The Krashen Input Hypothesis posits that:

(a) Speaking is a result, not a cause, of language acquisition. Speech cannot be taught directly but “emerges” on its own through building competence via comprehensible input.

(b) If input is understood and there is enough of it, the necessary grammar is automatically provided. The language teacher need not attempt deliberately to teach the next structure along the natural order; it will be provided in the right quantities. This information is automatically received if students receive enough comprehensible input.

Krashen (1985) asserted in the Input Hypothesis that acquisition occurs through understanding input that is a bit beyond the current level of competence: “we move from i , our current level, to $i+1$, the next level along the natural order, by understanding input containing $i+1$ ” (Krashen, 1985, p. 2). Thus, according to the hypothesis, second-language learners improve and progress along the “natural order” when they receive input beyond their linguistic competence.

Krashen’s Input Hypothesis has substantially affected all areas of second-language acquisition. However, the vagueness of the theory has earned it severe criticism. Krashen did not define “comprehensible input” or precisely explain what the formula $i+1$ signifies (McLaughlin, 1987). Moreover, Krashen’s description of the next stage of development and

the natural order is not determined. Krashen also did not provide answers regarding the acquisition process; neither did he explain any “mechanism for moving along any given stream of progress” (Gregg 1984, p. 87). Despite the vagueness in the Input Hypothesis, it remains “the strongest theory of the role of input” (Young, 1989, p. 123).

Based on Krashen’s Input Hypothesis, Koffi et al. (2017) examined the linguistic input that nonnative speakers of English received while studying at St. Cloud State University in the United States. They analyzed the social networks of five international students. They hypothesized that diverse social networks of nonnative speakers of English could explain and predict the students’ language proficiency, especially regarding vowels. The data did not support Krashen’s theory. The findings did not confirm that dense, multiplex and diverse social networks alone could improve the language proficiency of L2 speakers of English. The study showed that participants received plenty of $i+1$ input in English, yet this exposure did not translate to improved pronunciation.

The review so far has shown that several studies of second-language acquisition have examined the effect of learners’ social networks on their spoken English, in terms of the quality and quantity of language input received from native speakers. This study explores the types of social networks Saudi students developed in the target culture. Furthermore, the networks of the students are analyzed, and the level of oral communication skills is explained and forecasted using the Input Hypothesis. The next section provides a brief overview of the

Saudi scholarship program. The challenges experienced by Saudi students and the attitude of international students towards forming social networks within the target culture are also discussed.

King Abdullah Scholarship Program (KASP). In 2005, King Abdullah launched the King Abdullah Scholarship Program (KASP), supported by the Saudi government and implemented by the Ministry of Education. The program is designed to provide substantial funding for distinguished Saudi citizens to pursue undergraduate and graduate education at the world's best universities. According to Bukhari and Denman (2013), it is “the largest fully endowed scholarship program ... established by a nation state” (p. 151).

The KASP mission is to prepare and qualify Saudi Arabian human resources in an effective manner to compete at the international level in the labor market and in scientific research. One goal of KASP is to foster intercultural understanding through the development of international students. The program accelerates the students' development of intercultural competence as well as mutual understanding between Saudi students and host countries (Ministry of Higher Education, 2017).

The program is also designed to facilitate cultural and academic exchange between Saudi Arabia and other countries. The program was first implemented for 5 years but was then extended to 2020. The United States remains the top destination for Saudi students pursuing their higher education, with enrollment of over 100,000 students at American institutions

(Ministry of Higher Education, 2017). The Saudi Arabian Culture Mission to the United States (SACM) administer the program and policies to meet the educational and cultural needs of Saudis who study in the United States. SACM continually provides useful information and general instructions for Saudi students learning English as second language. SACM urges English learners to interact with native speakers to improve their language skills and to enhance their understanding of the host culture and society (SACM, 2018). Hence, interaction with native English speakers is a crucial factor to develop their language and fulfill the aims of the KASP.

Variables that influence social networking with native speakers. The benefits of interaction between international students and native speakers from the host culture are noteworthy. However, studies have shown that communication between American and international students, specifically students from the Middle East, is limited (Trice, 2004). Qualitative studies have shown that Saudi students barely converse with American students (Al Murshidi, 2014; Alreshoud & Koeske, 1997).

Several studies have considered variables that affect international students' success in developing social networks with American native English speakers. An immediate barrier faced by international students is their weak English language skills. Poorly skilled English learners often have difficulty in communicating with host-country students, and they do not acquire the cultural understanding that results from a broad knowledge of the language

(Wierzbicka, 1997). In a study of Japanese, Taiwanese, and Chinese undergraduate and graduate students, Yang, Teraoka, Fichenfield, and Audas (1994) found that a lack of time due to academic workload was a common factor among international students. The students claimed that this lack of free time prevented them from forming strong friendships with Americans. The length of residency in the United States was not a factor that predicted their relationships with Native American friends (Yang et al., 1994).

Several additional variables, such as gender and marital status, were related to the influence of social networks among international students. Perrucci and Hu (1995) reported that married graduate students were more satisfied with their social and community relations than were single international students. Amount of time an international student spends socializing with conational friends, together with vast cultural differences, largely account for the nature and size of the student's linkages with host-country friends. Alreshoud and Koeske (1997) concluded that "vast cultural differences" caused Saudi students to lose interest in communicating with American students. Furthermore, Saudi students chose to live near each other, made their own associations, and found their own religious places (p. 243).

Trice (2002) reported that graduate international students in the United States attributed their limited relationships with native speakers of English to the American students themselves. In that study, Trice (2002) found that the main reasons for international students not interacting with Americans were a lack of interest in making friends with Americans,

ethnocentrism, discrimination against international students, and intolerance of a nonnative accent. Kolowich (2017) similarly observed that white-American students in St. Cloud State University, and many other campuses, finish the 4 years without spending significant time with people from different backgrounds than their own.

Trice (2007) studied faculty members' explanations of the variables that influenced graduate international students' success in forming social bonds with native speakers. The faculty members stated that strong ties with conational friends, lack of time to invest in friendships, and poor English skills played a substantial role in hampering relationships with native speakers. Because international students' social networks influence their overall linguistic and cultural experiences, further research is warranted to understand these dynamics. Such research could enable specialists to develop ways of aiding international students in their social interactions.

Conclusion

Several studies of second-language acquisition have focused on the effect of learners' social networks on their spoken English. The quality and quantity of the language input received from native speakers has been of interest. This study explored the types of social networks that Saudi students developed in the host culture; the students' networks and oral communication skills were analyzed using the Input Hypothesis.

The literature review indicated that Krashen's Input Hypothesis is highly relevant in understanding an individual's social network. Krashen's theory states that learners progress when they receive input beyond their proficiency level (Krashen, 1985). Earlier literature recommended that international students should establish relations with native speakers of the target language, as this boosts their English proficiency. Thus, a second-language learner's social network reflects his or her L2 improvement and enables predictions about their language acquisition.

In this chapter, we provided definitions of the social network as well as fundamental concepts in social network analysis, and measures of social networks. Studies that have explored the influence of social networks on second-language acquisition were introduced. The Input Hypothesis and related studies were also reviewed. Finally, a brief overview was provided of the Saudi scholarship program and the objectives of the KASP. The social and cultural factors that inhibit Saudi students from making connections with the host culture were reviewed.

Chapter 3: Methodology

Research Questions

The purpose of this study is to answer the following questions:

1. What types of social networks do Saudi students establish in the host culture?
2. What factors hinder Saudi learners' interactions with native speakers of English?
3. Do different types of social networks affect second-language learners' language proficiency? (This question is based on Saudi learners' social networks and the Input Hypothesis.)

Participants

This study explores the kinds of networks that Saudi international students living in the United States are likely to create. The Saudi Ministry of Education (2017) reported that 66,823 Saudis were enrolled in American institutions; most of these students were male (SACM). The current study enrolled 20 Saudi students, among whom 14 were male and 6 were female. They were studying at four Midwestern universities in undergraduate and graduate programs. Their length of residency varied from 1 to 10 years. All had taken ESL classes for at least one semester; at the time of this study, they were pursuing their undergraduate and graduate degrees. Saudi language students were excluded because they would not have the opportunity to interact with domestic or native speakers in a regular classroom environment. Among the selected participants, their language proficiency gave them a better opportunity to establish

relationships with native English speakers. The interviews were conducted in English. The participants showed excellent language use and they articulated their thoughts about their experiences, social networks, and relationships with ease.

Material and Procedures

To analyze social networks, researchers have used various observation tools, questionnaires, and interviews (Knoke & Yang, 2008; Milroy, 1987; Scott, 2017). For this research, an interview with the participants was arranged using the questions in the Appendix. The first and second questions were asked to categorize participants' ages and length of stay. The third question was asked to identify each participant's four best friends. Participants could name fewer than four if they did not have four close friends. The fourth and fifth questions were asked to find out whether the participant's network was uniplex or multiplex. If people interact in more than one social event, their network is multiplex (Wardhaugh & Fuller, 2015). The sixth question was concerned with the type of topics and subjects that participants shared with their friends. The seventh question probed the duration and frequency of their interactions, so that the researcher could gauge whether the interactions were strong or weak. The eighth question was asked to determine if relationships existed among the people in the participant's network; this indicated whether the network was loose or dense (Wardhaugh & Fuller, 2015). The ninth question gauged how the participants rated their English proficiency and helped to determine whether this was a factor in how they established their social

networks. The last question explored factors that might hinder social interactions with native speakers, from the participant's viewpoint.

Analysis

The findings of previous studies that were similar to this study led to certain expectations for the findings of this research. These were helpful in addressing the research questions:

1. What types of social networks do Saudi students establish in the target culture?
2. What factors might hinder Saudi learners' interactions with native speakers of English?
3. Based on Saudi learners' social networks and the Input Hypothesis, do different types of social networks predict a learner's language proficiency?

By analyzing the students' social networks, we could learn about their relationships and what they learned from engaging with native speakers of English. We were also interested in the difficulties they encountered when interacting with native speakers of English. The main question is that, based on the Saudi learners' social network and the Input Hypothesis, does establishing different types of social networks in L2 relates to learners' language proficiency?

A review of previous studies and theories supported the prediction of language improvement. The findings of this study were expected to offer further insight and implications for international students regarding the importance of language input. The

program administrators of Saudi scholarships might also decide to encourage awareness among students of the need for social interaction.

Chapter 4: Findings

In this chapter, the findings of the interviews are presented, followed by tables and graphs of the participants' social networks. Network originators, nodes, and interactions are represented by links that originate from the center. According to Schweitzer (2018), using topology in complex networks results in “applicable and impactful insights in the social sciences” (p. 44). In our research, that insight pertained to the ways in which the participants were interrelated or related to other people.

The networks are analyzed in this chapter, and the research questions are answered in the next chapter. The graphs are valued; the values of the lines in a graph represent the length of time spent with each friend. The density of a graph is measured by dividing the number of actual links by the number of possible links (Chamberas. 2003). All networks are nondirectional, meaning that the relations from the focal actor to all actors in the network are equal from both sides.

Participant 1: Jehan

Jehan is a graduate woman, aged 32 years, who is pursuing her Ph.D. at Iowa State University. She has been living in the United States for about 8 years and for 4 years in Iowa. Jehan interacts with Rania, Safiyah, Kylie, and Somayah. The language used with all of them is Arabic, except for Kylie. Kylie is a Native American, so Jehan speaks English with her. Not all the people in Jehan's network know one another. Rania, Safiyah, and Somayah do not

know Kylie and have never met her. Rania and Safiyah know each other very well and they are friends. Somayah knows Rania and Safiyah, but they are not friends.

Jehan describes her best friend, Rania, as her sister and emergency contact in the United States. Rania is a family friend, gym partner, and study friend; she has also been Jehan's reviewer in several studies. Jehan and Rania meet at home; go to restaurants, parks and barbecues; hike; go to gym; and, most importantly, study together regularly as they are both Ph.D. students. Jehan says she talks to Rania daily, about everything she encounters. She talks to her about her husband, children, school, research and travel plans. Jehan spends 6 hours with Rania every week.

Jehan's second closest friend is Safiyah, an undergraduate student at Iowa State University. Jehan describes Safiyah as her younger sister, friend, and neighbor. Jehan drives Safiyah most days because Safiyah does not own a car. They socialize every week for about 2 hours. When Safiyah visits Jehan at home, they play video games with Jehan's children and watch movies. Most of their conversation is about playing, partying, dancing and having fun.

The third friend in Jehan's social network is Kylie, an American undergraduate student at Iowa State. Jehan met Kylie with her boyfriend in the university's prayer room, and later they became gym partners and friends. Kylie was interested to learn more about her boyfriend's religion, so she started asking Jehan questions about Islam. Jehan invites Kylie to her house and cooks some of her favorite Arabic food for her. Sometimes they study together

at the library or go to the gym. Jehan explains that her first conversations with Kylie were mainly about religion. Then they started talking about sports, activities around the university and city, events, and dating in the Arab culture. Jehan spends 2 hours with Kylie weekly.

The fourth friend in Jehan's social network is Somayah, the Iraqi president of the Muslim community in Ames, Iowa. Jehan says that Somayah is the first friend she knew in Iowa. Somayah was born in the United States and is bilingual, so Jehan shares some of her writing with Somayah for editing and proofreading. She does not go out with her often, but they see each other once a month in *masjid* or community gatherings; some of these events may last more than 2 hours. Somayah and Jehan also talk about parenthood. Somayah has six children and is always busy, but she still manages to serve as the head of the Muslim community in Ames.

Jehan rates herself as an advanced English speaker. However, she considers her writing skills to be rather limited. She claims that when she first came to the United States, all her social network connections were native-born Americans. The reason for this, she explains, was that she was learning English and desperately wanted to maximize her English use – and she succeeded. Now, as a Ph.D. student, she realizes that she lacks English speaking friends. She thus attended a conversation partner program at her university. Jehan says she meets with her conversation partner weekly.

Speaking about her experiences with making American friends in Colorado, she says she benefited greatly but religion was a concern. Jehan went out every weekend with her friends, all of whom drank, and she felt uncomfortable because she does not drink and she would end up driving all of them home. She explains that the kind of activities they enjoyed did not interest her. Table 4.1 is a summary describing Jehan's social network.

Table 4.1

The People in Jehan's Social Network

	Rania	Safiyah	Kylie	Somayah
Country of Origin	Saudi Arabia	Saudi Arabia	US	Iraq
L1	Arabic	Arabic	English	Arabic
Amount of Interaction	6 hrs weekly	2 hrs weekly	2 hrs weekly	2 hrs monthly
Ties or Connections	Best friend Family friend Gym partner Study partner	Neighbor Friend	Gym partner Friend	Friend Religion Community
Language used socially	Arabic	Arabic	English	Arabic

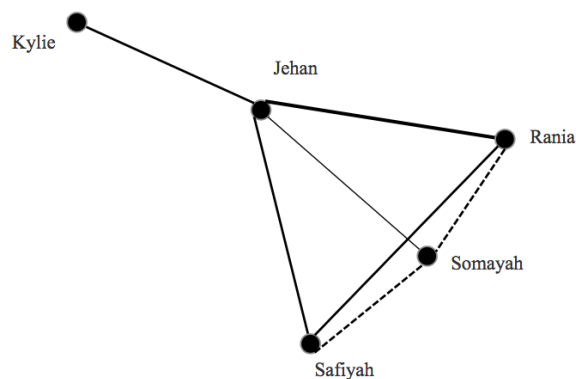


Figure 4.1. Jehan's social network.

Analysis of the social network of participant 1, Jehan. Jehan's social network

(Figure 4.2) is multiplex, because all people are linked “in more than one way, that is, not just through work but also through other social activities” (Wardhaugh & Fuller, 2015 p. 71).

When she is with Rania, they go out, eat out, enjoy family picnics, hike, study together, and go to the gym. The relationship between Rania and Jehan is closer than any other in Jehan's network; as shown in Table 4.1, she spends 6 hours with Rania weekly.

Safiayh is also her neighbor, but she usually visits her at home and they play with Jehan's children or watch movies. Kylie is Jehan's gym partner and they also meet at the library to study, and she occasionally visits her home. As for Somayah, she is the head of the Muslim community, and they mainly talk about the community. Somayah helps Jehan with her writing, her parenting challenges, and time management.

The degrees of nodes of Jehan's social network are shown in Table 4.2. The degree of the node refers to the number of lines incident with the node. In this analysis, it refers to the number of ties and contexts between the focal actor and the nodes.

Table 4.2

The Degree of all Nodes in the Network of Participant 1: Jehan

Node	Degree
n1 = Raina	4
n2 = Safiyah	2
n3 = Kaylie	2
n4 = Somayah	2

Jehan's social network is dense because everyone in her network knows and interacts with each other, except Kylie. The average interaction time between Jehan and people in her social network is 12 hours per week. Total amount of time Jehan talks to people in Arabic is 10 hours; only 2 hours are spent talking English. The density and durations of Jehan interactions with her friends are listed in Table 4.3.

Table 4.3

The Density of Jehan's Graph and the Time/Language Jehan Interacts with Friends

Density of valued graph	0.7
Amount of time Jehan interacts in Arabic (hours)	10
Amount of time Jehan interacts in English (hours)	2
Total amount of time Jehan interacts with friends (hours)	12

Participant 2: Yahya

Yahya is 34-year-old graduate male student at Iowa State University. He has been living in the United States for seven years. Yahya interacts mainly with his friends Abdullah, Fahad, Kelsi, and Rachel. Abdullah and Fahad are both Saudi and they all speak in Arabic. Kelsi and Rachel are Americans; they are his colleagues and friends, and the language used is English. Yahya mentions that he sees Abdullah every day. They go to the gym daily, play soccer and volleyball, and sometimes go to coffee shops. Yahya states that he and Abdullah share the same background and are both Teacher Assistants at Saudi universities. Because they have so much in common, Yahya discusses his future plans, research and teaching, news,

sports and the soccer league in Saudi Arabia with Abdullah. Yahya spends 18 hours with Abdulla weekly.

Yahya's second friend is Fahad; they go to coffee shops, travel to nearby cities (like Des Moines and Minneapolis), and hike. Yahya and Fahad share the same undergraduate major, economy, so their conversations are mostly about economics, changes in Saudi Arabia, and general news. He meets with Fahad for about 4 hours weekly.

The third friend in Yahya's network is Kelsi, an MA student at Iowa State University, who is his officemate. Yahya says that he and Kelsi talk about classes, research, and assignments. Rachel, the fourth friend in Yahya's social network, is also an MA student at the university and she is American. Yahya and Rachel talk about school and research, and he often asks her to proofread his papers. Rachel's brother-in-law is from Malaysia, so they talk about Islamic countries, the position of women, and cultures.

As part of the university's social activities, Yahya, Kelsi and Rachel gather with other graduate students in their department weekly for about 3 hours. Yahya spends about 4 hours weekly with Kelsi and Rachel.

Yahaya's friends Abdullah and Fahad are also friends and they meet every weekend. Kelsi and Rachel are colleagues and officemates. However, there is no relationship between Abdullah and Fahad on the one hand, and Kelsi and Rachel on the other.

Yahya thinks he is an advanced English learner, but he says that his writing and reading are better than his spoken English. He believes that his speaking needs improvement. As he is a graduate student, his assignments require him to express himself in presentations and writing. Because he is married, Yahya explains that he has obligations towards his child and wife and should spend far more time with them. His marital status might play a role in his interactions with native English speakers.

Table 4.4

The People in Yahya's Social Network

	Abdullah	Fahad	Kelsi	Rachel
Country of Origin	Saudi Arabia	Saudi Arabia	US	US
L1	Arabic	Arabic	English	English
Amount of Interaction	18 hrs weekly	4 hrs weekly	4 hrs weekly	4 hrs weekly
Ties or Connections	Friend Gym partner	Friend	Colleague Friend	Colleague Friend
Language used	Arabic	Arabic	English	English

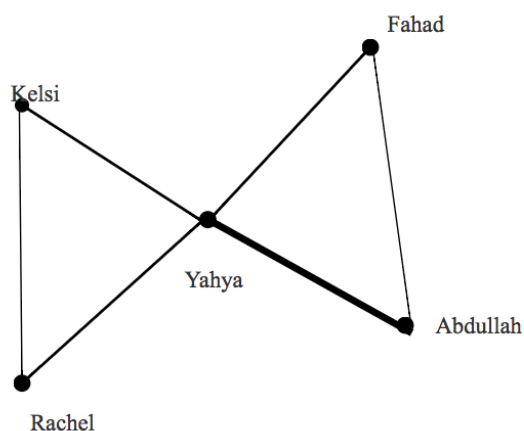


Figure 4.2. Yahya's social network.

Analysis of the social network of participant 2, Yahya. Yahya's network (Figure 4.3)

is moderately multiplex. He spends most weekends with his Saudi friends, Abdullah and Fahad; they go to restaurants and coffee shops or watch soccer games. He also goes to the gym daily with Abdullah. His friends Kelsi and Rachel share the same office room and they usually discuss school matters. They also meet outside the university and interact socially in coffee shops and restaurants. The degrees of nodes in Yahya's social network are shown in Table 4.5.

Table 4.5

The Degree of all Nodes in the Network of Participant 2, Yahya

Node	Degree
n1 = Abdullah	2
n2 = Fahad	1
n3 = Kelsi	2
n4 = Rachel	2

Yahya has moderately strong linkages with all his friends, but the strongest relationship is with Abdullah, with whom he spends 18 hours each week. The average interaction time of Yahya's network is 30 hours weekly. Yahaya spends 22 hours a week talking Arabic with his friends, and 8 hours of English. Hence his English-speaking time is 26%. Yahaya has a relatively dense network. His two English-speaking friends know and interact with each other, as do his two Arabic friends. The density and duration of Yahya interactionss with friends are listed in Table 4.6.

Table 4.6

The Sensity of Yahya's Graph and the Time/Language Yahya Interacts with Friends

Density of valued graph	0.6
Amount of time Yahya interacts in Arabic (hours)	22
Amount of time Yahya interacts in English (hours)	8
Total time Yahya interacts with his friends (hours)	30

Participant 3: Yosef

Yosef is a man aged 32 years, who is a graduate student at Iowa State University. He has been living in the United States for about 7 years. Yosef's social network involves John, Gerid, Reem, and Saeed. John and Gerid were his roommates and they are both American. They were his roommates for about 4 years, before he was married, and he still meets with them weekly. Yosef has a strong relationship with John: they go out for dinner, travel to Des Moines, play video games, and watch television. With John, Yosef talks about everything in life, his family, relationships, and daily obstacles.

Gerid is his former roommate and they mostly play video games and watch sports. They also talk about sports, video games, school and classes. Because Gerid is not doing well in school, they talk about things he can do to improve himself. John and Gerid are still roommates and friends. The time he spends with John and Gerid is 7 hours weekly.

The third friend in Yosef's social network is Reem. She is from Chad, and they interact in both Arabic and English. Reem is also Yosef's wife's friend and she regularly babysits their

child. They also go on family trips with Reem. With Reem, he discusses classes, family, and jobs. Reem is graduating and they talk about her future and finding jobs. He speaks to Reem for about 3 hours weekly.

The fourth friend in Yosef's social network is Saeed, his classmate and friend from Saudi Arabia. They study together, go to coffee shops, and talk most of the time. Yosef mentions that he tells Saeed "everything"—his plans, things they learn in life, news, and school. He spends 7 hours with Saeed weekly.

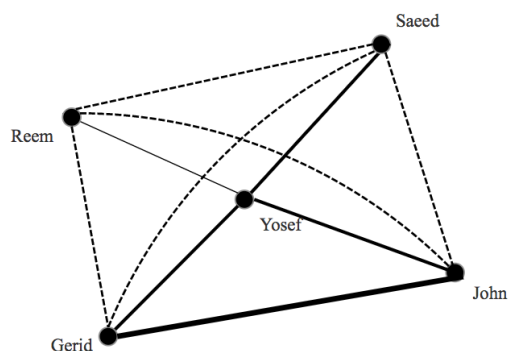
Not all of Yosef's friends know each other. John and Gerid enjoy a strong relationship as they are friends and roommates. Reem was introduced to John, Gerid, and Saeed, but they did not become friends. Saeed played soccer with John and Gerid, but they are not friends.

Yosef does not consider himself excellent in English, and says he would like to improve his writing. He says that when speaking, he has a problem with explaining and describing things academically. However, when talking with his friends, his English is fine. He has made good connections with Americans—but he states that many Saudis do not establish relations with English speakers, for two reasons. Yosef says that the first reason is lack of confidence in English, which is an obstacle for many students. The second reason is cultural differences; he explains that in their free time, students want to talk to friends who understand their views about family, life, and Saudi Arabia. It is difficult for international or American students to understand them.

Table 4.7

The People in Yosef's Social Network

	John	Gerid	Reem	Saeed
Country of Origin	US	US	Chad	Saudi Arabia
L1	English	English	English	Arabic
Amount of Interaction	7 hrs weekly	7 hrs weekly	3 hrs weekly	7 hrs weekly
Ties or Connections	Roommate Friend	Roommate Friend	Friend Family	Classmate Friend
Language used	English	English	English	Arabic

**Figure 4.3.** Yosef's social network.

Analysis of the social network of participant 3, Yosef. Yosef's social network is multiplex because everyone interacts in more than one way. Yosef was not only a roommate to John and Gerid, but they still meet, go out, and travel with each another despite his having moved out 2 years ago. Yosef's friend Reem is also his wife's friend. Reem babysits their child and they sometimes go on trips together. Yosef attends classes with Saeed and they also meet in many social settings. The degree of nodes of Yosef's social network are shown in

Table 4.8. The nodal degree is the number of lines incident with the node; that is, the number of ties between the participants and their friends.

Table 4.8

The Degree of all Nodes in the Network of Participant 3, Yosef

Node	Degree
n1 = John	2
n2 = Gerid	2
n3 = Reem	2
n4 = Saeed	2

Yosef has strong linkages with his friends John, Gerid, and Saeed. He spends 7 hours a week with them. His linkage with Reem is moderately strong, with 3 hours of interaction weekly. The average interaction time of Yosef's network is 24 hours weekly. Amount of time Yosef spends talking Arabic with his friends is 7 hours a week, compared to 17 hours of English. Yosef has a completely dense network because all his friends are linked to each other; no-one in his social network is only linked to him. The density and duration of Yosef interactionss with friends are listed in Table 4.9.

Table 4.9

The Density of Yosef's Graph and the Time/Language Yosef Interacts with Friends

Density of valued Graph	1
Amount of time Yosef interacts in Arabic (hours)	7
Amount of time Yosef interacts in English (hours)	17
Total time Yosef interacts with friends (hours)	24

Participant 4: Ahmad

Ahmad, 36 years old, is a male graduate student at Iowa State University. Ahmad has been living in the United States for about 6 years. Ahmad interacts with Ibrahim, Mustafa, Tian, and Minh. Ibrahim and Mustafa are his close friends; they have a small group which gathers and goes out once a week. Ibrahim is from Saudi Arabia and they usually speak in Arabic. They play soccer and video games, and their conversation is mainly about sport and common subjects between them. Mustafa is from Egypt, so they talk in Arabic; Ahmad is his neighbor and best friend. Ahmad meets with Mustafa, usually at coffee shops, and they talk about general subjects, school, engineering, and life. He spends 4 hours every week with Ibrahim and Mustafa.

Tian and Minh are Ahmad's laboratory (lab) mates; they spend 40 hours each week working at the lab. However, they talk for approximately 20 hours a week. During their lab work, they talk a lot because they share the same project. They discuss new ideas, approaches, and the results of their research. Ahmad goes out with Tian to get lunch once a week. Mustafa is Ibrahim's friend, but he does not know Tian and Minh. Ibrahim knows Tian because they do research work together, but there is no relation between Ibrahim and Minh.

Ahmad thinks that he is an advanced English speaker. His social network shows that he works most of the time in the lab. He mentions that time is an obstacle to making friends with

native English speakers. His study and projects require him to spend more than 40 hours in the lab.

Table 4.10

The People in Ahmad's Social Network

	Ibrahim	Mustafa	Tian	Minh
Country of Origin	Saudi Arabia	Egypt	China	Vietnam
L1	Arabic	Arabic	English	English
Amount of Interaction	4 hrs weekly	4 hrs weekly	10 hrs weekly	10 hrs weekly
Ties\Connections	Friend	Neighbor Friend	Lab mate	Lab mate
Language used	Arabic	Arabic	English	English

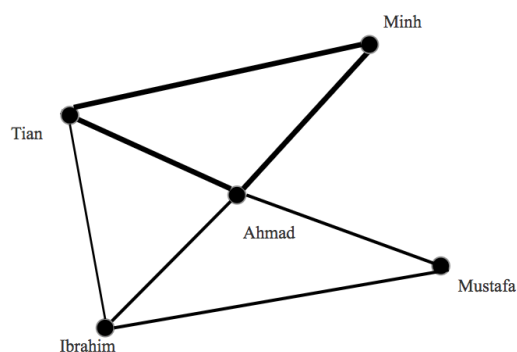


Figure 4.4. Ahmad's social network.

Analysis of the social network of participant 4, Ahmad. Ahmad's social network

(Figure 4.4) is simplex. All his friends except Mustafa are somewhat interacted to him in one context. Tian and Minh are lab mates and he does not meet them outside of work. Ibrahim is only tied to Ahmad through social events. The degree of nodes of Ahmad's social network are

shown in Table 11. The nodal degree refers to the number of lines incident with the node, meaning the number of ties between a participant and their friends.

Table 4.11

The Degree of all Nodes in the Network of Participant 4, Ahmad

Node	Degree
n1 = Ibrahim	1
n2 = Mustafa	2
n3 = Tian	1
n4 = Minh	1

Ahmad's linkages with Tian and Minh are the strongest; they spend 20 hours together every week. The next strongest linkage is with Mustafa and Ibrahim, at 4 hours a week. The average interaction time of Ahmad's network is 28 hours a week. Amount of time Ahmad spends talking Arabic to his friends is 8 hours weekly, compared to 20 hours of English. As for the density of the network, Ahmad has a moderately dense network because all his friends are linked to each other. There is no-one in Ahmad's social network that is only linked to him. The density and duration of Ahmad interactions with friends are listed in Table 4.12.

Table 4.12

The Density of Ahmad's Graph and the Time/Language Ahmad Interacts with Friends

Density of valued graph	0.7
Amount of time Ahmad interacts in Arabic (hours)	8
Amount of time Ahmad interacts in English (hours)	20
Total amount of time Ahmad interacts with friends (hours)	28

Participant 5: Abdu

Abdu, a man aged 30 years, is a graduate student. He has been living in the United States for five years. He is friends with Mohammed, Alaa, Abdullah, and Tariq. The language he uses with all his friends is Arabic. Mohammed, Alaa, and Abdullah are all graduate students in the same department, and they work at the same lab. He knows Tariq from university events. Abdu and Mohammed share the same major and the same passion; they always talk about new ideas for research and technology, besides their school projects. They are both computer engineers.

Mohammed is his neighbor, colleague, and gym partner. They work out together daily, and go to restaurants and coffee shops. They spend 14 hours together weekly. Alaa is from Jordan; he always meets him outside campus with his Jordanian friends. They gather and occasionally cook during weekends. With Alaa, they discuss cultural issues, Jordan, and the educational system in their countries. Abdu meets with Alaa for about 5 hours weekly.

The third friend in Abdu's network is Abdullah; he is from Saudi Arabia. They have a group of Saudis which they invite over on weekends. They also play soccer, hike, or go picnicking when the weather is good. The last friend in Abdu's network is Tariq and he is from Iraq. Abdu says he is not a close friend. They go for coffee and talk for about 2 hours weekly about work, finding jobs, and future plans. All of Abdu's friends are friends with each other except for Tariq. Mohammed and Tariq know each other but they are not friends.

Abdu thinks that he is advanced in English, comparing himself to other international students in his department. Generally, however, he thinks his English is intermediate and he would like to improve his speaking the most. Regarding making friends with native English speakers, he states that the environment in his department cannot provide him with such friends because most of the graduate students are international. The city Ames is a college town and most of the undergraduates are also international. However, he has tried to make friends with Americans in the past. He says it was difficult to enjoy himself and have fun with them.

Table 4.13

The People in Abdu's Social Network

	Mohammed	Alaa	Abdullah	Tariq
Country of Origin	Saudi Arabia	Jordan	Saudi Arabia	Iraq
L1	Arabic	Arabic	Arabic	Arabic
Amount of Interaction	14 hrs weekly	5 hrs weekly	10 hrs weekly	2 hrs weekly
Ties\Connections	Neighbor Colleague Gym partner Friend/ Social	Friend/Social Colleague	Colleague Friend/ Social	Friend/Social
Language used	Arabic	Arabic	Arabic	Arabic

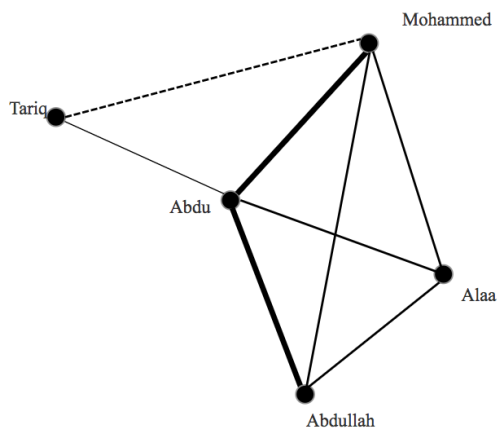


Figure 4.5. Abdu's social network.

Analysis of the social network of participant 5, Abdu. Abdu's social network

(Figure 4.5) is multiplex because all his friends except for Tariq are linked “in more than one way, that is, not just through work but also through other social activities” (Wardhaugh & Fuller, 2015 p. 71). Mohammed, Alaa, and Abdallah are tied through school and social activities. The relationship between Abdu and Mohammed is stronger than any other relation in Abdu's network, as shown in Table 12; he spends 14 hours with Mohammed weekly. The next strongest relationship is with his friend Abdullah, with whom he spends 10 hours a week.

His linkage with Alaa is somewhat strong, with 5 hours' interaction per week. His relationship with Tariq is the weakest, with only 2 hours of interaction per week. The degree of nodes of Abdu's social network are shown in Table 4.14. The degree of the node is the number of lines incident with the node. In our analysis that means the number of ties and context between the focal actor and the nodes.

Table 4.14

The Degree of all Nodes in the Network of Participant 5, Abdu

Node	Degree
n1 = Mohammed	4
n2 = Alaa	2
n3 = Abdullah	2
n4 = Tariq	1

Abdu's social network is dense because everyone in his network knows and interacts with each other, except for Tariq. The average weekly interaction time between Abdu and people in his social network is 31 hours. The total time during which Abdu talks to people in Arabic is 31 hours, with no use of English at all. The density and duration of Abdu interactions with friends are shown in Table 4.15.

Table 4.15

The Density of Abdu's Graph and the Time/Language Abdu Interacts with Friends

Density of valued graph	0.8
Amount of time Abdu interacts in Arabic (hours)	31
Amount of time Abdu interacts in English (hours)	0
Total time Abdu interacts with friends (hours)	31

Participant 6: Sharif

Sharif, 28 years old, is a male graduate student at Iowa State University. He has been living in the United States for 11 years. Sharif's social network includes Chuck, Bryan,

Abdullah, and Mohammed. Chuck and Bryan are Americans; they are his roommates and they talk English all the time. Chuck and Bryan are undergraduate students at Iowa State University, and they have been friends since high school. Sharif usually plays video games and card games with his roommates. They also cook and invite people over. They talk about religion, politics, and farming, because they both come from farming families. They also discuss oil prices and how this will affect corn prices in Iowa. Sharif talks to Chuck and Bryan for 15 hours weekly.

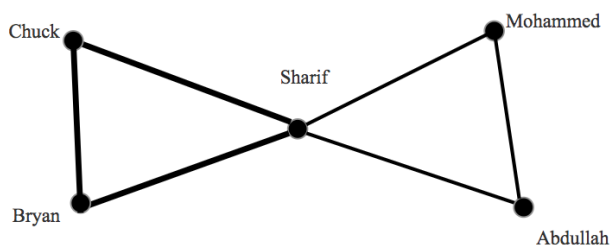
Abdullah and Mohammed are Saudis; they are his classmates and close friends. They always study at the library. They usually meet at the library before classes and review the topics and read together. They also gather at the weekend and cook Saudi food. Sharif spends 4 hours weekly with Abdullah and Mohammed. His roommates Chuck and Bryan have never met his classmates Abdullah and Mohammed.

Sharif thinks that his English is advanced. Speaking about the factors that inhibit Saudi students from interacting with native speakers, Sharif states that the growing number of Saudis makes students want to stay in their comfort zones and surround themselves with other Arabic speakers. He also indicates that cultural differences play a role, since the activities that Saudi people enjoy differ from the things that Americans enjoy.

Table 4.16

The People in Sharif's Social Network

	Chuck	Bryan	Abdullah	Mohammed
Country of Origin	US	US	Saudi Arabia	Saudi Arabia
L1	English	English	Arabic	Arabic
Amount of Interaction	15 hrs weekly	15 hrs weekly	4 hrs weekly	4 hrs weekly
Ties\Connections	Roommate Social	Roommate Social	Classmate Friend/ Social	Classmate Friend/ Social
Language used	English	English	Arabic	Arabic

**Figure 4.6.** Sharif's social network.

Analysis of the social network of participant 6, Sharif. Sharif's network (Figure 4.6) is moderately multiplex. Sharif not only attends classes with Abdullah and Mohammed, but he also spends most weekends with them. He goes to the gym daily with Abdullah. His roommates, Chuck and Bryan, are also tied in various social activities. The degrees of nodes of Sharif's social network are shown in Table 4.17.

Table 4.17

The Degree of all Nodes in the Network of Participant 6, Sharif

Node	Degree
n1 = Chuck	2
n2 = Bryan	2
n3 = Abdullah	2
n4 = Mohammed	2

Sharif has moderately strong linkages with all his friends. The strongest relationships are with Chuck and Bryan, with whom he spends 30 hours a week. His relationships with Abdullah and Mohammed are somewhat strong, with 4 hours of interaction with each. The average interaction time of Sharif's network is 38 hours weekly. The amount of time Sharif spends talking in Arabic to his friends is 8 hours weekly, compared to 30 hours of English.

Sharif relatively has a dense network. His English-speaking friends enjoy a strong relationship with each other, as do his Arabic friends. The density and duration of Sharif's interactions with his friends are listed in Table 4.18.

Table 4.18

The Density of Sharif's Graph and the Time/Language Sharif Interacts with Friends

Density of valued graph	0.6
Amount of time Sharif interacts in Arabic (hours)	8
Amount of time Sharif interacts in English (hours)	30
Total amount of time Sharif interacts with friends (hours)	38

Participant 7: Saleh

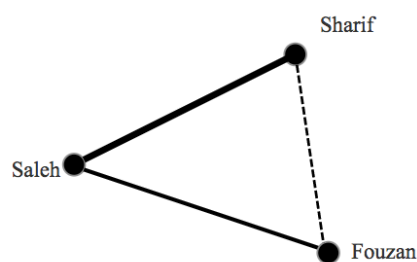
Saleh, 26 years old, is a male graduate student at Iowa State University. He has been living in the United States for five years and for the last two months in Ames, Iowa. Saleh only has two friends in Ames: Sharif and Fouzan. They are from Saudi Arabia and they talk Arabic all the time. Fouzan is Saleh's classmate, so they always meet at the library and study together and go to science workshops. Saleh and Fouzan also go restaurants, travel to Des Moines, and play soccer and volleyball together. With Fouzan, Saleh talks about school, assignments, and sports. He spends 6 hours weekly with Fouzan.

Saleh states that his friends Fouzan and Sharif know each other, but they do not socialise together. With Sharif, Saleh plays video games and travels. He talks to Sharif about economics, business, and his social life. They spend 10 hours weekly with each other. Saleh thinks that his English is advanced. Because this is his first semester at Iowa University, he feels he needs more time to interact with native speakers.

Table 4.19

The People in Saleh's Social Network

	Sharif	Fouzan
Country of Origin	Saudi Arabia	Saudi Arabia
L1	Arabic	Arabic
Amount of Interaction	10 hrs weekly	6 hrs weekly
Ties\Connections	Friend/Social	Classmate Friend/Social
Language used	Arabic	Arabic

**Figure 4.7.** Saleh's social network.

Analysis of the Social Network of Participant 7, Saleh. Saleh's social network is moderately multiplex because he interacts with his friends in various settings. Saleh not only attends classes with Fouzan but they meet in other social contexts too. The degree of nodes of Saleh's social network are shown in Table 4.20, indicating the number of ties between the participant and his friends.

Table 4.20

The Degree of all Nodes in the Network of Participant 7, Saleh

Node	Degree
n1 = Fouzan	2
n2 = Sharif	2

Saleh has strong linkages with his friends Fouzan and Sharif. His linkage with Sharif is the strongest because they spend 10 hours together a week. The next strongest relation is with Fouzan, with 6 hours of interaction a week. The time Saleh spends talking Arabic with his friends is 16 hours weekly; he does not use English to interact with any of his friends. Saleh has a relatively loose network because his friends barely know each other. The density and time of Saleh's interactions with friends are listed in Table 4.21.

Table 4.21

The Density of Saleh's Graph and the Time/Language Saleh Interacts with Friends

Density of valued graph	1
Amount of time Saleh interacts in Arabic (hours)	16
Amount of time Saleh interacts in English (hours)	0
Total amount of time Saleh interacts with friends (hours)	16

Participant 8: Faisal

Faisal is a 25-year-old male undergraduate student at Iowa State University. He has been living in the United States for three years. Faisal's friends are Omar, Mubarak, Maktoum, and Ahmad, and he speaks Arabic with all of them. Omar is from Saudi Arabia and Faisal

meets him every weekend outside the campus. They eat and talk about everything—like school, relations, life, and social media. Omar studies the same major and is one year ahead of Faisal, so he gives him advice related to classes and professors. He spends 5 hours weekly with Omar.

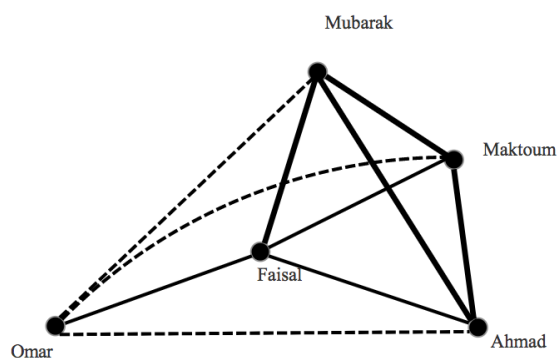
Mubarak, Maktoum, and Ahmad are from the United Arab of Emirates. Faisal has a strong relationship with Mubarak and spends 17 hours with him weekly. Faisal sees Mubarak every day at the library, they study together, and eat at the end of the day. Maktoum joins them sometimes. During weekends, Faisal goes to his Emirati friend's place where he met Ahmad. They play video games, watch sport, and eat together. They talk about sports and soccer league. Faisal socializes with Maktoum and Ahmad for 5 hours a week. All of Faisal's social network know each other. Omar knows the three close friends Mubarak, Maktoum, and Ahmad.

Faisal thinks that he has intermediate English proficiency and he says he would like to improve his oral skills the most. Faisal wants to socialize with native English speakers because all his friends speak Arabic, but he says language is a barrier for him even to try and make friends with native speakers. He is very shy with them because he is afraid they might make fun of him or laugh when he makes language mistakes.

Table 4.22

The People in Faisal's Social Network

	Omar	Mubarak	Maktoum	Ahmad
Country of Origin	Saudi Arabia	UAE	UAE	UAE
L1	Arabic	Arabic	Arabic	Arabic
Amount of Interaction	5 hrs weekly	17 hrs weekly	5 hrs weekly	5 hrs weekly
Ties\Connections	Friend/ Social	Friend/ Social	Friend/ Social	Friend/ Social
Language used	Arabic	Arabic	Arabic	Arabic

**Figure 4.8.** Faisal's social network.

Analysis of the social network of participant 8, Faisal. Faisal's social network (Figure 4.9) is simplex because all his friends, except Mubarak, are linked to him in only one context: social activities. Faisal interacts with Mubarak in two contexts: academically and socially. He sees Mubarak every day at the library and they meet at the weekends with other friends. The relationship between Faisal and Mubarak is stronger than any other relation in Faisal's network, as shown in Table 4.23. He spends 17 hours weekly with Mubarak.

Faisal also enjoys strong linkages with other friends in his network, with 5 hours of interactional time a week. The degrees of nodes of Faisal's social network are shown in Table

4.23. The degree of the node is the number of lines incident with the node. In our analysis, that means the number of ties and the context between the focal actor and the nodes.

Table 4.23

The Degree of all Nodes in the Network of Participant 8, Faisal

Node	Degree
n1 = Omar	1
n2 = Mubarak	2
n3 = Maktoum	1
n4 = Ahmad	1

The density of Faisal's social network is complete; the network is dense because everyone in his network knows and interacts with each other. The average interaction time between Faisal and people in his social network is 32 hours. Faisal talks to people in Arabic for 32 hours, with no use of English at all. The density and time of Faisal's interactions with friends are listed in Table 4.24.

Table 4.24

The Density of Faisal's Graph and the Time/Language Faisal Interacts with Friends

Density of valued graph	1
Amount of time Faisal interacts in Arabic (hours)	32
Amount of time Faisal interacts in English (hours)	0
Total amount of time Faisal interacts with friends (hours)	32

Participant 9: Barqi

Barqi is a 21-year-old male undergraduate student at Iowa State University. He has been living in the United States for two years. Barqi's friends are Saud, Julius, Abdulrahman, and Ferran. Saud is from Saudi Arabia and is Barqi's classmate; they study at the library and do their assignments together daily. They spend the weekends together at Saud's place, and they play soccer with a group of friends weekly. Saud is Barqi's best friend and they spend 35 hours weekly with each other. With Saud, Barqi talks about his social life, sport, soccer, and school.

The second friend in his social network is Julius, from Brazil. Barqi met Julius at the orientation and later they became good friends. Julius takes one class with Barqi, and they usually meet at the library twice a week for about 2 hours. Barqi and Julius mostly do their homework together, since the course is about programming and Julius has vast experience in that field. They both share a passion for soccer and they joined the soccer team at the university; they meet and play soccer every Saturday for about 4 hours. They speak English, and usually talk about soccer and school.

The third friend in Barqi's network is Abdulrahman, from Yemen. Abdulrahman's native language is Arabic but he prefers to speak in English because he grew up in the United States. Abdulrahman is a senior student studying the same major. Barqi talks to him about the

major and about classes and professors. He states that he has greatly benefited from his experience and recommendations. They meet twice a week at the library for about 3 hours.

The fourth friend in Barqi's network is Ferran, a student from Spain. He met him at the orientation with Julius, and Julius and Ferran are close friends. Ferran does not play with them in the team but he always comes to watch and support them. With Ferran, Barqi talks about general topics like culture, Spain, and Saudi Arabia. Not all his friends know each other. Saud knows Julius because they play in the same soccer team; Saud also knows Ferran but they are not friends. Abdulrahman does not know any of Barqi's friends.

Barqi mentions that he is still learning English. He rates himself as intermediate. He would like to improve his pronunciation first, then reading and writing. He states that his pronunciation is problematic when he talks to Americans. Native speakers of English cannot understand him when he talks, whereas other international students understand him effortlessly.

Table 4.25

The People in Barqi's Social Network

	Saud	Julius	Abdulrahman	Ferran
Country of Origin	Saudi Arabia	Brazil	Yemen	Spain
L1	Arabic	Portuguese	English	Spanish
Amount of Interaction	35 hrs weekly	9 hrs weekly	6 hrs weekly	4 hrs weekly
Ties\Connections	Classmate Friend/ Social	Classmate Friend/ Social	Friend/ Social	Friend/ Social
Language used	Arabic	English	English	English

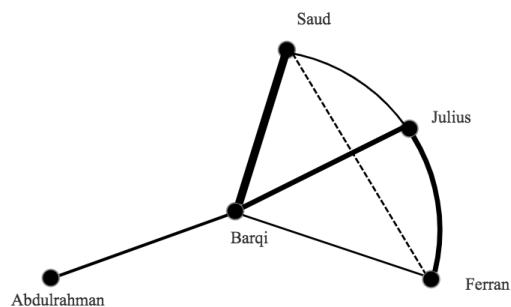


Figure 4.9. Barqi's social network.

Analysis of the social network of participant 9, Barqi. Barqi's social network (Figure 4.9) is moderately multiplex, because all his friends except for Abdulrahman are linked in more than one context. Barqi is linked to his friends Saud, Julius, and Ferran through school and social activities. His linkage to Abdulrahman is simplex because the interaction between them is only social. The degrees of nodes of Barqi's social network are shown in Table 4.26.

Table 4.26

The Degree of all Nodes in the Network of Participant 9, Barqi

Node	Degree
n1 = Saud	2
n2 = Julius	2
n3 = Ferran	2
n4 = Abdulrahman	1

Barqi's social network is dense because all people in his network know and interact with each other, except for Abdulrahman. Julius is linked to Saud through school and social contexts, and Julius and Ferran enjoy a strong friendship.

Barqi's social network is strong and he has strong linkages with all his friends. Barqi's relationship with Saud is the strongest, since they spend 35 hours a week together. The next strongest linkage is with Julius (9 hours) and then Abdulrahman (6 hours). The linkage with Ferran is the weakest, with 4 hours of interaction a week. The average interaction time between Barqi and people in his social network is 54 hours. The amount of time Barqi talks to people in Arabic is 35 hours, with 19 hours in English. The density and time of Barqi's interactions with friends are listed in Table 4.27.

Table 4.27

The Density of Barqi's Graph and the Time/Language Barqi Interacts with Friends

Density of valued graph	0.7
Amount of time Barqi interacts in Arabic (hours)	35
Amount of time Barqi interacts in English (hours)	19
Total amount of time Barqi interacts with friends (hours)	54

Participant 10: Salman

Salman, 19 years old, is a male undergraduate student at Iowa State University. He has been living in the United States for a year, and for two months in Ames, Iowa. Salman's social network involves Ahmad, Sharif, Mohammed, and Abdullah. All his friends are Saudi

students at the same university. Therefore, the language used is Arabic. Ahmad is his classmate; they study with each other every day at their homes or the library. Salman and Ahmad have formed a strong relationship and they go out together every day; they also play soccer once a week. Salman and Ahmad talk about everything in their lives and about their families, school, classes, and sports. Salman and Ahmad spend 14 hours together every week.

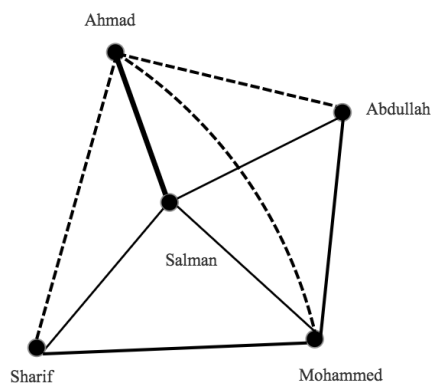
Sharif, Mohammed, and Abdullah play soccer with Salman and the other group members on the weekends. Sharif is the president of the Saudi Club at the university and talks to Salman about classes and things to do in Ames. The time Salman spends with all of them is 2 hours weekly. All of Salman's social network know each other, and Sharif, Mohammed, and Abdullah are very close friends. Ahmad knows them but is not their close friend.

Salman thinks his English is advanced. He can speak and interact with other English speakers, and they would understand him. However, he says that he lacks academic skills in writing. Talking about making friends and interacting with native speakers, he says that he looks for friends who share his interests. Salman states that he can speak to his Saudi friends about things they know and share, and they will understand him.

Table 4.28

The People in Salman's Social Network

	Ahmad	Sharif	Mohammed	Abdullah
Country of Origin	Saudi Arabia	Saudi Arabia	Saudi Arabia	Saudi Arabia
L1	Arabic	Arabic	Arabic	Arabic
Amount of Interaction	14 hrs weekly	2 hrs weekly	2 hrs weekly	2 hrs weekly
Ties\Connections	Classmate Friend/ Social	Friend/ Social	Friend/ Social	Friend/ Social
Language used	Arabic	Arabic	Arabic	Arabic

**Figure 4.10.** Salman's social network.

Analysis of the social network of participant 10, Salman. Salman's social network (Figure 4.10) is simplex because all his friends are linked in one context except for Ahmad. Ahmad is linked to Salman through both social and school contexts. However, Salman's linkages to Sharif, Mohammed, and Abdullah are only through one social setting, playing soccer. The degrees of nodes of Salman's social network are shown in Table 4.29.

Table 4.29

The Degree of all Nodes in the Network of Participant 10, Salman

Node	Degree
n1 = Ahmad	2
n2 = Sharif	1
n3 = Mohammed	1
n4 = Abdullah	1

Salman's social network is dense because all the people in his network know and interact with each other. His friends Sharif, Mohammed, and Abdullah enjoy a very strong relationship with each other. Ahmad knows them and plays soccer with them every week.

Salman's social network is weak, since the linkage with Sharif, Mohammed, and Abdullah lasts for only 2 hours a week. However, Salman and Ahmad enjoy a strong linkage, with 14 hours of interaction a week. The average interaction time between Salman and people in his social network is 20 hours. The total amount of time Salman talks to people in Arabic is 20 hours, with no use of English. The density and duration of Salman's interactions with friends are listed in Table 4.30.

Table 4.30

The Density of Salman's Graph and the Time/Language Salman Interacts with Friends

Density of valued graph	0.9
Amount of time Salman interacts in Arabic (hours)	20
Amount of time Salman interacts in English (hours)	0
Total amount of time Salman interacts with friends (hours)	20

Participant 11: Shatha

Shatha is a 22-year-old female undergraduate student at Iowa State University. She has been living in the United States for three years. Shatha's social network involves Ethar, Bakht, and Sahr. Ethar is a student from Oman and she is a friend and neighbor. They go out to eat food, cook at home, attend university events, and go to the gym together. Shatha and Ethar talk about relationships, event in Ames, university, and classes. Shatha spends 6 hours weekly with Ethar, mostly speaking Arabic.

Shatha's second friend is Bakht, from Kazakhstan. Shatha met Bakht at a food event in Des Moines, Iowa, and soon they became close friends. Shatha and Bakht share the same interests and tastes, and they enjoy trying new foods. They go out, walk, and invite each other over. Shatha and Bakht talk about food, social life, and family for 6 hours weekly using only English.

Shatha's third friend is Sahr, from Pakistan, and they spend the holidays together. For example, on Thanksgiving, Shatha visits Sahr's family farm and spends the day with her

family. Sahr now works in a different city but she talks to Shatha through WhatsApp audio recordings. They speak in English about their childhoods, politics, Pakistan, social lives, and relationships, for 2 hours every 2 weeks. Not all Shatha's friends know and interact with one another. Bakht and Sahr do not know each other, and Ethar has met them only once.

Shatha thinks that her English is advanced. However, she says that her weakness is vocabulary retention when speaking and writing. About making friends with native English speakers, Shatha says that most of the American friends she knows from classes are busy and she only meets them to talk about studying, assignments, or projects. She says that her major, civil engineering, limits her time and this prevents her from forming a bigger social network.

Table 4.31

The People in Shatha's Social Network

	Ethar	Bakht	Sahr
Country of Origin	Oman	Kazakhstan	Pakistan
L1	Arabic	Kazak	English
Amount of Interaction	6 hrs weekly	6 hrs weekly	2 hrs weekly
Ties\Connections	Neighbor Gym Partner Friend/ Social	Friend/ Social	Friend/ Social
Language used	Arabic	English	English

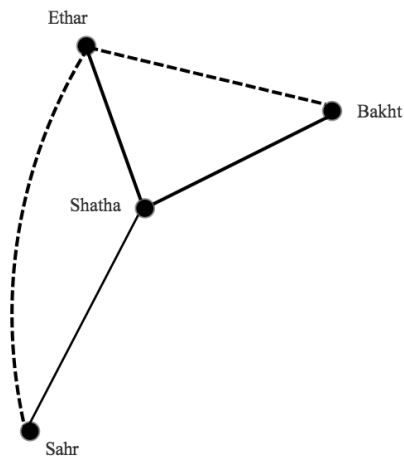


Figure 4.11. Shatha's social network.

Analysis of the social network of participant 11, Shatha. Shatha's social network is moderately simplex because she interacts with her friends Bakht and Sahr only in social events. However, she has a multiplex relationship with Ethar: they are neighbors, gym partners, and interact in other social activities. The degree of nodes of Shatha's social network are shown in Table 4.32. The nodal degree is the number of lines incident with the node. That means the number of ties between the participants and friends.

Table 4.32

The Degree of all Nodes in the Network of Participant 11, Shatha

Node	Degree
n1 = Ethar	3
n2 = Bakht	1
n3 = Sahr	1

Shatha has strong linkages with her friends. Her linkages with Ethar and Bakht are the strongest because they spend 6 hours a week together. Her relationship with Sahr is weak, since they speak for only 2 hours every 2 weeks. The average interaction time between Shatha and people in her social network is 14 hours. The total amount of time Shatha talks to people in Arabic is 6 hours, and 8 hours in English. Shatha has a relatively loose network because her friends barely know each other. The density and time of Shatha's interaction with friends are listed in Table 4.33.

Table 4.33

The Density of Shatha's Graph and the Time/Language Shatha Interacts with Friends

Density of valued graph	0.83
Amount of time Shatha interacts in Arabic (hours)	6
Amount of time Shatha interacts in English (hours)	8
Total amount of time Shatha interacts with friends (hours)	14

Participant 12: Ghadah

Ghadah, 34 years old, is a female graduate student at the University of Minnesota. She has been living for five years in the United States, but only six months in Minneapolis, Minnesota. Ghadah's friends are Nora, Naz, Andy, and Sara. The language used with all of them is English, except for Nora. Nora is from Saudi Arabia, so they talk in Arabic most of the time. Ghadah's second friend is Naz from Turkey; she is her classmate and friend. Ghadah, Nora, and Naz are three best friends and they share the same major and interests; they also

support each other all the time. Ghadah and her friends often study together, go to the gym, explore the city, go to restaurants and coffee shops, invite each other over, and are planning to travel together soon.

With Nora, Ghadah talks about assignments, changes in Saudi, teaching, sport, food, travel, and personal life. Naz and Ghadah discuss the Saudi changes too, since Naz knows a great deal about Saudi Arabia. They also talk about Turkish culture, religion and personal issues. Ghadah spends 25 hours weekly with Nora and Naz.

The third friend in Ghadah's network is her classmate Andy, who is American. Ghadah and Andy study together and she meets her sometimes at coffee shops. They mostly talk about school, personal issues, and Alaska (because Andy is from Alaska). Recently, Ghadah has only been seeing Andy during class, which is 3 hours weekly. The last friend in Ghadah's network is Sara, an American. Sara was Ghadah's classmate last semester and they used to study together or go out for lunch. Now she sees her only for an hour every week. They talk about school, food, and fashion. All Ghadah's friends interact with each other. Nora is a very close friend to Naz and Sara, and she knows Andy. Naz is a very close friend to Andy, and she is also Sara's classmate.

Ghadah thinks that her English is intermediate. She says that she struggles at school with assignments and projects. However, her professors and friends think that she is more than advanced. She would like to improve her choices of vocabulary in writing and speaking.

Ghadah agrees that the increased number of Saudis students is inhibiting them from establishing relations with English speakers. In addition, she states that the lack of English proficiency is a barrier for students who want to socialize and have fun with their friends. She continues that this is supposed to be a relaxing time but it becomes overwhelming when students cannot express themselves accurately with English friends.

Table 4.34

The People in Ghadah's Social Network

	Nora	Naz	Andy	Sara
Country of Origin	Saudi Arabia	Turkey	US	US
L1	Arabic	Turkish	English	English
Amount of Interaction	25 hrs weekly	25 hrs weekly	3 hrs weekly	2 hrs weekly
Ties\Connections	Classmate Friend/ Social	Classmate Friend/ Social	Classmate	Classmate
Language used	Arabic	English	English	English

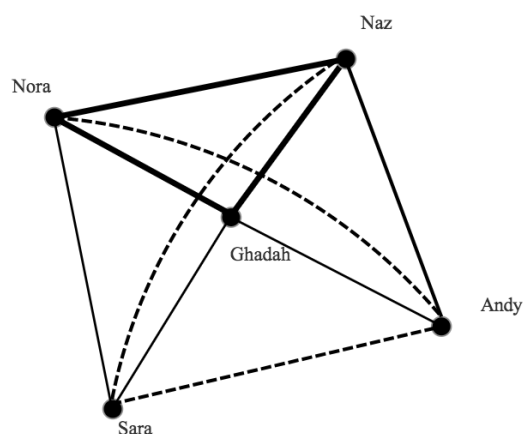


Figure 4.12. Ghadah's social network.

Analysis of the social network of participant 12, Ghadah. Ghadah's network (Figure 4.12) is moderately multiplex. She not only attends classes with Nora and Naz but they also meet in various social settings. However, her relationship with Andy and Sara is simplex since they are only her classmates. The degrees of nodes of Ghadah's social network are shown in Table 4.35.

Table 4.35

The Degree of all Nodes in the Network of Participant 12, Ghadah

Node	Degree
n1 = Nora	2
n2 = Naz	2
n3 = Andy	1
n4 = Sara	1

Ghadah has strong linkages with her friends Nora and Naz. Her linkage with them is the strongest because they spend 25 hours a week together. The linkages between Ghadah and her classmates, Andy and Sara, are weak, with 3 and 2 hours of interaction a week, respectively. The average interaction time for Ghadah's network is 55 hours weekly. Ghadah spends 25 hours a week talking Arabic with her friends, compared with 30 hours of English. As for the density of the network, Ghadah has a dense network because all her friends are linked to each other; no-one in her network is only linked to her. Some of them enjoy strong relationships, as represented by thick lines in Figure 12. The density and time of Ghadah's interaction with her friends are listed in Table 4.36.

Table 4.36

The Density of Ghadah's Graph and the Time/Language Ghadah Interacts with Friends

Density of valued graph	1
Amount of time Ghadah interacts in Arabic (hours)	25
Amount of time Ghadah interacts in English (hours)	30
Total amount of time Ghadah interacts with friends (hours)	55

Participant 13: Mohammed

Mohammed, 28 years old, is a male graduate student at the University of Minnesota. He has been living in the United States for four years. Mohammed's social network includes Ahmad, Malek, Cathy, and Hank. Ahmad and Malek are his friends from Saudi Arabia. Ahmad is a student in the same department; they also graduated from the same university back home in Saudi Arabia. They usually meet at their department and have coffee together. They discuss their academic courses, research, and general topics for half an hour daily. Mohammed and Malek play soccer, go out for dinner, and gather on the weekends. Mohammed spends 9 hours weekly with Malek.

Cathy and Hank are Mohammed's host family. Cathy is married to Hank and she is the mother; Mohammed often cooks with her. Hank and Mohammed spend the evening watching TV shows, super bowl, and other sports. He talks to them about his school, family, and culture. They traveled together to North Dakota. He spends 10 hours a week with them. Ahmad and Malek do not know each other.

Mohammed thinks that his English is intermediate. His major requires him to do a great deal of writing and research, so he needs to improve his writing. Mohammed states that one factor that inhibits Saudis from making friends with natives is their lack of confidence in English. The second is the cultural differences; he explains that students cannot overcome the cultural differences. Third, some young Saudi students are not motivated to improve their English and they lack clear goals to work hard to achieve.

Table 4.37

The People in Mohammed's Social Network

	Ahmad	Malek	Cathy	Hank
Country of Origin	Saudi Arabia	Saudi Arabia	US	US
L1	Arabic	Arabic	English	English
Amount of Interaction	2 hrs weekly	9 hrs weekly	10 hrs weekly	10 hrs weekly
Ties\Connections	Colleague	Friend/ Social	Host Family	Host Family
Language used	Arabic	English	English	English

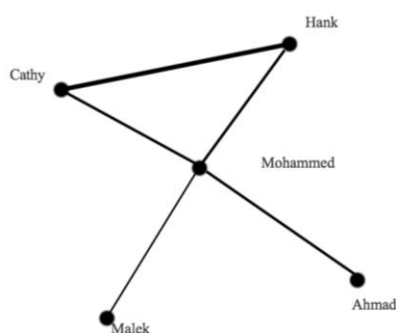


Figure 4.13. Mohammed's social network.

Analysis of the social network of participants #13, Mohammed. Mohammed's

network (Figure 4.13) is uniplex. Social networks are uniplex when people in the network are linked through simple relations or single social events (Wardhaugh & Fuller, 2015, p. 71).

Mohammed is linked to his friend Ahmad academically. Mohammed and Malek are linked to one another only socially. Cathy and Hank also have one linkage with Mohammed, since they are his host family. The degrees of nodes of Mohammed's social network are shown in Table 4.38.

Table 4.38

The Degree of all Nodes in the Network of Participant 13, Mohammed

Node	Degree
n1 = Ahmad	1
n2 = Malek	1
n3 = Cathy	1
n4 = Hank	1

Mohammed has moderately strong linkages with most people in his network. His strongest relationship is with Cathy and Hank; he spends 20 hours a week with them. The next strongest relationship is with his friend Malek, at 9 hours a week. The linkage between Mohammed and Ahmad is weak, with 2 hours of interaction a week. The average interaction time of Mohammed's network is 31 hours weekly. Mohammed spends 11 hours a week talking Arabic to his friends, compared to 20 hours of English. As for the density of the network, Mohammed has a relatively loose network. Only his host family interact with each

other and there is no linkage between any of the other people in Mohammed's network. The density and duration of Mohammed's interactions with his friends are listed in Table 4.39.

Table 4.39

The Density of Mohammed's Graph and the Time/Language Mohammed Interacts with Friends

Density of valued graph	0.5
Amount of time Sharif interacts in Arabic (hours)	11
Amount of time Sharif interacts in English (hours)	20
Total amount of time Sharif interacts with friends (hours)	31

Participant 14: Hussain

Hussain, a 28-year-old man, is a graduate student at the University of St. Thomas Minnesota. Hussain has been living in the United States for 9 years. His best friends are Ahmad, Ghassan, Hassan and Bassam. The language used with all his friends is Arabic. Hussain and Ahmad share the same major, they study together, and play volleyball every week. They talk mostly about school and classes as well as their social lives. His friends Ghassan and Bassam are brothers. They go to restaurants and to the gym together, and talk about personal lives, sports, health, and exercise. The last person in Hussain's network is Hassan; he travels with him and they drive to nearby cities like Rochester and Duluth. They talk about life, relationships, and future plans. He spends more than 10 hours weekly with all his friends combined.

Hussain thinks that his English is advanced. He claims that he is proficient and does not need improvement in any skill. Speaking about making friends with native English speakers, he says he has many American classmates with whom he works on projects and other assignments. Besides working together in the classroom, they pass outside class – but without greeting. For that reason, a long time ago he stopped making efforts to be friends with native speakers. Nevertheless, he says he has strong relations with other, older American friends and neighbors, whom he visits and calls every month.

Table 4.40

The People in Hussain's Social Network

	Ahmad	Ghassan	Hassan	Bassam
Country of Origin	Saudi Arabia	Saudi Arabia	Saudi Arabia	Saudi Arabia
L1	Arabic	Arabic	Arabic	Arabic
Amount of Interaction	21 hrs weekly	21 hrs weekly	21 hrs weekly	21 hrs weekly
Ties\Connections	Classmate Friend/ Social	Classmate Friend/ Social Family friend	Friend/ Social	Friend/ Social Gym Partner
Language used	Arabic	Arabic	Arabic	Arabic

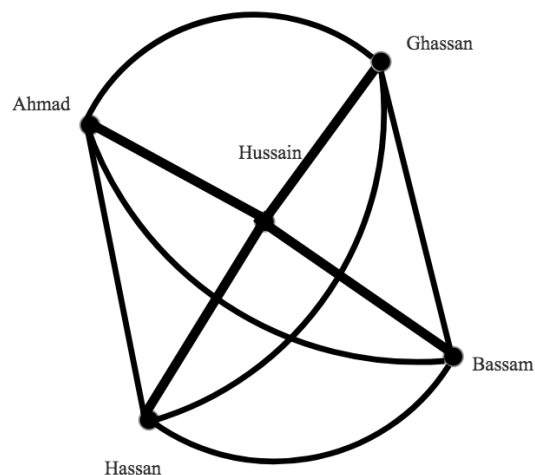


Figure 4.14. Hussain's social network.

Analysis of the social network of participant 14, Hussain. Hussain's social network (Figure 4.14) is multiplex because all his friends, except for Hassan, are linked "in more than one way, that is, not just through work but also through other social activities" (Wardhaugh & Fuller, 2015, p. 71). Hussain, Ahmad, and Ghassan are tied through school and social activities. Hussain's friend Bassam is tied to him through various social settings, whereas his relationship with Hassan is uniplex because they are linked in social settings only. The degree of nodes of Hussain's social network is shown in Table 4.41.

Table 4.41

The Degree of all Nodes in the Network of Participant 14, Hussain

Node	Degree
n1=Ahmad	2
n2=Ghassan	4
n3=Hassan	2
n4=Bassam	1

Hussain's social network is very dense because all the people in his network are friends.

His network is also very strong, as represented in Figure 4.14 by thick lines. The average interaction time between Hussain and people in his social network is 84 hours weekly. The amount of time Hussain talks in Arabic is 84 hours, with no use of English at all. The density and duration of his interactions with friends are listed in Table 4.42.

Table 4.42

The Density of Hussain's Graph and the Time/Language Hussain Interacts with Friends

Density of valued graph	1
Amount of time Hussain interacts in Arabic (hours)	84
Amount of time Hussain interacts in English (hours)	0
Total amount of time Hussain interacts with friends (hours)	84

Participant 15: Zainab

Zainab is a 22-year-old woman, an undergraduate student at St. Cloud State University.

She has been living in the United States for five years. Zainab's social network includes

Britney, Anna, Sara, and Sameha. The language used with all her friends is English. Britney and Anna are American, while Sara and Sameha are Turkish. Zainab met Britney at a fitness class and they became very close friends, but Anna is Britney's best friend. She meets Britney for dinner or coffee every weekend, and they play board games or sit and talk about many topics—everything in their lives. They also talk about religion, differences between Christianity and Islam, relationships, and cultures. She meets Britney for 16 hours weekly, whereas she spends only 3 hours with Anna weekly.

Her friends Sara and Sameha are roommates and close friends. Sara is her classmate but they also go skiing or skating and watch movies together. They usually talk about school, classes, and the differences between their cultures. Sameha now works, so they do not see other often, but they go out occasionally for coffee or dinner and they talk about life, school, and classes. She meets Sara and S for 2 to 3 hours weekly. Sara knows Britney and Anna, but they are not friends; they have only met twice. Britney and Sameha met once, and Sameha has never met Anna.

Zainab thinks that her English is intermediate. She says that she would like to improve her grammar in speaking and writing. She says she always makes grammatical mistakes in her writing, and makes the same errors in her speech. She mentions that she realizes her mistakes and fixes them in her head, but only after producing the words or sentences.

Zainab talks about her personal experience of making friends with native speakers of English. She states that she was timid and shy about making friends with English speakers, because she felt they might laugh or make fun of her if she mispronounced words. Later, when she met her friends, she realized she was completely mistaken. Her friends were a great support for her to learn and acquire the language. Zainab thinks that most Saudis enjoy remaining in their normal circles and have unrealistic thoughts and ideas about Americans as friends.

Table 4.43

The People in Zainab's Social Network

	Britney	Anna	Sara	Sameha
Country of Origin	US	US	Turkey	Turkey
L1	English	English	Turkish	Turkish
Amount of Interaction	16 hrs weekly	3 hrs weekly	3 hrs weekly	3 hrs weekly
Ties\Connections	Friend/ Social	Friend/ Social	Classmate Friend/ Social	Friend/ Social
Language used	English	English	English	English

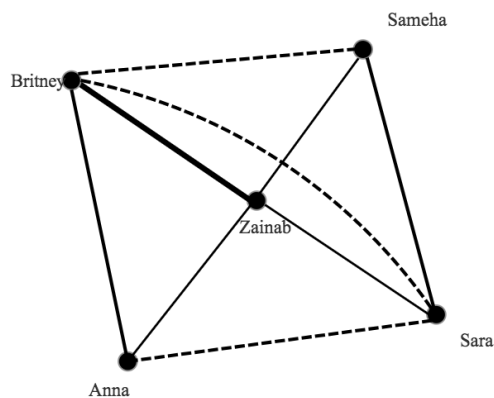


Figure 4.15. Zainab's social network.

Analysis of the social network of participant 15, Zainab. Zainab's network (Figure 4.15) is moderately uniplex. Networks are said to be uniplex when people in the network are linked in simple relations or through single social events (Wardhaugh & Fuller, 2015, p. 71). Zainab is linked to her friends Britney, Anna, and Sameha only socially. She interacts with only one friend, Sara, in two contexts: academically and socially. The degrees of nodes of Zainab's social network are shown in Table 4.44.

Table 4.44

The Degree of all Nodes in the Network of Participant 15, Zainab

Node	Degree
n1 = Britney	1
n2 = Anna	1
n3 = Sara	2
n4 = Sameha	1

Zainab has a strong linkage with Britney and spends 16 hours a week with her. Compared to this, her linkages with Anna, Sara, and Sameha are weak, with 3 hours of interaction (each) per week. The average interaction time of Zainab's network is 25 hours weekly. The amount of time Zainab spends talking English with her friends is 25 hours, with no use of Arabic.

All Zainab's friends are linked to each other; no-one in her network is linked only with her. The density and duration of Zainab interaction with friends are listed in Table 4.45.

Table 4.45

The Density of Zainab's Graph and the Time/Language Zainab Interacts with Friends

Density of valued graph	0.9
Amount of time Zainab interacts in Arabic (hours)	0
Amount of time Zainab interacts in English (hours)	25
Total amount of time Zainab interacts with friends (hours)	25

Participant 16: Hassan

Hassan, 23 years old, is a male undergraduate student at St. Cloud State University. He has been living in the United States for three years. His friends are Daniel, Justeen, Axle, and Nicole. They are all Americans, so the language they use is English. Daniel is his roommate but they also socialize together. They go shopping, play pool, and watch movies, and they talk about “everything”—classes, school, sports, religion, and culture. Hassan spends 4 hours daily with Daniel.

Justeen and Axle work at a sport and bar grill. Hassan and his brother usually go there to play pool and they became friends with Justeen and Axle. They play pool and meet every week. Hassan talks with Axle about sports, volleyball league, and pool league. With Justeen, he talks about his religion because she is interested to know about his beliefs. He meets each for 6 hours weekly.

Nicole is Hassan's close friend; he meets her twice a week and they talk about life, family, work and school, for about 4 hours weekly. Justeen and Axle are best friends, and they also know Daniel and Nicole. Daniel and Nicole do not know each other.

Hassan thinks his English is advanced. Nevertheless, he wants to work on his writing generally and academically and to learn more advanced vocabulary. Hassan says that some Saudi students choose to enjoy their time with people who share their language, culture, and religion. However, he states that he likes to make friends from different cultures, who have different languages and religions.

Table 4.46

The People in Hassan's Social Network

	Daniel	Justeen	Axle	Nicole
Country of Origin	US	US	US	US
L1	English	English	English	English
Amount of Interaction	28 hrs weekly	6 hrs weekly	6 hrs weekly	4 hrs weekly
Ties\Connections	Roommate Friend/ Social	Friend/ Social	Friend/ Social	Friend/ Social
Language used	English	English	English	English

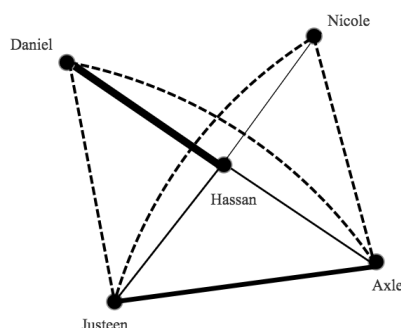


Figure 4.16. Hassan's social network.

Analysis of the social network of participant 16, Hassan. Hassan's social network (Figure 4.16) is uniplex, because all his friends are linked in one context except for Daniel. Daniel and Hassan are tied in two social contexts: they are roommates and are also linked through social activities. However, his linkages to Justeen, Axle, and Nicole are only through one social event. The degrees of nodes of Hassan's social network are shown in Table 4.47.

Table 4.47

The Degree of all Nodes in the Network of Participant 16, Hassan

Node	Degree
n1 = Daniel	2
n2 = Justeen	1
n3 = Axle	1
n4 = Nicole	1

Hassan's social network is dense, because everyone in his network knows and interacts with the others. His friends Justeen and Axle enjoy a very strong relationship with each other. Daniel only knows Justeen and Axle, and so does Nicole only know Justeen and Axle, as represented by the dotted lines in Figure 4.16.

Hassan's social network is strong. His linkage with Daniel is the strongest, at 28 hours. The next strongest linkage is with Justeen and Axle (6 hours), followed by Nicole (4 hours). The average interaction time between Hassan and the people in his social network is 44 hours a week. The amount of time he talks to people using English is 44 hours, with no use of Arabic. The density and time of Hassan's interaction with his friends are listed in Table 4.48.

Table 4.48

The Density of Hassan's Graph and the Time/Language Hassan Interacts with Friends

Density of valued graph	0.9
Amount of time Hassan interacts in Arabic (hours)	0
Amount of time Hassan interacts in English (hours)	44
Total amount of time Hassan interacts with friends (hours)	44

Participant 17: Ali

Ali is a 28-year-old undergraduate male student at St. Cloud State University. He has been in the United States for 7 years. Ali's social network involves Gaven, Nicole, Jawad, and Hassan. Gaven, his best friend, is American, so the language they use is English. He met Gaven in a math class in 2014, and ever since they have been close friends. They go to the gym and travel together, and socialize with other friends. Gaven invites Ali to his family's house on holidays. They talk about many topics, like gym, sports, health, fitness, social life, romantic relations, food, and culture. Ali sees Gaven for 5 hours weekly.

The second friend in Ali's network is Nicole; he met her five years ago in downtown St. Cloud with her boyfriend and now she is like a sister to him. Nicole and Ali call each other weekly to check on each other. She invites him to dinner on holidays, and they go out from time to time. They talk about politics, religion, relationships, and family. Nicole is a nurse, so they also talk about spirituality, health, and wellness. He meets or calls Nicole for 3 hours weekly.

His friends Jawad and Hassan are from Saudi Arabia, and they speak Arabic. Ali and Jawad and Hassan hail from the same town in Saudi Arabia. Hassan is Jawad's uncle, so they are family and close to each other. Ali has known them since he was a child; their families know each other. Ali and Hassan have been friends since primary school and they travelled to the US together and have their group of Saudi friends, and gather every weekend. Ali talks to Hassan about everything in his life. Ali spends about 11 hours with Hassan and Jawad weekly.

Not all of Ali's social network know each other: Gaven has never met Hassan; he knows Nicole and Jawad but they are not friends. Nicole has never met Jawad or Hassan.

Ali states that his English is intermediate. He thinks that he needs to use more advanced vocabulary. About the reasons that inhibit Saudis from making friends with native speakers of English, he says that students avoid speaking English outside class, mainly because they are shy about making mistakes and lack confidence in their English.

Table 4.49

The People in Ali's Social Network

	Gaven	Nicole	Jawad	Hassan
Country of Origin	US	US	Saudi Arabia	Saudi Arabia
L1	English	English	Arabic	Arabic
Amount of Interaction	5 hrs weekly	3 hrs weekly	11 hrs weekly	11 hrs weekly
Ties\Connections	Friend/ Social Classmate Gym partner	Friend/ Social	Friend/ Social Family friend	Friend/ Social Family friend
Language used	English	English	Arabic	Arabic

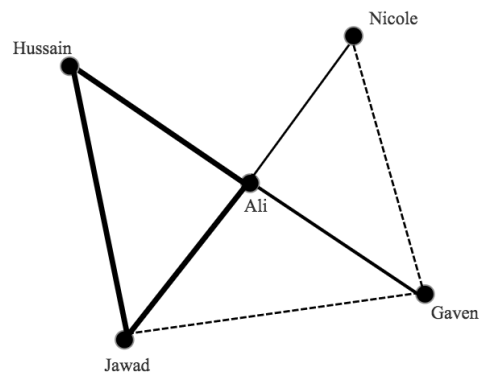


Figure 4.17. Ali's social network.

Analysis of the social network of participant 17, Ali. Ali's social network (Figure 4.17) is multiplex. Ali is tied to Jawad and Hussain in various social settings. Additionally, Ali not only attended classes with Gaven but he also interacts with him in social events, and goes to the gym daily with him. Ali and Nicole have a simplex relationship as they interact only through one social event. The degrees of nodes of Ali's social network are shown in Table 4.50.

Table 4.50

The Degree of all Nodes in the Network of Participant 17, Ali

Node	Degree
n1 = Gaven	2
n2 = Nicole	1
n3 = Jawad	2
n4 = Hassan	2

Ali has moderately strong linkages with all his friends. His strongest relationship is with Jawad and Hassan; he spends 22 hours a week with them. The next strongest linkage is

with Gaven, at 5 hours a week. His linkage with Nicole is somewhat strong, with 3 hours of weekly interaction. The average interaction time of Ali's network is 30 hours weekly. The amount of time Ali spends talking Arabic to his friends is 22 hours weekly, compared with 8 hours of English. As for the density of the network, it is relatively dense because no-one in Ali's network is linked only to him. The density and duration of Ali's interaction with his friends are listed in Table 4.51.

Table 4.51

The Density of Ali's Graph and the Time/Language Ali Interacts with Friends

Density of valued graph	0.7
Amount of time Ali interacts in Arabic (hours)	22
Amount of time Ali interacts in English (hours)	8
Total amount of time Ali interacts with friends (hours)	30

Participant 18: Manal

Manal, 30 years old, is a female undergraduate student at St. Cloud State University. She has been living in the United States for seven years. Her friends are Maha, Lulu, Rasha, and Mnar, and they all use Arabic to converse. Maha is an undergraduate student at the same university. Maha and Manal meet every weekend and play cards, watch TV, dance, and cook together. They also travel together during vacations and school breaks. They talk about fashion, music, classes, university, and studying. They meet for about 6 hours weekly.

Lulu is from Yemen; they go restaurants and to the mall together every 2 weeks. They talk about their families, parenthood, health, culture, and religion. Manal meets her for 4 hours each month.

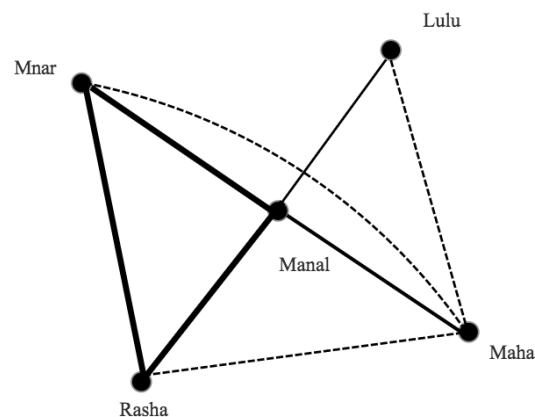
Rasha and Mnar both study at the Intensive English Center at St. Cloud State University. Manal met them at the campus and they became her best friends. They meet every weekend for more than 10 hours. They talk about music, future plans, beauty, personal lives, and relationships. Not all of Manal's friends interact with each other. Maha knows Lulu, Rasha, and Mnar, but they are not friends. Lulu does not know Rasha or Mnar, but Rasha and Mnar are close friends.

Manal thinks that her English is poor and she blames herself for not practicing the language. Manal says that she speaks Arabic all day with her family and friends. She would like to improve her English speaking the most. Regarding making friends with native speakers, Manal claims that she is occupied all the time. Her classes, husband, and child make it hard for her to make new friends. Also, she does not feel comfortable being friends with people who do not share her first language.

Table 4.52

The People in Manal's Social Network

	Maha	Lulu	Rasha	Mnar
Country of Origin	Saudi Arabia	Yemen	Saudi Arabia	Saudi Arabia
L1	Arabic	Arabic	Arabic	Arabic
Amount of Interaction	6 hrs weekly	1 hr weekly	10 hrs weekly	10 hrs weekly
Ties\Connections	Friend/ Social Travel	Friend/ Social	Friend/ Social	Friend/ Social
Language used	Arabic	Arabic	Arabic	Arabic

**Figure 4.18.** Manal's social network

Analysis of the social network of participant 18, Manal. Manal's network in (Figure 4.18) is moderately uniplex. Networks are uniplex when people in the network are linked in simple relations or through single social events (Wardhaugh & Fuller, 2015, p. 71). Manal is linked to her friends Lulu, Rasha, and Manal only through one social event. However, Maha is tied to her in various social settings. The degrees of nodes of Manal's social network are shown in Table 4.53.

Table 4.53

The Degree of all Nodes in the Network of Participant 18, Manal

Node	Degree
n1 = Maha	2
n2 = Lulu	1
n3 = Rasha	1
n4 = Mnar	1

Manal has a very strong social network. The strongest linkages are with Rasha and Mnar, with 20 hours a week. The next strongest linkage is with Maha at 6 hours a week. Her linkage with Lulu is weak, with only 4 hours a month. The average interaction time of Manal's network is 27 hours weekly. Manal spends 27 hours talking Arabic with her friends, with no use of English.

All Manal's friends are linked to each other; there is no-one in her network that is only linked to her. The density and time of Manal's interactions with her friends are listed in Table 4.54.

Table 4.54

The Density of Manal's Graph and the Time/Language Manal Interacts with Friends

Density of valued graph	0.8
Amount of time Manal interacts in Arabic (hours)	27
Amount of time Manal interacts in English (hours)	0
Total amount of time Manal interacts with friends (hours)	27

Participant 19: Hasnaa

Hasnaa, a 23-year-old woman, is an undergraduate student at St. Cloud State University. She has been living in the United States for 6 years. Hasnaa's social network involves three friends: Maha, Nary, and Zainab. Maha is from Pakistan, so the language they use is English. Maha is also friends with Hasnaa's brother, so she often visits them at their home and stays overnight. Hasnaa and Maha talk about Maha's problems, Pakistan, social life, and family. They see each other for 5 hours weekly.

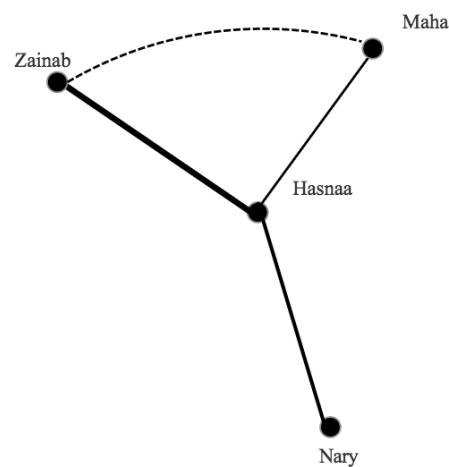
Nary is Hasnaa's classmate from Thailand. They usually meet at campus for 15 hours weekly. They talk about classes, assignments, fashion, and food. The third friend in Hasnaa's network is Zainab from Saudi Arabia. She is Hasnaa's best friend. Now she is living in Texas, but they call each other for 3 hours daily and talk about everything—social life, family, school, assignments, cooking, music, fashion, and beauty. Maha has met Zainab, but Nary does not know any of Hasnaa's other friends.

Hasnaa thinks that her English is intermediate. She would like to improve her writing the most, because in writing it is challenging to describe matters or to elaborate a point deeply. Regarding making friends with native English speakers, Hasnaa says that most American classmates would not recognize her outside of class and they pass her without even saying hello.

Table 4.55

The People in Hassnaa's Social Network

	Maha	Nary	Zainab
Country of Origin	Saudi Arabia	Saudi Arabia	Saudi Arabia
L1	Urdu	Thai	Arabic
Amount of Interaction	5 hrs weekly	15 hrs weekly	21 hrs weekly
Ties\Connections	Friend/ Social	Classmate	Friend/ Social
Language used	English	English	Arabic

**Figure 4.19.** Hasnaa's social network.

Analysis of the social network of participant 19, Hassnaa. Hasnaa's social network is moderately uniplex, because she interacts with her friends in only one context. Nary is tied to her academically whereas Maha and Zainab are linked to her through a single social event. The degree of nodes of Hasnaa's social network are shown in Table 4.55. The nodal degree is the number of lines incident with the node. That means the number of ties between the participants and friends.

Table 4.56

The Degree of all Nodes in the Network of Participant 19, Hassnaa

Node	Degree
n1 = Maha	1
n2 = Nary	1
n3 = Zainab	1

Hasnaa has a strong social network. Her linkage with Zainab is the strongest because they talk for 21 hours weekly. The next strongest linkage is with Nary, at 15 hours a week, followed by Maha with 5 hours of interaction per week. The average interaction time between Hasnaa and people in her social network is 41 hours. Hasnaa talks to people in Arabic for 21 hours and in English for 20 hours. She has a relatively loose network, because her friends barely know each other (represented by dotted lines in Figure 19). The density and duration of Hasnaa's interactions with her friends are listed in Table 4.57.

Table 4.57

The Density of Hasnaa's Graph and the Time/Language Hasnaa Interacts with Friends

Density of valued graph	0.67
Amount of time Hasnaa interacts in Arabic (hours)	21
Amount of time Hasnaa interacts in English (hours)	20
Total amount of time Hasnaa interacts with friends (hours)	41

Participant 20: Jawad

Jawad, a man aged 24 years, is an undergraduate student at St. Cloud State University. He has been living in the United States for 6 years. His friends are Hussain, Ahmad, Ali, and

Mohammed. They are from Saudi Arabia, and the language used is Arabic. Hussain and Jawad meet weekly to cook, play video games or card games, and study together; they talk about school, video games, and food. They spend 12 hours together each week. Ahmad is Jawad's gym partner; they also play soccer or video games and watch movies, for about 6 hours weekly. They talk about sports activities and TV shows. Ali and Jawad usually study and go out together. They talk about school, classes, and sports for 6 hours weekly.

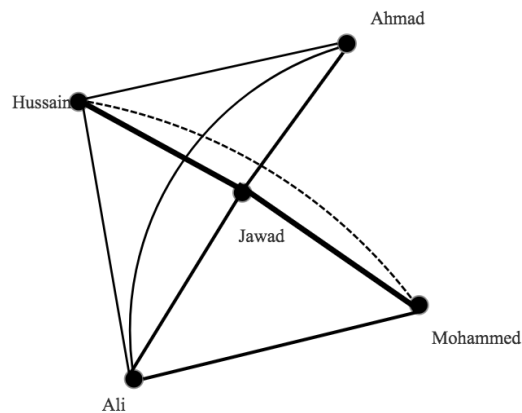
Mohammed is Jawad's best friend from back home; he lives in Minneapolis but usually he comes over and they spend the weekends together. All Jawad's friends know and interact with one another. Hussain is a friend to Ahmad and Ali and knows Mohammed. Ahmad also is a good friend to Ali and Mohammed, and the latter two are very close friends.

Jawad thinks that his English is above intermediate. He says that he did not speak English at all before coming to the United States and his language has improved greatly during his studies. However, he would like to improve his academic writing and pronunciation. Jawad has made friends with Americans but he does not consider them as close friends. He states that cultural and religious differences might be factors that inhibit him from pursuing those relationships. He also mentions that most American friends go out to drink and party during weekends, which is very different from the kind of activities that he and his friends enjoy.

Table 4.58

The People in Jawad's Social Network

	Hussain	Ahmad	Ali	Mohammed
Country of Origin	Saudi Arabia	Saudi Arabia	Saudi Arabia	Saudi Arabia
L1	Arabic	Arabic	Arabic	Arabic
Amount of Interaction	12 hrs weekly	6 hrs weekly	6 hrs weekly	12 hrs weekly
Ties\Connections	Friend/ Social /Study	Friend/ Social Gym partner	Friend/ Social School	Friend/ Social Family friend
Language used	Arabic	Arabic	Arabic	Arabic

**Figure 4.20.** Jawad's social network.*Analysis of the social network of participant 20, Jawad.* Jawad's social network

(Figure 4.20) is multiplex because all his friends are linked “in more than one way, that is, not just through work but also through other social activities” (Wardhaugh & Fuller, 2015, p. 71).

The degrees of nodes of Jawad's social network are shown in Table 4.59.

Table 4.59

The Degree of all Nodes in the Network of Participant 20, Jawad

Node	Degree
n1 = Hussain	2
n2 = Ahmad	2
n3 = Ali	2
n4 = Mohammed	2

Jawad's social network is very dense because everyone is friends with everyone else.

His social network is also very strong, as represented in Figure 20 by thick lines. The average interaction time between Jawad and people in his social network is 36 hours. The amount of time Jawad spends talking with people in Arabic is 36 hours, with no use of English at all. The density and time of Jawad's interactions with his friends are listed in Table 4.60.

Table 4.60

The Density of Jawad's Graph and the Time/Language Jawad Interacts with Friends

Density of valued graph	0.9
Amount of time Jawad interacts in Arabic (hours)	36
Amount of time Jawad interacts in English (hours)	0
Total amount of time Jawad interacts with friends (hours)	36

In summary, Table 4.61 lists all participants, and the number of their weekly interactions using each language.

Table 4.61

Summary of Interactional Hours

N0.	Participants	Gender	Arabic	English
1.	Jehan	F	10	2
2.	Yahya	M	22	8
3.	Yosef	M	17	7
4.	Ahmad	M	8	20
5.	Abdu	M	31	0
6.	Sharif	M	8	30
7.	Saleh	M	16	0
8.	Faisal	M	32	0
9.	Barqi	M	35	19
10.	Salman	M	20	0
11.	Shatha	F	6	8
12.	Ghadah	F	25	30
13.	Mohammed	M	11	20
14.	Hussain	M	84	0
15.	Zainab	F	0	25
16.	Hassan	M	0	44
17.	Ali	M	22	8
18.	Manal	F	27	0
19.	Hasnaa	F	21	20
20.	Jawad	M	36	0

Chapter 5: Discussion

This chapter discusses the research questions and attempts to answer them. The chapter is divided into three parts. The first part answers the question: What types of social networks do Saudi students establish in the target environment? The findings are discussed based on the social network analysis. The next part examines the second research question, illustrating the factors that hinder Saudi learners' interactions with native speakers of English. In the third and final section, the main research question is discussed using the framework of the Input Hypothesis to assess the Saudi learners' social networks. The research question here is: Do different types of social networks predict a learner's language proficiency?

Question 1: What types of social networks do Saudi Students establish in the target environment?

In the previous chapter, the social networks of the students were analyzed thoroughly, and graphs and tables were presented to portray important features of each participant's network. The graphs were valued, with the line lengths representing the amount of "talk time" with each friend. The participants' social networks were analyzed in terms of multiplexity, density, and the intensity of the relationships.

The 20 participants interacted with 76 people in their social networks, 19 of whom were native speakers of English. In other words, native speakers represented 25% of all the Arabic students' social networks. According to Table 4.61, the 20 participants spent 672 hours

a week with the people in their social networks. Of these, only 150 hours (22.32%) were spent with native speakers of English, with a further 421 hours (62.64%) being spent with 44 friends who were native Arabic speakers. The participants also spent 101 hours (15.02%) interacting with 13 people who spoke English but were not native English speakers. Table 5.1 shows the total hours during which the Saudi participants engaged with friends in their social networks.

Table 5.1

Total Hours Saudi Participants Spent with Friends in their Social Networks

Participants	Duration of interaction with 19 native English speakers	Duration of interaction with 13 nonnative English speakers	Duration of interaction with 44 Arabic speakers
6 females	26	59	89
14 males	124	42	332
Total	150	101	421

The overall results showed that 11 Saudi students—that is, 55% of participants—had no contact with native speakers of English in their social networks. Table 5.2 and Table 5.3 show the number of hours that Saudi men and women spent with people in their social networks.

Evidently there was no relationship between the length of residency and the people in the participant's social network. The length of residency also did not influence the networks or groups of the participants. For example, three male participants (#5Abdu, #8Faisal, #14Hussain) and one woman (#18Manal) had been living in the United States for between three and nine years; however, they had no interaction with either native or nonnative speakers

of English in their networks. One man (#16Hassan) had been living there for three years only and his four contacts were native speakers of English. One woman (#13Ghadah) had been living in Minneapolis for only six months and her social network included two native and one nonnative speakers of English.

Table 5.2

Total Hours each Female Participant Spent with People in Her Social Network

Saudi Female Participant	Native English speakers	Nonnative English speakers	Arabic speakers
Jehan	2	0	10
Shatha	0	8	6
Ghadah	5	25	25
Zainab	19	6	0
Manal	0	0	27
Hasnaa	0	20	21
Total hours	26	59	89

Table 5.3

Total Hours each Male Participant Spent with People in His Social Network

Saudi Male Participant	Native English speakers	Nonnative English speakers	Arabic speakers
Yahya	8	0	22
Yosef	14	3	7
Ahmad	0	20	8
Abdu	0	0	31
Sharif	30	0	8
Saleh	0	0	16
Faisal	0	0	32
Barqi	0	19	35
Salman	0	0	20
Mohammed	20	0	11
Hussain	0	0	84
Hasan	44	0	0
Ali	8	0	22
Jawad	0	0	36
Total hours	124	42	332

Differences between the social networks that included English friends and those that included Arabic speakers were evident in the multiplexity, density, and intensity of the networks. Participant 16, Hassan, had four Native American contacts (Figure 4.16); however, analyzing his social network indicated simplex ties with three of his friends. Networks are be uniplex when people in the network are linked through simple relations or single social events (Wardhaugh & Fuller, 2015, p. 71). Similarly, for Participant 14, Mohammed, relationships with native speakers of English were uniplex and extended only to his host family. Two women participants, Ghadah (13) and Zainab (15), had simplex ties with native speakers of

English in their networks. By contrast, participants displayed multiplex relationships with their Arabic friends. Multiplex-network people attend school together, work together, marry each other's siblings, and involve each other in various activities. Generally, people in these networks enjoy strong social cohesion, feelings of solidarity and identity (Wardhaugh & Fuller, 2015, p. 71). Participant 5, Abdu, had strong ties with three Arabic friends; they studied at the same department and met on weekends. Also, Hussain (14) and Jawad (20) had multiplex ties with their Arabic friends; they interacted and met at various academic and social events.

Regarding the density of the participants' social networks, most of the networks involving native English speakers were loose. A network is considered dense if the people in an individual's social network interact with each other. If the people one knows do not know each other, the network is considered loose (Wardhaugh & Fuller, 2015). Most American friends in the participants' social networks had no connections with other Arabic friends in the same network. Participant 6, Sharif, had two American friends and two Saudi friends, but there was no connection between his American friends and his Arabic friends; they were strangers to each other (Figure 4.6). Similarly, Participant 2, Yahya, had two American friends who had no contact with his Saudi friends (Figure 4.2). Participant 1, Jehan, had only one American friend in her social network; this native speaker of English was unknown to her other friends (Figure 4.1).

In some social networks, American friends were not complete strangers to the person's other friends but they had met each other only once or twice. Examples are Zainab (15) and Ali (17). Zainab's American friends knew her Turkish friends but they were not close; the network had loose ties (Figure 4.15). Ali's American friend knew his Saudi friends but they did not interact or engage socially. In such cases, the lines of a graph are dotted to indicate the weak relationships (Figure 4.17).

Finally, the frequency and duration of interaction showed that Saudi students spent more time talking to people who shared their first language. They spent a total of 421 hours with Arabic speakers, compared to 150 hours with native English speakers, and 101 hours with nonnative English speakers. Abat and Koffi stated that linkages within a social network can be strong or weak; a strong linkage means people in the network spend considerable time together (2016, pp. 34-35). The results showed that Saudi students had stronger relations with Arabic-speaking friends in their network than with English-speaking friends. Our results showed that nearly all the Saudi students tended to spend more time with friends who shared their first language. Only four participants interacted more with Americans where were native speakers of English: Sharif (6), Yosef (3), Mohammed (14), and Hassan (16). All of them were roommates, and understandably with a friend being a roommate, the amount of interaction and linkage will be stronger. The other social networks showed that the linkage between native and nonnative speakers of English was weaker than the linkage with Arabic

speakers. For Jehan (1), Yhaya (2), Barqi (9), Ghadah (13), Ali (17), and Hassnaa (19), their relationships with Arabic friends were much stronger than with English friends.

Question2: What factors might hinder Saudi learners' interactions with native speakers of English?

In the interviews, participants were asked to state the factors that hinder Saudi students from forming strong relationships with native speakers of English. Several common responses involved the reasons one would expect, such as cultural and religious differences. That is, the different interests and activities which Arabic and American students enjoy was a main factor reported by participants as inhibiting their relationships with Americans. Two participants mentioned that the way in which American people enjoy themselves and have fun is restricted in Islam, such as drinking alcohol and partying. Overall, participants reported that they simply prefer to engage and have strong bonds with culturally similar friends. In addition, the growing community of Saudi students plays a role in limiting their friendships with native speakers of English.

After cultural differences, the second most reported factor was the language barrier—that is, students having weak English language skills. One participant said that he preferred to interact with nonnative speakers of English because they could understand his pronunciation, whereas Americans could barely understand him and often interrupted him when he was talking. Several participants stated that spending free time with friends should be enjoyable

and relaxing. Hence, they preferred to be surrounded by friends who shared their language, rather than straining to find the correct words while speaking. A few participants explained that they were shy about speaking English with Native Americans, because they made many mistakes and did not want to be in such a position.

The third reason was that the students did not have much time. This lack of time was due to the heavy academic workload, and it was a main factor that prevented some participants from networking with native speakers of English. Graduate students especially reported that they had time constraints as they immersed themselves in studying. In addition, marital status appeared to prevent some students from making friends. Married participants reported that they were busy most of the time because they had responsibilities related to school, spouse, and children. There were fewer opportunities for socializing among married and graduate students.

A common factor that was the participants would have liked to interact more with native English speakers. They reported that most Americans classmates interacted with them only in class, and that Americans felt more comfortable interacting with fellow Americans outside of class. Lastly, several graduate students mentioned that most of their classmates were international students like themselves, especially in Ph.D. programs. The number of Americans in such programs was small, especially in little college towns where most of the Arabic students lived.

To summarize, Saudi participants attributed their weak interaction with native speakers of English mainly to cultural and religion differences, followed by limited English, lack of time, marital status, and American students' preferences. In addition, there were few native speakers of English in their higher degree programs. These findings are consistent with previous studies that have shown that international students often choose to be friends with similar conational peers (Alreshoud & Koeske, 1997). The Saudi participants' explanations were also consistent with studies that have identified lack of time, marital status, and poor language skills as barriers to integration with native speakers of English (Yang et al., 1994). The Saudi students complained about Americans' preferences and said the Americans were not interested in expanding their relations beyond the classroom; such views support a previous finding that host nationals were not interested in establishing relationships with international students (Trice, 2002).

Question 3: Based on Saudi learners' social networks and the Input Hypothesis, do different types of social networks predict a learner's language proficiency?

As researchers, we found all our participants able to communicate freely in English. They showed excellent language use and they articulated their thoughts about their experiences, social networks, and relations fluently. Regarding the features of their social networks with English speakers, we noted that most of their networks with native English speakers were uniplex and moderately loose. Some actors in the same network did not talk to

each other for long periods. In addition, the interactions between native English speakers and Arabic speakers in the same network were very weak. In contrast, most of the social networks formed by the participants with Arabic speakers were multiplex, strong and very dense.

To predict and forecast the Saudi participants' likely future improvement in spoken English, we propose a revision to the Input Hypothesis. Krashen stated that when input is understood and there is enough of it, knowledge of the language $i+1$ will be provided impulsively. This means the ability to produce language cannot be taught explicitly. Thus, to answer the question, we consider all three aspects of Krashen's theory: (1) the comprehensible input formula ($i+1$), which states that second-language learners must receive language input above their abilities; (2) the "quality of input" hypothesis, which states that input from native speakers is useful for improving pronunciation; and (3) the "quantity of input" formulation, which states that the more input L2 learners receive, the more likely they are to convert it to output (Koffi et al., 2017).

For Participant 1, Jehan, our prediction is that she might slowly make progress. Jehan had obtained a little comprehensible input from interactions with her English-speaking friend, Kylie. However, they did not talk about many topics; they only spoke about religion, activities in their city, and dating. Unfortunately, the input Jehan received was not enough since she spent only 2 hours a week with Kylie. Progress for Jehan is expected slowly unless the input she receives increases.

For Participant 2, Yahya, improvement in oral proficiency seems likely to be gradual. Yahya obtained some comprehensible input from native speakers of English, his colleagues Kelsi and Rachel. They talked about conferences, writing and research, culture, and religion. However, the input Yahya received was insufficient as he only spoke with them for 4 hours a week. He spoke in Arabic with other people in his social network for far longer times.

For the third participant, Yosef, the prediction is that he is likely to make progress in his oral proficiency. Yosef obtained comprehensible input from his friends and roommates, John and Gerid, on a large variety of subjects. However, the language input he receives is insufficient. Ultimately, he talks to his roommates in English for 7 hours, but he spends the same amount of time talking to his Arabic friends. The chances of Yosef progressing seem limited unless the input he receives from native speakers of English increases substantially.

The researcher's prediction for many participants is that they will not make real progress in their oral English proficiency. This prediction applies to participants 4 (Ahmad), 5 (Abdu), 7 (Saleh), 8 (Faisal), 9 (Barqi), 10 (Salman), 11 (Shatha), 14 (Hussain), 18 (Manal), 19 (Hassnaa), and 20 (Jawad). None of these participants were receiving comprehensible input from their social network contacts. Some of them also had little exposure to English spoken by nonnative speakers of English. The language input they did receive was not beyond their current level of competence and therefore did not meet the requirement of $i+1$.

For Participant 6, Sharif, it seems likely that he will gradually improve his spoken English. Sharif was obtaining comprehensible input through interacting with his roommates Chuck and Bryan. He talked with them about various topics, such as religion, politics, farming, and oil prices – for 15 hours each a week. However, this input was not enough because Sharif spoke only to his roommates. To obtain sufficient input, he needs to expand his social network and interact with more native speakers of English.

For Participant 13 (Ghadah), the prediction is that she will make progress very slowly. She was receiving comprehensible input from interacting with her classmates, Andy and Sara. The input Ghadah obtained covers various topics like school, personal lives, activities, fashion, and food. Yet this input was still not sufficient. She only spoke with native speakers of English for 5 hours a week, whereas she spoke to other people in her social network for 50 hours a week.

For Participant 14, Mohammed, the researcher predicts that his development in oral proficiency will gradually improve. Mohammed had obtained comprehensible input from interacting with his host family for 10 hours a week. He talked with them about many topics like food, religion, culture, and school. Unfortunately, the input Mohammed receives is not enough; he needs to interact with more native English-speaking friends to achieve sufficient linguistic input.

For Participant 15, Zainab, her improvements in spoken English is predicted to be gradual. Zainab received comprehensible input from two of her contacts, Britney and Ann, covering a wide range of topics related to life, religion, culture, and food. These interactions lasted for about 19 hours a week. However, the quantity of input she receives is not enough. Zainab needs to interact with more native speakers of English to achieve sufficient linguistic input.

For participant 16, Hassan, the prediction is that he will make considerable progress. Hassan was obtaining comprehensible input from interacting with all four people in his social network. The quality of input he receives was sufficient and it covered a wide range of topics—such as life, school, sport, activities, religion, food, and culture. However, he could improve the uniplex linkages with his friends and improve his contacts' relationships with each other so that he receives more input. Regarding the quantity of input, Hassan spent adequate time with his friend Daniel, but he should also spend more time with Justeen, Axle, and Nicole.

The last participant, Ali (17), was not receiving enough input and he is likely to make slow progress. Ali obtained comprehensible input from native speakers of English, his friends Gaven and Nicole. The input covered various topics such as politics, religion, wellness, health, romantic relations, cultures, and food. However, the input Ali was receiving was insufficient as he spoke with them for only 8 hours a week. In contrast, he spoke Arabic with other people in his social network for far longer periods.

Chapter 6: Conclusion

A few studies of second-language acquisition have focused on the effect of learners' social networks on their ability to speak and learn English. The points of interest are usually the quality and quantity of comprehensible language input received from native speakers. This thesis has explored the types of social networks Saudi students develop in a host environment in which the target language is spoken. The researcher analyzed the networks of students, and explained and forecasted the students' level of oral communication skills using the Input Hypothesis.

The first chapter introduced the purpose of the study, definitions, notations, fundamental concepts, and measurements of the social network. It also reviewed studies on the relationship between social networks and second-language learning. The chapter then addressed Krashen's theory known as the Input Hypothesis. Lastly, a short overview of the purpose and objectives of the existence of Saudi students' in the United States, and the variables the influence their networking with native speakers of the target environment are reviewed.

The second chapter comprised the methodology and findings. Twenty Saudi international students studying at four Midwestern universities were interviewed, using the questions in the Appendix. The participants were asked to list four friends with whom they interacted the most. Then the participants were asked questions about their relationship with

their friends, their regular activities, topics they spoke about, and the duration of interactions. In addition, participants were asked to rate their English proficiency and to say whether it was a factor in how they established their social network. Another question about factors that might hinder interaction with native speakers, from the participant's viewpoint, was also discussed.

The findings, including the social network analysis for each participant, were elaborated in detail in the second chapter. Interviews were reported, followed by tables and graphs of each participant's social network.

The third chapter provided a discussion and answers to the three research questions. The chapter was divided into three parts. The first part reported the types of social networks Saudi students had established in the United States, and the findings were discussed using social network analysis (SNA). Thereafter, regarding the second research question, factors that hindered Saudi learners' interactions with native speakers of English were reported. Lastly, the third research question was discussed according to the Input Hypothesis and the Saudi learners' social networks. Predictions were made based on the types of social networks and linguistic input the participants were receiving from the contacts in their social networks.

There were 76 people in 20 social networks examined in this study, but only 19 of them were native speakers of English. The Saudi participants spent an average of 672 hours in weekly interactions with the friends in their social networks. The interaction time was divided

as follows: 150 hours spent talking to native speakers of English; 101 hours with nonnative speakers of English; and 421 hours with Arabic speakers.

The analysis of the social networks highlighted Saudi students' interactional forms. In the interviews, several participants stated that they could not develop any kind of friendships with Americans beyond the classroom. Others complained about religious and cultural differences, lack of time, and lack of proficient language skills. These may indeed be factors that inhibited them from establishing relationships with native English speakers, but Saudi students are not blameless. Many of them reported that they had speaking and pronunciation problems. Eight participants reported that they would like to improve their speaking skills. The data show that many Saudi students tend to congregate around each other; this thesis illustrates how the participants tended to live next to each other and created their own associations. It is evident that the students' social networks do influence their overall linguistic and cultural experiences.

In closing, the responses from Saudi participants discussed in this thesis seem to support Krashen' Input Hypothesis. The findings also support the view that dense, multiplex, strong social networks that include speakers of a target language can indeed improve the overall oral proficiency of second-language speakers.

Implications

The findings of this study have important implications for Saudi language policies and Saudi international students.

Implications for Saudi language policies. First, it is crucial to inform students continuously of the main objectives of the King Abdullah Scholarship Program. They should be reminded that the program was created to educate and to facilitate the cultural and academic diffusion between Saudi Arabia and other countries. Initiatives could be arranged by institutions to help Saudi students to create and expand their relationships with non-Saudis during the program. The aims of the program cannot be accomplished if the Saudi students congregate around each other. SACM could use weekly newsletters to provide suggestions, ideas, and advice, urging the students to do the following:

1. Participate in the extracurricular activities organized by their universities.
2. Join the students' club in their city.
3. Search the city's meet-up places to find a group that shares similar interests and hobbies.
4. Engage in voluntary work conducted by the university.

SACM could calculate points for students' participation in the above activities and provide an award, which could be called the Community Participation Award.

Implications for Saudi international students. Saudi students who are studying in the United States could learn from this research that establishing relations with native speakers of English is crucial to their journey. They are encouraged to make social connections in the host country even prior to their departure from home. With the existence of social network sites, it is relatively easy to find friends and connections that can help one adjust in a new place; possibilities include Facebook and the twitter of the school where they intend to study. In addition, Saudi students should realize that the first year of their study abroad is a network-building year. As illustrated in the study, some students had lived abroad for more than 5 years without any real connections to native speakers of English. Saudi students should be aware of the opportunities for developing their social networks during the first year. Lastly, Saudi students should not focus on the barriers that inhibit their communication with native speakers. Instead, they should think of the many benefits they would incur from enhancing their social networks.

Limitations of the Study

Although this study answered all the research questions, several limitations affected the data gathering and analysis. First, the study relied on data collected only from interviews, with a small sample of 20 participants enrolled in four Midwestern universities. Second, the interaction times reported by the participants were rough estimations. The researcher noted, when interviewing friends, that they sometimes made different estimates of the number of

hours they spent talking with each other. However, during the interviews the participants were asked to calculate the hours as carefully as they could. Third, the researcher faced some overlaps with the participants own social networks, contacts and names, some of the names of participants and/or their friends were identical. It may cause some confusion to the reader whether they were the same individuals, or just common names. It might have been helpful to see a diagram or table of the entire group – that is, showing whether any of the individual networks overlapped with each other to make it easy to follow up by the readers.

Fourth, the researcher noted that some participants listed the names of Native American classmates despite those relationships being superficial. The study was designed to analyze people's social networks involving four close friends. One might assume that the students had other nonnative English-speaking friends, but they often listed native speakers to show that they had American contacts. The fifth limitation in this study was the challenge of evaluating participants' spoken skills and their progress in oral language skills accurately. There was no way to measure the improvement in participants' spoken English before and after travelling to live in the United States.

Recommendations for Future Research

An approach that could work would be to assess intelligibility by comparing the students' pronunciation of English vowels with that of native speakers of English.

Comparative vowel charts are recommended to assess the intelligibility of L2 English and to

highlight problematic vowels (Ladefoged & Johnson, 2015). A follow-up study after 3 or 4 years would indicate whether pronunciation was still problematic. A follow-up study could also help to determine whether the predictions made in this thesis were valid.

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Appendix

Participant Name#_____

Interview Questions

1. How old are you?
2. How long have you been living in the United States?
3. Name four people with whom you interact the most. What language(s) do you use?
4. People connect in many ways, and the connection might be in more than one direction. For example, a person can be your classmate but you also go to gym together. Please list the number of ties between you and the four persons you named. A list of relationships that you can choose from:

Friend Family friend Neighbor Classmate Roommate Tutor

Other (please specify)
5. What kind of activities you do with your friends?
6. What kind of conversation do you have with the persons you mentioned? You can list topics such as classes, homework, sport, fashion, music, religion, and others.
7. How many hours per day or week do you spend with your listed friends?
8. Is there any relation between the four people you listed? Do they know each other? If yes, are they friends? If no, are they strangers? Do they know each other's names? Please specify.

9. How do you rate your English proficiency? Low, Intermediate, or Advanced
10. What hinders you from making friends with native English speakers?