AN ANALYSIS OF SOCIAL NETWORKING OF COMMUNITY COLLEGE COUNSELORS FOR ACCESSING KNOWLEDGE AND INFORMATION

A dissertation submitted in partial fulfillment of the requirements
For the Doctor of Education Degree in Educational Leadership

by

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ABSTRACT

AN ANALYSIS OF SOCIAL NETWORKING OF COMMUNITY COLLEGE COUNSELORS FOR ACCESSING KNOWLEDGE AND INFORMATION

By

Lut Hang Li

Doctor of Education Degree in Educational Leadership

The need for a cost-effective education is important for students in higher education as well as for the institutions they attend. This study investigated how community college counselors (CC counselors) accessed knowledge and information (K&I) through their social network. The goals of this study were: (1) to investigate the social network structure of CC counselors; (2) to evaluate the frequency, timeliness, and quality of K&I the CC counselors accessed; and (3) to determine the impact on their job function CC counselors attribute to their social network. This was a quantitative research that used: (1) The Statistical Package for the Social Sciences, SPSS 18; and (2) Social Network Analysis of Ucinet 6. An online survey was distributed to counselors at a large, metropolitan, comprehensive two-year community college in Southern California. The results showed that the social network of respondents was significantly important for
their job, and it was beneficial to the academic counseling activities. The existing social network allowed respondents to access K&I with the right person at the right time. The findings in this study clearly indicated the social network provided many invisible but significantly important supports to counselors for academic counseling services. Moreover, college administrators may use the findings to improve K&I accessing and sharing for the counselors, and as a result, improve academic counseling services and student success.
Chapter 1: Statement of the Problem

The Significance of Community College Counselors

Community college counselors (CC counselors) play a critical role in the success of students at institutions of higher education in the United States. Because of the open access to community colleges, students with different ethnicities and backgrounds may attend them for a variety of reasons. Some students may hope to transfer to a four-year university or to earn an Associate’s Degree. Other students may try to complete a certificate program or to take courses for their career. In order to help college students have a successful experience, CC counselors have to provide good quality academic counseling services. They need to be familiar with the college’s policies such as those governing transfer to four-year universities, the courses acceptable for transfer to specific four-year colleges as well as course equivalencies between different institutions, the requirements for graduation with an Associate’s Degree, and the prerequisites for different college courses in many disciplines. They commonly support students by providing services in academic orientation, goal setting, transfer planning, and personal counseling and assistance. They may also need to assist students with college challenges, such as course failure or academic probation. They perceive academic counseling as a high priority activity because they spend most of their time working directly with students.

Since the late 1970s, the significant benefits of academic counseling at community colleges have been studied and documented in various ways (Bahr, 2004; Bean & Metzner, 1985; Higbee, 1979; Jones & Donovan, 1986; Preuss & Switalski, 2008; Seidman, 1991; Weston, 1993; Wlazelek & Coulter, 1999). Many studies focus on
the quality of counseling through the interaction between CC counselors and students, and they look at the effects of academic counseling on college students’ performance. To give a few examples, Jones & Donovan (1986) and Preuss & Switalski (2008) showed the positive effects of academic counseling on student learning outcomes. Both studies indicated students who sought counseling on a regular basis tended to have better retention rates, grades, and attitudes at their colleges than students who rarely consulted with CC counselors. Particularly, Preuss & Switalski (2008) showed that the benefits for probationary students with regular academic counseling at their community college were:

1) 68.6% of probationary students had a grade point average improvement

2) None of the probationary students had class withdrawal

Academic counseling in such cases was very important and provided many benefits to these probationary students. In short, advice given in the counseling sessions could help college students significantly improve their academic records. In addition, Seidman (1991) showed that counseling significantly improved college students’ persistence (a 22% improvement) into the second year of education. Others such as Bahr (2004) looked at effects of quality counseling on different racial groups of college students. His study showed that the likelihood of successful remediation of White and Asian students significantly increased with academic counseling. Hispanic students benefitted less than Whites and Asians, but the effect was still present. Although the effects of academic counseling might vary among different racial groups, Bahr (2004) showed that it was a beneficial activity for many college students.

Therefore, it is clear that counselors play a significant role in assisting students’ success at community colleges, and good quality academic counseling services are
critical to ensure that students achieve their educational goals. In fact, Higbee (1979, p.48) provided a good summary of the advantages of academic counseling from CC counselors:

(1) Students receive accurate information they need to plan their academic program

(2) They are more secure in the knowledge that they have a ‘friend’ who will go to bat for them, if necessary

(3) Progress records can be more easily maintained in a central location

(4) There will always be someone available to meet with the student when he or she has a problem needing immediate attention

(5) Faculty members will be relieved of a sometimes arduous, time-consuming activity

Problems of Academic Counseling Services

The research previously noted indicates that academic counseling at community colleges is one of the essential student services that help students improve their academic performance. However, how can CC counselors ensure students will receive a positive experience from academic counseling? For example, Clark (1960) mentioned that they sometimes needed to perform a “cooling out” function for the college students, and Bahr (2008) further defined the “cooling out” function as “to dissuade underprepared students from goals perceived to be overambitious and ease these students into lesser, presumably better-fitting academic trajectories” (p. 704). In these situations, some overambitious students may view the experience as negative if CC counselors do not properly interact with them. Moreover, because African American and Hispanic students often
underperform in college remedial courses compared to White and Asian students
(Rosenbaum, Deil-amen, and Person, 2006), counselors may have to interact with these
students differently in order to provide an effective academic counseling service.

Therefore, good quality academic counseling services at the community colleges
may not depend solely on the appropriate evaluation of students’ records, but may also
depend on the knowledge and counseling skills of the counselors. As researchers in
higher education continue to look at the significant effects on students of this essential
student service (Campbell & Nutt, 2008; Creamer, 1980; Fuller, 1983; Tinto, 1993), it
seems to be equally important to focus on the improvement of academic counseling
services at the community colleges for the purpose of providing a quality education.

According to the California Community Colleges Registry (2012) and the
Chronicle of Higher Education (2012), the minimum qualifications for most academic
counseling-related positions are:

(1) A Master’s degree in one of the following: counseling, rehabilitation
counseling, clinical psychology, counseling psychology, guidance counseling,
educational counseling, social work, career development, marriage and family
therapy, or family and child counseling

(2) Prior job experience in a counseling-related field

Because CC counselors must satisfy the minimum qualifications for their job position,
problems of academic counseling services are not likely to be related to their lack of
education or counseling experience. Instead, problems seem to arise after an individual is
hired for the counseling job.
Thus, the major challenge for CC counselors to provide effective academic counseling may be the difficulty of accessing the right knowledge and information (K&I) within their college system rather than their inability to assess student needs or their lack of counseling skills. In reality, not all counselors at the community colleges can have the right information at the right time, “nor can all knowledge requirements be known in advance” (Zell, McGrath, and Moore, 2004, p. 22). Academic counseling is a very K&I intensive service. When K&I cannot be obtained or have not been available within the counseling department, the success of academic counseling may depend on counselors who can access other formal or informal sources of information. Effective academic counseling in this case may depend on counselors who are able to access K&I from other offices or from their own social network.

Therefore, I propose effective academic counseling may be composed of two important factors:

1. CC counselors need to possess the right K&I when meeting with students and/or before or after questions arise

2. CC counselors have to interact with the students according to their individual needs during counseling

In particular for factor (1), without accurate K&I for academic counseling, CC counselors will not be able to move on to factor (2) and provide successful counseling experiences for college students.

In order to have effective academic counseling, counselors often need to have the most up-to-date K&I. In most cases, when an uncertain issue or a question arises related to academic counseling, they may rely heavily on their colleagues in the department, or
faculty, staff and administrators within their college system for K&I. However, CC counselors may also need to access new campus K&I through their personal network because not all of the formal or informal K&I will be distributed widely within the college. They may be shared through social activities, such as people who chat with their colleagues in the hallway, or “people who visit and know one another across departments” (Liebowitz, 2007, p. 1). Sometimes, information for academic counseling is simply difficult to obtain. In such cases, the social network of CC counselors may become a significant way of accessing new or accurate K&I. They could benefit from their social network because their outreach is enlarged and the potential for access to information is enhanced. In addition, the social network may provide not only a channel for K&I access, but may also allow counselors to know the information in advance, which allows them to offer students more accurate and effective academic counseling. A social network becomes particularly useful when academic policies are being changed rapidly without everyone at the community college’s being notified in a timely manner. With the right K&I in the hands of CC counselors, effective academic counseling may be provided to students and may reduce the length of time required for students to reach their goals, thus leading to a more cost-effective education.

Some of the problems for academic counseling services may be associated with the lack of an adequate social network of CC counselors. Information concerning how they access K&I through their social network may provide an “unidentified piece of the puzzle” for how to have more effective academic counseling for community college students. Moreover, college administrators such as directors of student services may be
able to improve the function of the academic counseling community from a social network study, and as a result, improve student success.

**Understanding the Pattern of Knowledge and Information Access**

A social network study can be used to understand how CC counselors access K&I through their social network. Formal or informal social networks are pervasive in an organization, but people may be unaware of “these seemingly invisible structures” (Cross & Parker, 2004, p. 10). Members within the social network can access, transfer and share K&I either formally or informally, and this activity may give the members tremendous advantages. In fact, studies indicate that the sharing of K&I will benefit individuals in an organization, particularly in an organization with a complex structure, and will promote individual or organizational success (Strati, 2000; Cross, Parker, and Sasson, 2003; Senge, 2006; Liebowitz, 2007).

In particular, social network analysis has been widely used in the fields of Sociology, Psychology, and multinational corporations, and depending on the kinds of social network study, its analysis can be used to map from simple to complex relationships and knowledge flows between individuals, departments or other entities (Cross & Parker, 2004; Carrington, Scott, and Wasserman, 2005; Liebowitz, 2007).

Social network analysis grew out of Harvard in the 1920s, but progressed slowly (Liebowitz, 2007, Carrington et al., 2005). Then about 1990, the interest in and the use of social network analysis began to grow at a much faster rate than in the past (Carrington et al., 2005). It can be divided into six major steps (Cross & Parker, 2004; also see Liebowitz, 2007, p. 33):

1. Identify a strategically important group
(2) Assess meaningful relationships
(3) Visually analyze the results
(4) Quantitatively analyze the results
(5) Create meaningful feedback sessions
(6) Assess progress and effectiveness

The analysis often generates a map of the individuals (also called a “social network diagram”) that compose the network and displays the relationships among individual members. A typical social network represents relationships among people, groups, or organizations, and the members within the network share at least one type of commonality such as friendship, kinship, common interest, financial status, religion, beliefs, or knowledge (Cross and Parker, 2004; Hanneman and Mark, 2005; Liebowitz, 2007).

For example, assume there are four CC counselors trying to seek K&I from each other, but they are not equally connected to each other. In fact, there is only one counselor who would be considered to be the main source of K&I because “CC counselor 4” provides K&I to the other three counselors. In this case, a social network diagram can be used to represent the relationships among these counselors. An illustration is shown in Figure 1.
Figure 1. The pattern of knowledge and information access among four CC counselors.

The square boxes represent CC counselors 1, 2, 3, and 4, and arrows represent the pattern of knowledge and information access: incoming arrows indicate the CC counselor is a source of K&I; outgoing arrows indicate the CC counselor seeks K&I from the linked member.

To connect the idea of social network analysis with academic counseling, one factor necessary for having effective academic counseling is for CC counselors to have access to the right K&I when meeting with college students, and this access could be gained through their social network. Unfortunately, a published social network study for CC counselors has never been conducted in higher education, and therefore, there has been no information available until now. It is clear that if effective academic counseling provides a means for students to be successful at the community colleges, then
understanding how CC counselors can access K&I is necessary in order to improve this student service. Social network analysis can be used to study K&I access through the social network of CC counselors at community colleges.

**Purpose of the Study**

To the knowledge of the researcher, this study is the first study in higher education to investigate the role of a social network in accessing K&I needed for academic counseling at the community college. The purpose of this study was to investigate how counselors at the community colleges accessed K&I through their social network, and to provide new knowledge to them and college administrators for the improvement of academic counseling. The goals of this study were:

1. To investigate the social network structure of CC counselors
2. To evaluate the frequency, timeliness, and quality of K&I the CC counselors accessed
3. To determine the impact on their job function CC counselors attribute to their social network

**Research Questions in This Study**

1. Investigating the existing social network of CC counselors:
   a. Is there any existing off-campus connection in the social network of CC counselors?
   b. To what extent do the interdepartmental connections of CC counselors extend beyond the Counseling Department?
   c. Are there differences among CC counselors in the number of interdepartmental connections for the social network?
d. What is the pattern of the intradepartmental connections for K&I access among CC counselors?

e. Are there differences among CC counselors in the number of intradepartmental connections for the social network?

(2) Rating the value of communication that is initiated by CC counselors through the existing intradepartmental connections:

a. What kinds of K&I are CC counselors seeking to access through the existing intradepartmental connections?

b. How often does communication for K&I occur through the existing intradepartmental connections?

c. How timely is the response to the request for K&I through the existing intradepartmental connections?

d. What is the quality of K&I received through the existing intradepartmental connections?

(3) Based on the findings, does the existing social network assist CC counselors in doing their job?

Definition of Terms

In scholarly literature nowadays, the term “academic advising” often refers to the student counseling or advising services in higher educational institutions; that is, at two-year colleges or four-year universities. However, this study focuses on two-year colleges so it is necessary to distinguish between the terms “academic advising” and “academic counseling.” For the purpose of this study, “academic advising” refers to student advising services in higher education in general, whereas “academic counseling” refers to the
student counseling services provided at two-year colleges. Therefore, these terms are defined as follows:

(1) Academic advising is a process in which students in higher education receive assistance or guidance with academically-related planning. Faculty or staff members are likely to provide this kind of service in general.

(2) Academic counseling is a process in which college students receive assistance or guidance with academically-related planning. Community college counselors mostly provide this kind of service at their institution.

Other terms that are often used in this study:

(3) Off-campus connection: a connection that exists between CC counselors and people in other educational systems.

(4) Interdepartmental connection: a connection that exists between CC counselors and people in other academic departments and administrative offices on-campus.

(5) Intradepartmental connection: a connection that exists among CC counselors within the Counseling Department.

**Significance of the Study**

The need for a cost-effective education is important for students in higher education as well as for the institutions they attend. While researchers continue to conduct many useful studies about the effect of academic counseling services at the community colleges (Bahr, 2004; Bean & Metzner, 1985; Campbell & Nutt, 2008; Clark, 1960; Cohen & Sanchez, 1997; Creamer, 1980; Fuller, 1983; Higbee, 1979; Jones & Donovan, 1986; Preuss & Switalski, 2008; Seidman, 1991; Tinto, 1993; Weston, 1993), it
is also important to gain knowledge about improving the counseling service. This study may be especially important to academic counseling communities and administrators at the community colleges because it provides information about K&I accessing, the value of the K&I obtained, and the structure of the social network of CC counselors. The results of this study should help identify factors that impact effective academic counseling, and should provide a meaningful way to improve this important student service at the community colleges.

Furthermore, to the knowledge of the researcher, this is the first study that applied social network analysis to understand the social network structure of CC counselors. Although there were many uncertainties in this “new research area,” this study introduces a new field of study that might positively impact the academic counseling community.

Limitations of the Study

As the researcher in this study, my job was to conduct the study in an appropriate way with the defined research questions, to validate the study with the support of relevant literature, to analyze the data correctly, and to determine the possible effect of the existing social network on accessing K&I needed by CC counselors. However, one of the major limitations in this study was the small sample size. Because participation in this study was purely voluntary, if the most-frequently contacted counselors did not participate in the study, then we might not have a complete understanding of the relationships within the social network. In addition, some potential participants were not in favor of identifying individuals (with their full name) in their social network, and as a result, some potential participants chose not to complete the online survey. A larger
sample size would improve the validity of this study and would reduce the likelihood of any random error in the data. Second, although this study provided maximum strength protection of confidentiality, some participants might still tend to highly rate people in their social network when the survey questions were related to their job performance. Perhaps an alternative explanation for people who received a high rating from the participants in this study was that the participants were likely to access K&I from the most knowledgeable person in their social network. Finally, because the ego-centric method was used in this study instead of the full network method, some specific information that might be meaningful for the study could be missing. However, a main reason that supported the use of the ego-centric method was this method tended to be a better way to address the research questions, and because the study was solely focused on social network connections of CC counselors. Overall, the results in this study should be reliable and valid.

**Overview of the Dissertation**

Chapter 1 provides an overview of the study that contains the significance of CC counselors, the problem CC counselors face of accessing current K&I needed to do their job well, a new set of research questions for this important student service, and the potential weaknesses of the study. Chapter 2 presents a literature review of the history and background about academic advising, the benefit of academic counseling services for the college students, and the importance of K&I access through a social network. Chapter 3 describes the research methods in this study, including the research design, research setting, research sample, survey instrument, and a detailed description of the data analysis in the study. Chapter 4 shows the results from the data analysis that related to each
particular research question in this study. Chapter 5 contains a discussion of the major findings, the implications, the recommendations, and the conclusions of the study.
Chapter 2: Review of the Literature

Although studying the social network of community college counselors (CC counselors) has not been done in the past, there are a lot of counseling-related studies that can provide important information for this study. In this chapter, I will first give an overview of the history of academic advising services, including how professionals in higher education define the term “academic advising,” and what they think are some of the essential responsibilities of academic advisors. Later in the chapter, I will review the importance of academic counseling according to the literature. Finally, I will provide examples that show the importance of information access through a social network with a few studies in education and business, and relate them to academic counseling services.

Academic Advising in Higher Education

There are many ways to define “academic advising,” but the best way may be through the lens of academic advisors and students in higher education. Through an academic advisor’s lens, academic advising may be viewed as a process of providing guidance to students for their academic success. Through a student’s lens, academic advising may be seen as a process of simply choosing classes and planning a semester’s schedule. Although people may understand academic advising differently, according to an association of professional academic advisors, faculty, administrators and students, the National Academic Advising Association (2006):

Academic advising, based in the teaching and learning mission of higher education, is a series of intentional interactions with a curriculum, a pedagogy, and a set of student learning outcomes. Academic advising synthesizes and contextualizes students’ educational experiences within the frameworks of their
aspirations, abilities and lives to extend learning beyond campus boundaries and timeframes.

Academic advising is a process of providing insight to students about academic, social or personal matters, and articulating this knowledge with the learning outcomes for student success. This dynamic process might affect students in deciding their academic major and field of study, curricular-related activities, and life planning. The nature of academic advising might be “to inform, suggest, counsel, discipline, coach, mentor, or even teach” the students (Kuhn, 2008, p. 3). Even though academic advising may be a complex interaction between academic advisors and students, this interaction should have a simple outcome; that is, to make students successful in their education.

A Brief History of Academic Advising Since the 1870s

The concept, definition, and the era of academic advising began in the late 1870s when university faculty within specialized curricula often took charge of guiding students to the classes they needed (Frost, 2000; Kuhn, 2008). In the 1880s, the president of Harvard University introduced the elective system that gave academic freedom to students in choosing course curricula, and later, Johns Hopkins University followed a similar implementation of the elective system (Rudolph, 1990). Because of the change in the curricula, the universities assigned faculty members to advise students for their academic and career goals, and other aspects of student-related challenges. Therefore, the concept of “advisor” was first beginning to be defined at institutions like Harvard and Johns Hopkins Universities (Kuhn, 2008).

Later, academic advising became an examined activity when “over 300 people attended a national meeting on academic advising in October 1977 in Burlington,
Vermont,” and the National Academic Advising Association was established over the two years following this first formal professional meeting (Kuhn, 2008, p. 7). It was also around this time Crookston (1972) and O’Banion (1972) introduced the conceptualized notions of developmental advising and prescriptive advising in separate research articles in the same year. According to Crookston (1972), developmental advising was a model in which the academic advisors would form a partnership with the students, and they would share the responsibilities for making academically-related choices and decisions. Academic advisors were to help students become aware of their educational potential, to communicate with the students, and to assist the students in the decision-making process. Crookston (1972) suggested advising was not only helping students make decisions, but was also a process facilitating the student’s development of multi-disciplinary skills for academic success. O’Banion (1972) on the other hand described prescriptive advising as a model in which the academic advisors would provide information, direction and instruction to the students, and they would tell the students what to do because the academic advisors were expected to have the answers. In fact, developmental advising and prescriptive advising are two of the most common advising models in higher education currently.

About a decade later, Habley (1983) started to investigate the administrative structure of advising with different organizational models, and introduced several different advising models that were useful for advising programs in higher education:

1. centralized advisement services
2. decentralized advisement services
3. shared advisement services
Advising professionals that were housed in one location provided centralized advisement services. Faculty and staff within the academic departments provided decentralized advisement services. Both advising professionals in a central location and faculty and staff in academic departments provided shared advisement services. Habley (1983) suggested that there were many ways to deliver advising services to students, and no two campuses had exactly the same services. However, no matter what advising model and structure were used in an educational institution, the positive effects of academic advising on students started to appear more often in publications (Boyer, 1987; Higbee, 1979; Jones & Donovan, 1986; Pascarella and Terenzini, 2005).

Today, academic advisors in higher education are expected to have specialized knowledge and training for providing academic guidance and introducing institutional resources to the students by having the minimum qualification of a Master’s degree in a counseling-related field and job experience (The California Community Colleges Registry, 2012; The Chronicle of Higher Education, 2012). They need to provide academic, vocational, athletic and personal advising to students in their academic program. The academic advisors also establish relationships with students to encourage them to overcome challenges, to become aware of personal responsibilities, and to facilitate successful learning outcomes on campus.

**Importance of Academic Counseling**

Good quality advising should increase the chance of academic success, and should help to ensure that students achieve their educational goals in a timely manner. Similarly, the same outcomes should be expected for students at the community colleges through academic counseling. One of the examples of effective counseling was a study at
Rockingham Community College (Preuss & Switalski, 2008). Students on academic probation who participated in the academic counseling program and met the CC counselors on a regular basis had a statistically significant improvement in grade point average, and a lower chance of withdrawal from class or suspension from college than the non-participants. Academic counseling in this case was not only a key factor in preventing students from dropping out of college, but it was also an effective method for bringing students on academic probation back to good standing.

There is no doubt that one of the biggest challenges for many higher educational institutions is improving student retention. Approximately 25% of students drop out after one year of college (Tinto, 1993). Research has shown that effective academic counseling can positively contribute to increased student retention rates (Campbell and Nutt, 2008; Creamer, 1980; Fuller, 1983). In one study, Seidman (1991) showed that students at a suburban community college who met with counselors for academic planning had a significant increase in their chance of retention. With academic counseling, 88% of the students registered for the third semester at college compared to 75% in the absence of counseling. The study also indicted that students who received academic counseling were “being integrated into institutional life with a slightly higher degree of success” than the group that did not seek advising (Seidman, 1991, p. 229).

Besides assisting students to maintain a good academic record, academic counseling sometimes can be important for other academically-related issues. What if an underprepared student has an educational goal that the CC counselors may perceive to be overly ambitious? Maybe academic counseling can be used for “cooling out,” a process of working closely with the student to substitute academic goals more appropriate to the
student’s preparation, skills, and abilities than the overly ambitious goals were (Clark, 1960). Throughout the process, they would provide advice and assist the student in his or her academic progress. Afterward, the underprepared student may be able to gradually return to a higher set of academic goals. Currently, underprepared students in higher education often set their academic goals at an unattainable level and thus the “cooling out” function of academic counseling may prevent students from falling into a tough situation or dropping out of college.

In contrast, providing a “warming up” function for high-potential students may be as important as providing a “cooling out” function for underprepared students. Rosenbaum, Deil-Amen, and Person (2006, p. 41, 46) defined this positive function as “the raising of students’ initial aspirations after they enroll in a college,” and the authors pointed out “warming up” may reduce the dropout rate for students who start college with no degree goals. It is clear that counselors could also play a significant role in shaping student success through the “warming up” function at the community colleges, particularly when there are interactions between them and the students that might help to improve the students’ confidence level to pursue a degree.

Last but not least, academic counseling is also important in terms of coaching-like support. Jones and Donovan (1986) indicated from their study that academic counseling was a major factor enabling minority students to persist through the first two years of college education. CC counselors sometimes had to act as tutors for the students and had to teach skills and practices that produced success at college. Students who received academic counseling and persisted at the college had:

1. A stronger motivation to attend college
(2) More support and encouragement to attend college

(3) Better study habits

(4) More positive attitudes toward education and studying

(5) A perception that they had better grades than other students

The study also showed having a counselor and discussing campus activities with this professional could also generate a positive attitude toward social integration. Therefore, the effect of academic counseling on students is more than just assisting them in the single area of their academic field.

**Importance of Knowledge and Information Access**

It is certain that the service of academic counseling at the community colleges influences students in many aspects of college life, and the interactions between counselors and students are often significant or positive (Allen and Smith, 2008; Bahr, 2004; Clifton and Long, 1992; Jones & Donovan, 1986; Preuss and Switalski, 2008; Rosenbaum et al., 2006). However, Rosenbaum et al. (2006) pointed out even if students may rely on CC counselors for knowledge and information (K&I) to navigate college requirements, sometimes they may fail to get sufficient information about the students’ academic programs or course requirements, or the knowledge and information (K&I) can be out-of-date or wrong.

To understand how K&I access is done, Borgatti and Cross (2003) proposed a relational model that the probability of seeking information from another person was a function of:

1. Knowing what that person knew
2. Valuing what that person knew
(3) Being able to gain timely access to that person’s thinking

(4) Perceiving that seeking information from that person would not be too costly

Senge (2006) also indicated that trust must be built between the individuals in order to build a personal connection. One of the five distinct domains for effective academic counseling was having access to accurate K&I (Allen and Smith, 2008). When there are multiple connections built among a group of people, this invisible network structure will promote K&I accessing, transferring and sharing among the individuals within the social network.

Looking at community colleges, besides the regular K&I accessing through the counseling office, a social network may provide additional benefit to counselors because they may be able to have frequent access to K&I, get K&I in a timely manner, and have a good chance of getting valuable information. A reliable counseling-related social network will provide up-to-date academic-related K&I for counselors. In addition to the benefits of access, timing, and the value of K&I through the social network, Cross et al. (2003) stated that benefit might also come from referrals. Cross et al. (2003) noted that an individual can only be at a limited number of places within a limited amount of time, and the referrals from a member within the social network are a positive force for further or future communication. Through this process, the size of the social network of an individual may also be extended, and a more effective social network may be created because of the expansion. When a strong and healthy social network is established, the network may cause CC counselors to feel more confident doing academic counseling or may enhance the effect of counseling on college students.
Although a social network study related to CC counselors is not available in the literature, perhaps we could learn more about accessing K&I through other relevant studies. For instance, Zell, McGrath, & Moore (2004) looked at advice-seeking behavior of public university students in the School of Business. One of the key findings from the study was students relied heavily on their friends for advice, even though the advice was often less useful than that available from other sources such as family, faculty, or staff members. The authors also found that when students experienced problems in their life, they most often sought advice from their friends, family, or a co-worker. Although the study showed for most of the problems the usefulness of advice from faculty and staff members was very high (over 70%), and it could be obtained by the least number of visits among possible sources, seeking help from university faculty and staff members was not a favored behavior for students (Zell et al., 2004). Although students perceived advice from their friends was easily accessed and less costly, it was critical to make contacts with the correct people. A better advice network in this case could have increased the effectiveness of the advice-seeking behavior and reduced the cost of action. Zell et al. (2004) also stated that the findings of the study offered valuable implications for organizations to recognize the value of an accessible network:

By gaining insight into peoples’ choices about whom to seek for information and social support, managers can help shape and direct the formation of advice networks, and create a context that encourages people to utilize them in a manner that improves organizational performance. (p. 28)
Similarly, information about K&I accessing behavior of CC counselors should be useful for the formation of an effective social network and for the improvement of academic counseling services.

Besides the study about university students, Liebowitz (2007) provided an example of faculty members at Johns Hopkins University who studied employees to understand how the flow of K&I occurred in an organization. The study investigated employees’ advice-seeking communication in a major division of an international organization, and some of the major findings from the study were: (1) most communication occurred between non-managerial employees; (2) only 21% of those employees had a K&I connection to persons in management positions; and (3) junior employees had limited contacts with the executives. This study indicated that when employees had a better advice-seeking communication network, such as connections with people in management positions, employees were likely to produce a better job outcome. The findings of this study were used to improve K&I access and communication flows within the organization. A positive reinforcement program might be developed to create behavioral change in other positions, and to facilitate collaboration among employees.

A Brief Conclusion

If a similar study is conducted at a community college, information about K&I access and social network connections of CC counselors may be extremely useful for the improvement of academic counseling services. CC counselors who have access to accurate K&I through a social network may increase the chance of positive counseling experiences for college students. However, understanding K&I access of CC counselors through the invisible social network, and how this network may affect the success of
academic counseling has not been investigated and reported in the literature. As researchers continue to put significant effort toward a better understanding of academic counseling (Allen and Smith, 2008; Bahr, 2004; Clark, 1960; Clifton and Long, 1992; Jones & Donovan, 1986; Preuss and Switalski, 2008; Rosenbaum et al., 2006; Weston, 1993), study of the role of social networking in accessing K&I needed for quality academic counseling should become a new area of investigation.
Chapter 3: Methodology

This chapter provides an overview of the methodology used in the study. First the research questions are stated again in this chapter. Justification for the research design, the research setting, the research sample, the data source, and the data analysis are explained next. A brief summary of the chapter is given at the end.

Research Questions

This was the first study that looked at a social network of community college counselors (CC counselors). The primary purpose of this study was to investigate how they access knowledge and information (K&I) through their social network. The results of this study could be used to provide suggestions for the improvement of academic counseling, management, and the organizational structure of the academic counseling community. The research questions in this study are:

(1) Investigating the existing social network of CC counselors:
   a. Is there any existing off-campus connection in the social network of CC counselors?
   b. To what extent do the interdepartmental connections of CC counselors extend beyond the Counseling Department?
   c. Are there differences among CC counselors in the number of interdepartmental connections for the social network?
   d. What is the pattern of the intradepartmental connections for K&I access among CC counselors?
   e. Are there differences among CC counselors in the number of intradepartmental connections for the social network?
(2) Rating the value of communication that is initiated by CC counselors through the existing intradepartmental connections:

a. What kinds of K&I are CC counselors seeking to access through the existing intradepartmental connections?

b. How often does communication for K&I occur through the existing intradepartmental connections?

c. How timely is the response to the request for K&I through the existing intradepartmental connections?

d. What is the quality of K&I received through the existing intradepartmental connections?

(3) Based on the findings, does the existing social network assist CC counselors in doing their job?

Research Design

Social network connections between people may exist in any one of the three following conditions:

(1) Individual A claims to have a connection with individual B, but individual B does not connect to individual A

(2) Individual A does not connect to individual B, but individual B claims to have a connection with individual A

(3) Both individuals A and B connect to each other

Based on the above description, when individual A has a connection with individual B, people may describe the existing connection of individual A as either an outward connection (A connects to B), an inward connection (B connects to A), or a two-way
connection. Depending on the purpose and the goal of a social network study, researchers may choose to use different research methods to understand the social network. In this study, the research method was the ego network method because this study solely identified the outward connections of CC counselors. The ego network method was one of the typical research methods used by others in social network studies (Hanneman & Mark, 2005).

**Discussion of the ego network method.**

Hanneman & Mark (2005) mentioned that there are several research methods available in the study of a social network, and these methods include:

1. The full network method: investigating the two-way connection
2. The snowball method: investigating the two-way connection
3. The ego network method: investigating either the outward or the inward connections

The full network method requires the researcher to collect information from all individuals within the targeted group or social network. This approach takes a census of the connections among all individuals. The snowball method begins the data collection within a focal group and then individuals within the focal group are asked to identify their connections to other important people. Social network data will continue to be collected from those new people until no new person is identified for the study, or until the researcher decides to end the data collection. The ego network method is an alternative approach that focuses on the targeted individuals only. The researcher is interested in either the outward or the inward connections of the targeted individuals. Such a research design can still generate sufficient information about the “local” or
“neighborhood” network (Hanneman & Mark, 2005, p. 9). The design of the full network method can yield the maximum amount of information about the social network. However, such a method can be very costly to execute and it can be difficult to generalize findings because of the massive quantity of data (Hanneman & Mark, 2005). In contrast, the ego network method would yield the least amount of information about the social network, but this method is less costly, and easier to execute and generalize findings from the data than other methods (Hanneman & Mark, 2005).

Because this study only intended to identify the existing outward connections of CC counselors, the ego network research method was used. If the full network method or the snowball method were used in this study, social network information would be collected from CC counselors and other potential individuals that connected to the counselors; in particular, information about two-way connections would be collected.

**Discussion of the quantitative research design.**

This study had a quantitative research design with the data collection process. Information about the social network connections of CC counselors was anonymously collected through an online survey. It was expected that the development of an online survey would assist counselors to respond to the survey questionnaire in a more effective way and to generate a more efficient process for data collection. The online survey provided an opportunity for the counselors to identify their existing outward connections with different educational systems, to identify their outward connections with other departments and offices on campus, to identify their outward connections with other counselors in the Counseling Department, to identify the kinds of K&I that they sought from other counselors, and to evaluate the value of the communication that was initiated.
by the counselors through the existing intradepartmental connections. This study was different from a typical quantitative research study in education because the study used the ego network method for collecting data and UCINET 6 (a social network analysis software) for part of the data analysis.

**Discussion of the use of statistical software.**

The data analysis used the Statistical Package for the Social Sciences, SPSS 18 (commonly used in the field of education) and the social network analysis software, Ucinet 6 (commonly used in the field of social sciences). It was expected that the use of SPSS 18 and Ucinet 6 might generate more meaningful findings than using the SPSS 18 alone. The detailed explanation about the data analysis will be given toward the end of this chapter.

**Research Setting**

As an initial study that focused on the existing social network of CC counselors at a community college, this study was purposely designed to investigate a community college district that has a single campus. The selection of the community college was based on three major criteria:

1. It is a single community college district
2. The community college is located in a major urban city in Southern California
3. The community college has a large number of counselors available on the campus

It was expected that a single community college district might have a relatively simpler organizational structure than a district with multiple campuses, and as a result, human relationships would be potentially less complex. A single campus district in this case
would be a perfect choice for an initial study. In addition, the researcher hoped that choosing a community college in a major urban city in Southern California could represent other community colleges around the area. Perhaps the findings in this study could become potential benchmarks for similar studies in the future. Finally, the potentially large number of CC counselors (the respondents) for the online survey might increase the validity of the findings.

**The Community College**

The selected community college (the study institution) for this study is located in Southern California. It is a large, metropolitan, comprehensive two-year institution that is accredited by the Western Association of Schools and Colleges. The study institution has a history of over 75 years, currently enrolls over 34,000 students, has an academic reputation as one of the best community colleges in the nation and is one of the leading institutions in transferring students to the University of California, the California State University, and other four-year campuses.

**The Counseling Department**

All of the full-time and part-time counselors in the Counseling Department at the study institution have a Master’s degree in a counseling-related field. Full-time counselors work a contractual 32 hours per week and typically do that in four days. Part-time counselors work 4 to 18 hours per week in either 2 or 3 days. All new hires are required to participate in a two-month training internship with an assigned mentor prior to working in the department. In addition, most counselors need to attend the Counseling Department’s meetings on a regular basis. A *Counseling Handbook* is also available for
the counselors for the general guidelines and procedures related to academic counseling services.

The Counseling Department provides face-to-face academic counseling services to students. In the 2009-2010 academic year, there were over 100,000 counselor-to-student contacts in the Counseling Department. All counselors in the department belong to one of several different counseling programs, and there are over 20 counseling programs available at the study institution. Most of the counseling programs are housed in the counseling building, and the other counseling programs are located in different buildings on campus. Depending on the kind of counseling program, counselors provide different types of academically-related counseling services to the students. Examples of the programs include Athletics Counseling; African American Students Counseling; Counseling of Transferring Students; California’s Welfare Reform Program (CalWORKS); Extended Opportunities, Programs and Services (EOPS); International Students Counseling; and Nursing Counseling.

**The Community College Counselors**

According to the record of the fall 2011 semester, 50 full-time and 70 part-time counselors worked in the Counseling Department at the study institution. However, not every counselor was selected for the study because there were some who spent the majority of their time doing administrative work or teaching. Because this study sought to investigate CC counselors who provided academic counseling services to the students, the respondents in this study must spend a significant amount of time doing academic counseling.
In addition, because there were 120 counselors in over 20 counseling programs at the study institution, and they were at different locations on campus, it was necessary to select some particular group of counselors for the study. The first focal group in this study was the respondents who provided academic counseling related to transferring from the community college to a four-year institution. They were called “the transfer counselors” in this study. Studying them is important because one of the primary missions of the community colleges in the California Master Plan for Higher Education is assisting college students in transferring (California Community Colleges Chancellor’s Office, 2012). The second focal group, “the minority counselors,” provided academic counseling services for minority students such as Hispanic students and Africa-American students. The third focal group, “the special needs counselors,” were the counselors who provided academic counseling services for special needs students: first-time college students, students from low income families, and students with learning disabilities. Because minority students and students with special needs often underperform at the community colleges (Bahr, 2004, 2008; Rosenbaum et al., 2006), studying the minority counselors and special needs counselors would be important for the improvement of academic counseling services.

These three focal groups of counselors were located at different places on campus. The transfer counselors and the minority counselors were housed in the counseling building, but they had separate offices. The special needs counselors were housed in another building on campus. Therefore, the minority counselors were the closest to the transfer counselors, and the special needs counselors were the farthest away from the transfer counselors. Perhaps under such conditions, we might be able to have a
better understanding about the social network connections among these three groups of counselors due to the spatial distances between them. Could we find some specific pattern of social network connections between the transfer counselors and the minority counselors who might often see each other at work because they were in the counseling building? Maybe the pattern of social network connections were different for special needs counselors because of their office’s location. Collecting social network information from these three focal groups might help us better understand the pattern of social network connections and the process of K&I access in detail.

**The Potential Sample Size of Community College Counselors**

With the specific selection criteria for the respondents in this study as described above, there were 68 full-time and part-time counselors in the Counseling Department potentially qualified for the study. However, the actual sample size (CC counselors who responded to the online survey and qualified for the study) could not be determined until the completion of data collection. In order to make sure the respondents would qualify for the study, the online survey contained questions that could be used to identify any non-qualified CC counselors: (Q6) in the online survey asked CC counselors whether providing academic counseling was one of their major job responsibilities, and (Q5) in the online survey asked CC counselors about their office location (see Table 1). The demography of the respondents will be provided at the beginning of Chapter 4.

**Data Source**

Because there was no social network survey instrument for CC counselors available in the literature, the researcher in this study developed the survey questionnaire and instrument with the assistance of his dissertation committee and Cross and Parker
(2004). The actual data source in this study came from an online survey that was created by the researcher. An example of the survey questionnaire for this study is shown in Table 1.

The description of the survey instrument is as follows: There were 17 questions in the online survey, and it was divided into four parts: (part one) information about the counselor’s background; (part two) information about intradepartmental connections; (part three) information about interdepartmental and off-campus connections; and (part four) information about the counselor’s gender and ethnicity.

In part one, information about the respondents collected through the online survey included (Q1) the counselor’s full name; (Q2) years of work at the study institution; (Q3) full-time or part-time status; (Q4) the number of hours worked per week; (Q5) office location; and (Q6) the major job responsibility in the Counseling Department.

In part two, the respondents were asked (Q7) to identify other counselors in the Counseling Department who provided them with counseling-related K&I for their job. This question was used to identify their existing intradepartmental connections, and each respondent might identify up to 15 people. Once they identified at least one counselor in the Counseling Department who provided them with K&I, follow-up questions were used to understand the existing relationship with the identified counselor. That is, the respondents were asked in (Q8) what was the primary reason for K&I access; (Q9) was there any other reason for K&I access; (Q10) how often did the K&I access occur; (Q11) how soon did the contacted counselor respond to the communication; and (Q12) what was the quality of K&I received from the contacted counselor? In addition, it is important
Table 1

An Example of the Survey Questionnaire for this Study

<table>
<thead>
<tr>
<th>Number</th>
<th>Question</th>
<th>Choice</th>
<th>Action</th>
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</thead>
<tbody>
<tr>
<td>(Part one) information about the counselor’s background</td>
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<td></td>
</tr>
<tr>
<td>Q1</td>
<td>What is your full name?</td>
<td>No</td>
<td>Fill in the blank</td>
</tr>
<tr>
<td>Q2</td>
<td>How long have you been working in the Counseling Department?</td>
<td>Less than 1 year</td>
<td>Choose one answer</td>
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<tr>
<td></td>
<td></td>
<td>1-3 years</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>4-6 years</td>
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<td></td>
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<td>7-9 years</td>
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<td></td>
<td></td>
<td>10-12 years</td>
<td></td>
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<td></td>
<td></td>
<td>13+ years</td>
<td></td>
</tr>
<tr>
<td>Q3</td>
<td>Are you a full-time or part-time counselor?</td>
<td>Full-time</td>
<td>Choose one answer</td>
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<tr>
<td></td>
<td></td>
<td>Part-time</td>
<td></td>
</tr>
<tr>
<td>Q4</td>
<td>How many hours per week do you work?</td>
<td>1-5 hrs/week</td>
<td>Choose one answer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6-10 hrs/week</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>11-15 hrs/week</td>
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<td></td>
<td></td>
<td>16-20 hrs/week</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>20+ hrs/week</td>
<td></td>
</tr>
<tr>
<td>Q5</td>
<td>Where is your office located?</td>
<td>No</td>
<td>Fill in the blank</td>
</tr>
<tr>
<td>Q6</td>
<td>One of your major job responsibilities as a counselor is to provide academic counseling services to students.</td>
<td>True</td>
<td>Choose one answer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>False</td>
<td></td>
</tr>
</tbody>
</table>

(Table continues)
### Table 1 (continued)

*An Example of the Survey Questionnaire for this Study*

<table>
<thead>
<tr>
<th>Number</th>
<th>Question</th>
<th>Choice</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Part two) information about intradepartmental connections</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q7</td>
<td>Please list the full name of any counselor in the Counseling Department that you know personally who let you access knowledge and information about academic counseling.</td>
<td>No</td>
<td>Fill in the blank, up to 15 answers</td>
</tr>
<tr>
<td>Q8*</td>
<td>In most cases, what is the primary (main) reason for you to contact this individual(s)?</td>
<td>To learn about academic policies and procedures To learn about academic majors To learn about the transfer process To learn about transcript evaluation Other reason</td>
<td>Choose one answer</td>
</tr>
<tr>
<td>Q9*</td>
<td>If you have other reason(s) to access knowledge and information from this individual(s), please briefly explain the reason(s).</td>
<td>No</td>
<td>Fill in the blank</td>
</tr>
<tr>
<td>Q10*</td>
<td>How often do you contact this individual(s) regarding knowledge and information about academic counseling?</td>
<td>Rarely Seldom Sometimes Often Very often</td>
<td>Choose one answer</td>
</tr>
</tbody>
</table>

(Table continues)
Table 1 (continued)

*An Example of the Survey Questionnaire for this Study*

<table>
<thead>
<tr>
<th>Number</th>
<th>Question</th>
<th>Choice</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q11*</td>
<td>From your experience, does this individual(s) respond to your inquiry promptly?</td>
<td>Rarely, Seldom, Sometimes, Often, Very often</td>
<td>Choose one answer</td>
</tr>
<tr>
<td>Q12*</td>
<td>The knowledge and information you get from this individual(s) are always good resources for academic counseling.</td>
<td>Not useful at all, Most are not useful, Neutral, Most are useful, All are very useful</td>
<td>Choose one answer</td>
</tr>
</tbody>
</table>

(Part three) information about interdepartmental and off-campus connections

| Q13    | Do you have a connection with faculty or staff members in another academic department or administrative office on campus? If yes, please list all the possible academic departments or administrative offices. | No | Fill in the blank, up to 15 answers |
| Q14    | As a counselor, do you have a connection with people in the following educational systems? | K-12 system, UC system, CSU system, Private, non-profit, CA, Private, for-profit, CA, Other educational system | Yes or no, response to each choice |
| Q15    | If you have a connection with out-of-state or other higher educational systems, can you briefly explain it? | No | Fill in the blank |

(Table continues)
Table 1 (continued)

An Example of the Survey Questionnaire for this Study

<table>
<thead>
<tr>
<th>Number</th>
<th>Question</th>
<th>Choice</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Part four) information about the counselor’s gender and ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q16</td>
<td>What is your gender?</td>
<td>Male, Female</td>
<td>Choose one answer but optional</td>
</tr>
<tr>
<td>Q17</td>
<td>What is your ethnicity?</td>
<td>Asian, African-American, Caucasian, Hispanic, Other/Multi-Racial</td>
<td>Choose one answer but optional</td>
</tr>
</tbody>
</table>

*Note. *Piped question with Q7

To note that (Q8) to (Q12) were “piped” with (Q7) in the online survey. That means these questions would only appear in the online survey when the respondents identified at least one counselor in the Counseling Department for (Q7).

In part three, the respondents needed to identify personal connections that were outside the Counseling Department. In (Q13), they were asked to identify any existing connection with the academic departments and administrative offices on campus. This question was used to identify the existing interdepartmental connections, and each respondent could identify up to 15 connections with academic departments and administrative offices. In (Q14), they were asked to identify the existing off-campus connections with different educational systems including (a) the high school system;
(b) the University of California system; (c) the California State University system; (d) a non-profit independent college/university in California; (e) a for-profit independent college/university in California; and/or (f) other higher educational system. In (Q15), they had an opportunity to briefly explain the relationship with another higher educational system.

Lastly in part 4, information about (Q16) the gender and (Q17) the ethnicity of the counselors was collected in the online survey, but answering these two questions was optional.

To conclude, the questions in the online survey were either multiple choice questions (in some questions one could choose more than one answer), or fill in the blank. Please note that all social network information collected in the online survey only represented the outward connections of CC counselors.

**Survey Setup**

The survey instrument was created in November 2011 through an online survey software and questionnaire tool that is called “SurveyGizmo” (SurveyGizmo, 2011), and it was one of the popular online survey tools available to the public. With this paid software and questionnaire tool, the researcher was able to design the layout and the structure of the survey instrument, including the platform and color, the kinds of questions, such as multiple choice or fill in the blank, and the design of “piped” questions in the survey. According to the SurveyGizmo, the estimated completion time for the online survey was about 5 minutes.
Procedures of Data Collection

To distribute the online survey effectively and confidentially to the CC counselors, a website link for the survey instrument was sent to their email accounts. The initial distribution of the questionnaire was in the third week of December 2011. Later, it was re-sent two separate times to the selected respondents in January and February 2012. It was hoped that the reminder would help to improve the response rate by allowing extra time for the counselors to complete the survey through SurveyGizmo. It was available until the first week of March 2012 for the final round of data collection.

After the data collection, each electronic survey was downloaded from the SurveyGizmo as pdf and Excel files, and these files were stored in a password-protected computer that was only accessible to the researcher in this study. The electronic surveys in the SurveyGizmo were erased afterward. The downloaded surveys in the researcher’s computer were used for the data analysis in this study.

Risk to the Respondents

Because of the design of the online survey, personal communication did not exist between the researcher and the CC counselors unless some respondents decided to withdraw from the study. There was no risk that the researcher might influence them in any manner. Participation in this study was voluntary. CC counselors who were chosen for this study had the right to refuse to participate. They also had the right to withdraw themselves any time after the completion of the online survey according to the Experimental Subjects’ Bill of Rights (Appendix A) and the rules listed in the Informed Consent Form (Appendix B), and the information was sent to CC counselors through email before the data collection process. The respondents who would like to withdraw
from this study could notify the researcher through direct contact by phone or email, and then their data would be destroyed immediately. The destroyed data would not be recoverable.

In addition, the risk of publishing information about the individual respondents was minimal. In order to protect the identity of all individuals in this study, no personal information will be released to another party. The collected data was translated for the purpose of confidentiality. For instance, special identification numbers were used to represent respondents (such as TC1, MC2 or SNC3). All collected data was only accessible to the researcher. All electronic data was stored in a password-protected computer and a locked file cabinet. The collected data will be stored for 5 years for the purpose of writing the doctoral dissertation and future publication.

**Statistical Software**

Two different software programs were used for the data analysis in this study: the Statistical Package for the Social Sciences, SPSS 18, and the social network analysis software, Ucinet 6. Vaske (2008) stated that:

The Statistical Package for the Social Sciences (SPSS) is an integrated system of computer programs that allows users to easily perform statistical analysis. The software provides a comprehensive set of procedures for data transformation and file manipulation as well as common social science statistical tests. (p. 223)

Therefore, SPSS 18 was used to run the majority of the data analyses such as the Chi-square Test of Independence (chi-square test) and one-way Analysis of Variance (one-way ANOVA).
In order to have a better understanding about the pattern of intradepartmental connections of CC counselors in the social network, Ucinet 6 was used to run network-related analysis. In particular, because one of the research questions sought to understand the pattern of the connections specifically for K&I access within the Counseling Department, it was necessary to create a social network diagram, and to run the data analyses related to centrality, betweenness, and network density. According to Carrington et al. (2005) Ucinet was probably the best-known and most frequently used software package for the analysis of a social network. Ucinet not only could provide descriptive information about a social network, but also could provide in-depth analysis about a large number of network analytic routines (Carrington et al., 2005).

Data Analysis for the Demography of the Counselors

Because the respondents in this study belonged to one of the three focal groups: the transfer counselors, the minority counselors, or the special needs counselors, and they were located at different places on campus, it was necessary to present the demography of these counselors. Descriptive statistics were run separately for each focal group by SPSS 18 and the percent of population was calculated by: (1) gender: male or female; (2) ethnicity: Caucasian, Hispanic, African-American, Asian, or other/multi-racial; (3) job status: full-time or part-time; (4) years of work: 1-3 years, 4-6 years, 7-9 years, 10-12 years, or 13 or more years; and (5) office location: counseling building or other location.

Data Analysis for Research Question 1a

The purpose of the data analysis was to determine whether the transfer counselors, the minority counselors, and the special needs counselors had off-campus
connections with different educational systems. They were asked to indicate either the presence or absence of a connection for each kind of educational system.

First, the percent of respondents in each focal group who claimed to have a connection with other educational systems was calculated for: (1) the high school system; (2) the University of California system; (3) the California State University system; (4) a non-profit independent college/university in California; (5) a for-profit independent college/university in California; and (6) other higher educational system.

Next, a chi-square test was used to determine whether there were any statistical relationship between the different educational systems and the three focal groups. Vaske (2008, p.317) stated that the chi-square test “compares the observed counts against what would be expected if no relationship is evident given the row and column totals.” That means a small deviation between the observed and expected counts suggests the relationship between the row and column variables can be attributed to random chance (Puri, 2002; Vaske, 2008). However, it is important to note “when the expected frequencies are too low, the p-value based on the chi-square distribution may not be correct” (Vaske, 2008, p. 337). To conduct the test, the number of off-campus connections (not the percent of connections) was determined for the different educational systems (row variables) in the three focal groups (column variables), the data was represented in the cross tabulation, and then the chi-square test was run by SPSS 18.

**Data Analysis for Research Question 1b**

The purpose of the data analysis was to understand how likely it was for the interdepartmental connections to extend beyond the Counseling Department for the transfer counselors, the minority counselors, or the special needs counselors. With the
data for the number of interdepartmental connections for each focal group, SPSS 18 was used to calculate the percent of respondents in each focal group who claimed to have a connection with: (1) the academic departments; and (2) the administrative offices on campus. Next, a chi-square test was also used to determine whether there was any statistically significant relationship between the departments/offices (row variables) and the three focal groups (column variables).

**Data Analysis for Research Question 1c**

The purpose of this analysis was to compare the differences in the number of interdepartmental connections among the CC counselors for the social network. Each counselor might identify up to 15 connections with academic departments and administrative offices. Depending on the demography of the respondents, the comparison was based on the independent variables: (1) gender: male versus female; (2) ethnicity: Caucasian versus Hispanic versus African-American versus Asian versus other/multi-racial versus unknown ethnicity; (3) job status: full-time versus part-time; (4) years of work: 1-3 years versus 4-6 years versus 7-9 years versus 10-12 years versus 13 or more years; and (5) office location: the counseling building versus another location. To conduct the data analysis, one-way ANOVA was run separately for the above comparisons using SPSS 18.

Although it would be more appropriate to use an independent samples t-test to compare the difference in the number of interdepartmental connections between two independent variables, such as male counselors versus female counselors, using one-way ANOVA would be more meaningful for this study because it often compares more than two independent variables. According to Vaske (2008), one-way ANOVA is commonly
used to compare means of two or more independent variables. The one-way ANOVA produces an $F$-statistic, the ratio of the variance calculated among the means to the variance within the samples, which is used to gauge statistical significance (Puri, 2002; Vaske, 2008).

**Data Analysis for Research Question 1d**

With the data for the intradepartmental connections of CC counselors, specific data analyses were used to determine the pattern of K&I access that occurred in the Counseling Department. In order to conduct these analyses, it was necessary to use SPSS 18 and Ucinet 6.

**Data analysis for the pattern of intradepartmental connections.**

The purpose of this analysis was to determine the pattern of intradepartmental connections specifically for K&I access among the transfer counselors, the minority counselors, and the special needs counselors. According to the number of intradepartmental connections that were found in each focal group, the “mean outward connections per counselor” was calculated between each possible pair of focal groups (such as the transfer counselors with the minority counselors) through SPSS 18. Similar to the previous analyses, the statistical relationship among the three focal groups (both column and row variables) due to the existing connections was calculated using a chi-square test.

**Data analysis for the social network diagram.**

Ucinet 6 was used to create a social network diagram to specifically show the intradepartmental connections among the respondents. It was hoped that the social network diagram would allow us to identify any specific pattern of the connections for
K&I access among the three focal groups. In order to create the social network diagram, information about the intradepartmental connections among the respondents was input into an Ucinet spreadsheet. The structure of the Ucinet spreadsheet consisted of rows by columns, both representing the respondents in the study. Next, the Ucinet spreadsheet that contained the social network information was imported into Ucinet 6, and the data was processed in an integrated network visualization program, NewDraw 2.118, in Ucinet 6.

**Data analyses for centrality, betweenness, and network density.**

In order to explain the specific pattern of connections and the characteristics that might occur in the social network diagram, Ucinet 6 was used to run the analysis of centrality, betweenness, and network density. The outcomes of these analyses were used to describe the characteristics observed in the social network diagram.

First, Hanneman and Mark (2005) stated that centrality in social network analysis is a measure of the number of connections (ties) incident upon an individual (a node). That is, depending on the number of outward and inward connections of an individual, we could determine the significance of the individual in the social network. In general, the “significant” people are often found toward the middle of the social network diagram. There are a few different ways to calculate the centrality in social network analysis, but the common measurement can be done by Freeman’s centrality in which the number of outward connections of an individual is represented by an out-degree value, and the number of inward connections of an individual is represented by an in-degree value. Hanneman and Mark (2005) mentioned that an individual with a high out-degree value is considered an influential person, and an individual with a high in-degree value is
said to be prominent. This analysis was used to determine some of the “important” respondents associated with K&I access in the social network of CC counselors. In addition, the network centralization of out-degree value and in-degree value at the network-level are also calculated in this process. These values express the overall degree of inequality in the studied network, and that means when centralization values approach 100%, individuals are unequally distributed due to the “spatial position” in the social network (Carrington et al., 2005; Hanneman and Mark, 2005; Wasserman and Faust, 1994). Therefore, the network centralization of out-degree value and in-degree value allowed us to understand the network inequality of the respondents in the social network.

To run the analysis of Freeman’s centrality, the same Ucinet spreadsheet that contained the social network information was used as the data source. The spreadsheet was imported into Ucinet 6, and the analysis was run.

Second, betweenness in a social network study is a measure of the power held by an individual who is needed by others to connect with additional people (Carrington et al., 2005; Hanneman & Mark, 2005; Wasserman & Faust, 1994). That means a specific individual in a network could be in a favored position if people depended on that person to make connections with other people, and as a result, this specific individual may have more control or power than other people in the network (Carrington et al., 2005). There are a few different ways to calculate the betweenness in social network analysis, but the most common one can be done by Freeman’s betweenness. An individual that is characterized by a high betweenness value in the social network is relatively more powerful than other individuals in the network. Therefore, this analysis was used to determine some of the “powerful” respondents associated with K&I access in the social network.
network of CC counselors. In addition, the analysis also calculates the network centralization index value at the network-level. The value expresses the overall degree to which individuals need to depend on the aid of an intermediary to establish connections with others in the studied network, and if the value approaches 100%, it indicates that individuals in the network are strongly dependent on each other (Carrington et al., 2005; Hanneman & Mark, 2005; Wasserman & Faust, 1994). Therefore, the network centralization index value allowed us to have an overview about the dependence of the respondents in the social network of CC counselors. To run the analysis, the same Ucinet spreadsheet was imported into Ucinet 6, and the analysis of Freeman’s betweenness was run.

Lastly, network density in a social network study is the sum of all possible connections divided by the number of the existing connections (Carrington et al., 2005; Hanneman & Mark, 2005; Wasserman & Faust, 1994). That means when the number of connections among individuals increases in a social network, the value of network density will approach 1 or 100%. Therefore, the value of network density was used to determine the proportion of the possible intradepartmental connections that were actually present in the social network of CC counselors. The same Ucinet spreadsheet was imported into Ucinet 6, and the analysis of network density was run.

**Data Analysis for Research Question 1e**

The purpose of this analysis was to compare the differences in the number of intradepartmental connections among the CC counselors for the social network. Each counselor might identify up to 15 other counselors in the Counseling Department. Depending on the demography of the counselors, the comparison was based on the
independent variables: (1) gender: male versus female; (2) ethnicity: Caucasian versus Hispanic versus African-American versus Asian versus other/multi-racial versus unknown ethnicity; (3) job status: full-time versus part-time; (4) years of work: 1-3 years versus 4-6 years versus 7-9 years versus 10-12 years versus 13 or more years; and (5) office location: the counseling building versus another location. To conduct the data analysis, one-way ANOVA was run separately for the above comparisons using SPSS 18.

As explained previously, although it was more appropriate to use an independent samples t-test to compare the difference in the number of intradepartmental connections between two independent variables (such as full-time counselors versus part-time counselors), one-way ANOVA was used instead because it allowed “a parallel and a clear” comparison when comparing the outcomes of ANOVA among all the variables.

**Data Analysis for Research Question 2a**

In this study, the CC counselors needed to provide the primary reason for K&I access for each identified intradepartmental connection, and the data was used to compare among the three focal groups: the transfer counselors, the minority counselors, and the special needs counselors. Depending on the numbers of intradepartmental connections in each focal group, the percent of connections for the primary reason of K&I access was calculated by the SPSS 18: (1) academic policies and procedures; (2) academic majors; (3) transfer process; (4) transcript evaluation; or (5) other reason.

**Data Analysis for Research Questions 2b, 2c, and 2d**

Although research questions 2b, 2c, and 2d were three separate questions, all three were used to understand how much CC counselors valued the K&I access gained through their intradepartmental connections in the social network. Therefore, the
procedures for the data analysis for these research questions were similar, and could be described at the same time. In short, research question 2b sought to determine the frequency of communication for K&I access, research question 2c sought to determine accessibility of the contacted person, and research question 2d sought to determine the quality of K&I received through each intradepartmental connection. The data related to the research questions was used to compare the transfer counselors, the minority counselors, and the special needs counselors. SPSS 18 was used again for the data analysis. According to the existing intradepartmental connections in each focal group, the percent of connections was calculated for first, the frequency of K&I access through each existing connection: (1) rarely, (2) seldom, (3) sometimes, (4) often, or (5) very often; second, the percent of connections by the accessibility of the contacted individual: (1) rarely, (2) seldom, (3) sometimes, (4) often, or (5) very often; and third, the percent of connections by the quality of K&I received from the contacted individual: (1) not useful at all, (2) most are not useful, (3) neutral, (4) most are useful, or (5) all are useful.

A Brief Summary

The methodology was explained in this chapter. In summary, the research method was the ego-centric network method. This was a quantitative research study with the use of an online survey. The study institution was located in Southern California. There were three focal groups in the study, and they were the transfer counselors, the minority counselors, and the special needs counselors. Either SPSS 18 or Ucinet 6 was used to run all the statistical analysis in this study. The purpose of the analysis and the basic method of running the analysis were described in this chapter, and the analysis described in this chapter was associated with the order of the research questions.
Chapter 4: Results

This chapter reports the results of the data analysis for a study of the impact of social networking on accessing knowledge and information (K&I) needed by CC counselors (respondents). First, the demography of the transfer counselors, the minority counselors, and the special needs counselors in the three focal groups will be shown and will be discussed. Next, results related to research questions 1a, 1b, 1c, 1d, and 1e will be presented, and these results will provide information about the social network structure of the counselors in the three focal groups. Finally, results related to research questions 2a, 2b, 2c, and 2d will be presented, and these results will provide information about the value of the K&I accessed through the intradepartmental connections. A brief summary will be stated at the end of this chapter.

The Demography of the Counselors

Although a total of 68 full-time and part-time community college counselors (CC counselors) were identified as potential respondents for the online survey before the data collection, the actual number of counselors qualified for the study was 50 people after the completion of the data collection process. As a result, useable data was obtained from the respondents in the three focal groups as: 15 out of 25 transfer counselors (or 58% response rate), 4 out of 8 minority counselors (or 50% response rate), and 6 out of 16 special needs counselors (or 38% response rate).

Table 2 shows the percent of the population in each focal group by the demographical characteristics of gender, ethnicity, job status, years of working experience, and office location:
Table 2

*The Percent of Population by the Demography of the Counselors in Each Focal Group*

<table>
<thead>
<tr>
<th>Background</th>
<th>Transfer counselors</th>
<th>Minority counselors</th>
<th>Special needs counselors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=15</td>
<td>N=4</td>
<td>N=6</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>27%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Female</td>
<td>73%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>59%</td>
<td>0</td>
<td>66%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>20%</td>
<td>75%</td>
<td>0</td>
</tr>
<tr>
<td>African-American</td>
<td>7%</td>
<td>25%</td>
<td>0</td>
</tr>
<tr>
<td>Asian</td>
<td>7%</td>
<td>0</td>
<td>17%</td>
</tr>
<tr>
<td>Unknown</td>
<td>7%</td>
<td>0</td>
<td>17%</td>
</tr>
<tr>
<td>Job Status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full time</td>
<td>47%</td>
<td>25%</td>
<td>67%</td>
</tr>
<tr>
<td>Part time</td>
<td>53%</td>
<td>75%</td>
<td>33%</td>
</tr>
<tr>
<td>Years of Work</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-6 years</td>
<td>20%</td>
<td>25%</td>
<td>0</td>
</tr>
<tr>
<td>10-12 years</td>
<td>20%</td>
<td>0</td>
<td>50%</td>
</tr>
<tr>
<td>+13 years</td>
<td>60%</td>
<td>75%</td>
<td>50%</td>
</tr>
<tr>
<td>Office location</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Counseling build.</td>
<td>100%</td>
<td>100%</td>
<td>0</td>
</tr>
<tr>
<td>Other location</td>
<td>0</td>
<td>0</td>
<td>100%</td>
</tr>
</tbody>
</table>
The first focal group.

Of the 15 transfer counselors, males composed 27% of the population, and females composed 73% of the population. Most of the individuals were either Caucasian (59% of the population) or Hispanic (20% of the population). The counselors of other ethnicities composed only 21% of the total population. The numbers of full-time and part-time counselors were nearly equal as 47% and 53% of the population respectively. More than half of the counselors had 13 or more years of working experience at the study institution (60% of the population). In contrast, 20% of them had only 4 to 6 years of working experience. The transfer counselors worked in the counseling building.

The second focal group.

All four minority counselors were female and were either Hispanic (75% of the population) or African-American (25% of the population). Although there were more minority counselors with part-time status (75% of the population) than full-time status (25% of the population), most of them (75% of the population) had 13 or more years of working experience at the study institution. The remaining counselors (25% of the population) had 4 to 6 years of working experience. The minority counselors also worked in the counseling building.

The third focal group.

All six special needs counselors were female and were either Caucasian (66% of the population) or other ethnicities (34% of the population). Hispanic and African-American counselors were absent from this group. The number of special needs counselors that had 13 or more years of working experience at the study institution was equal to the number of counselors that had 10 to 12 years of working experience (both
were 50% of the population). No one in this group had 4 to 6 years of working experience. The special needs counselors worked at a location on campus other than the counseling building.

**Results for Research Question 1a**

Research question 1a asked “is there any existing off-campus connection in the social network of CC counselors?” The results of the data analysis are shown in Table 3, and the table shows the percent of population by the counselors in each focal group who identify a connection with different kinds of educational systems.

<table>
<thead>
<tr>
<th>Educational system</th>
<th>Transfer counselors</th>
<th>Minority counselors</th>
<th>Special needs counselors</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School</td>
<td>27%</td>
<td>75%</td>
<td>50%</td>
</tr>
<tr>
<td>UC</td>
<td>60%</td>
<td>75%</td>
<td>67%</td>
</tr>
<tr>
<td>CSU</td>
<td>60%</td>
<td>75%</td>
<td>67%</td>
</tr>
<tr>
<td>Non-profit, private, CA</td>
<td>33%</td>
<td>50%</td>
<td>33%</td>
</tr>
<tr>
<td>For-profit, private, CA</td>
<td>13%</td>
<td>25%</td>
<td>17%</td>
</tr>
<tr>
<td>Other: out-of-state</td>
<td>20%</td>
<td>25%</td>
<td>33%</td>
</tr>
</tbody>
</table>

First, the results show that off-campus connections do exist in the social network of the three focal groups. The off-campus connections even extended to the out-of-state higher educational system for all groups. Second, all groups show more counselors connected with the University of California and the California State University than with other educational systems. In contrast, all three focal groups show there are fewer
counselors connected with a for-profit independent college/university in California than other educational systems.

Next, the chi-square test was run using the number of existing connections (not the percent of the population) between the educational systems (row variables) and the three focal groups (column variables) in the cross-tabulation. The null hypothesis stated there was no statistical relationship between the row and column variables when \( p > 0.05 \) from the test. In fact, the chi-square test \((df = 10, n = 61)\) yielded a chi-square value = 1.20 and \( p = 1.00 \); thus, the results from the chi-square test supported the null hypothesis: there was no statistically significant relationship between the educational systems and the three focal groups.

Results for Research Question 1b

Research question 1b asked “to what extent do the interdepartmental connections of CC counselors extend beyond the Counseling Department?” Table 4 shows the percent of population by the counselors in each focal group clearly extend to a number of academic departments and administrative offices. First, the interdepartmental connections of the three groups extend to a total of 21 academic departments and 13 administrative offices (see Table 4 for the list of departments and offices). Second, all groups show more counselors connected with the Mathematics Department, the English Department, the Admissions and Records Office, and the Financial Aid Office than with other academic departments and administrative offices on-campus. Lastly, this study also indicated that the special needs counselors have the highest number of interdepartmental connections with the academic departments and administrative offices \((M = 5.86)\), the
Table 4

*The Percent of Population by the Counselors in Each Focal Group Who Identified a Connection with the Academic Departments and the Administrative Offices*

<table>
<thead>
<tr>
<th>Departments/Offices</th>
<th>Transfer counselors</th>
<th>Minority counselors</th>
<th>Special needs counselors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$N=15$</td>
<td>$N=4$</td>
<td>$N=6$</td>
</tr>
<tr>
<td>Mathematics</td>
<td>33%</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>English</td>
<td>27%</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>Business</td>
<td>13%</td>
<td>0</td>
<td>33%</td>
</tr>
<tr>
<td>Life Sciences</td>
<td>7%</td>
<td>0</td>
<td>33%</td>
</tr>
<tr>
<td>Modern Languages</td>
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<td>25%</td>
<td>17%</td>
</tr>
<tr>
<td>Communications</td>
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<td>0</td>
<td>17%</td>
</tr>
<tr>
<td>Dance</td>
<td>0</td>
<td>0</td>
<td>17%</td>
</tr>
<tr>
<td>Health Sciences</td>
<td>7%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>History</td>
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<td>0</td>
<td>17%</td>
</tr>
<tr>
<td>Physical Sciences</td>
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<td>17%</td>
</tr>
<tr>
<td>Art</td>
<td>7%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Computer Science</td>
<td>7%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Education</td>
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<td>0</td>
<td>17%</td>
</tr>
<tr>
<td>Entertainment &amp; Tech.</td>
<td>7%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>ESL</td>
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<td>0</td>
</tr>
<tr>
<td>Fashion Design</td>
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<td>0</td>
<td>17%</td>
</tr>
<tr>
<td>Kinesiology</td>
<td>0</td>
<td>0</td>
<td>17%</td>
</tr>
<tr>
<td>Music</td>
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<td>0</td>
<td>17%</td>
</tr>
<tr>
<td>Photography</td>
<td>7%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>7%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Theater Arts</td>
<td>0</td>
<td>0</td>
<td>17%</td>
</tr>
</tbody>
</table>

(Table continues)
minority counselors were next ($M = 4.25$), and the transfer counselors had the fewest ($M = 2.84$).

Next, the chi-square test was run using the number of existing connections (not the mean values) between the departments/offices (row variables) and the three focal groups (column variables) in the cross-tabulation. If $p > 0.05$ from the chi-square test, the test would support the null hypothesis that there was no statistically significant relationship between the row and column variables. Because the result from the chi-square test ($df = 2, n = 93$) yielded a chi-square value = 3.53 and $p = 0.17$, the test results

<table>
<thead>
<tr>
<th>Departments/Offices</th>
<th>Transfer counselors</th>
<th>Minority counselors</th>
<th>Special needs counselors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admissions and Records</td>
<td>60%</td>
<td>75%</td>
<td>50%</td>
</tr>
<tr>
<td>Financial Aid</td>
<td>20%</td>
<td>100%</td>
<td>50%</td>
</tr>
<tr>
<td>Academic Affairs</td>
<td>20%</td>
<td>25%</td>
<td>33%</td>
</tr>
<tr>
<td>Assessment Center</td>
<td>20%</td>
<td>25%</td>
<td>0</td>
</tr>
<tr>
<td>Library</td>
<td>7%</td>
<td>25%</td>
<td>33%</td>
</tr>
<tr>
<td>Scholarships</td>
<td>0</td>
<td>0</td>
<td>33%</td>
</tr>
<tr>
<td>Student Judicial Affairs</td>
<td>0</td>
<td>0</td>
<td>17%</td>
</tr>
<tr>
<td>Campus Police</td>
<td>0</td>
<td>0</td>
<td>17%</td>
</tr>
<tr>
<td>Human Resources</td>
<td>0</td>
<td>25%</td>
<td>0</td>
</tr>
<tr>
<td>Learning Resource Center</td>
<td>0</td>
<td>0</td>
<td>17%</td>
</tr>
<tr>
<td>Media Center</td>
<td>0</td>
<td>25%</td>
<td>0</td>
</tr>
<tr>
<td>Psychological Services</td>
<td>7%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Transportation</td>
<td>7%</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
supported the null hypothesis: there was no statistically significant relationship between the departments/offices and the three focal groups.

**Results for Research Question 1c**

Research question 1c asked “are there differences among CC counselors in the number of interdepartmental connections for the social network?” The results from the one-way Analysis of Variance (one-way ANOVA) for the difference in the number of interdepartmental connections of the counselors are shown in Table 5. Please note that African-American, Asian, and unknown ethnicity were combined as “other ethnicities” for the purpose of running the one-way ANOVA due to the small sample size.

The null hypothesis stated there was no statistically significant difference in the number of interdepartmental connections between (when comparing two groups) or among (when comparing three or more groups) the independent variables when one-way ANOVA had $p > 0.05$. In fact, the one-way ANOVA shows that the only significant difference in the number of interdepartmental connections of the counselors (including all counselors from the three focal groups) is due to their job status, $df = 1, n = 93, F = 8.06, p < 0.01$; the full-time counselors had a significantly higher number of interdepartmental connections ($M = 5.92$) than the part-time counselors ($M = 1.69$). According to the discussion of methodology in chapter 3, the full-time counselors work a contractual 32 hours per week and typically do that in four days, and the part-time counselors work 4 to 18 hours per week in either 2 or 3 days. Although the rest of the results do not show statistically significant differences by the one-way ANOVA, the result that might be worth paying attention to is the counselors with 13 or more years at the study institution
Table 5

The Analysis of Variance for the Difference in the Number of Interdepartmental Connections of the Counselors

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>4</td>
<td>2.00</td>
<td>2.45</td>
<td></td>
<td></td>
<td>0.39</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>21</td>
<td>4.05</td>
<td>4.46</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>13</td>
<td>3.65</td>
<td>4.01</td>
<td></td>
<td></td>
<td>2.16</td>
<td>0.14</td>
</tr>
<tr>
<td>Hispanic</td>
<td>6</td>
<td>5.28</td>
<td>4.12</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other ethnicities</td>
<td>6</td>
<td>2.17</td>
<td>1.97</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full time</td>
<td>12</td>
<td>5.92</td>
<td>4.96</td>
<td></td>
<td></td>
<td>8.06</td>
<td>0.01**</td>
</tr>
<tr>
<td>Part time</td>
<td>13</td>
<td>1.69</td>
<td>1.97</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years of Work</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-6 years</td>
<td>4</td>
<td>1.50</td>
<td>1.73</td>
<td></td>
<td></td>
<td>1.73</td>
<td>0.49</td>
</tr>
<tr>
<td>10-12 years</td>
<td>6</td>
<td>3.50</td>
<td>3.27</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+13 years</td>
<td>15</td>
<td>4.40</td>
<td>4.93</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office location</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Counseling build.</td>
<td>19</td>
<td>3.11</td>
<td>3.48</td>
<td></td>
<td></td>
<td>3.48</td>
<td>0.20</td>
</tr>
<tr>
<td>Other location</td>
<td>6</td>
<td>5.67</td>
<td>6.02</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. **p<0.01.

had the highest number of interdepartmental connections ($M = 4.40$) compared to those with 10 to 12 years ($M = 3.50$), or to those with 4 to 6 years ($M = 1.50$).
Results for Research Question 1d

Research question 1d asked “what is the pattern of the intradepartamental connections for K&I access among CC counselors?” The results are presented in Table 5, Figure 2, and Table 6, and they will be explained separately.

The pattern of the intradepartamental connections at group-level.

Table 6 shows the mean outward connections that are specifically for the purpose of K&I access per counselor among the three focal groups. The pattern of the intradepartamental connections among the groups is as follows:

<table>
<thead>
<tr>
<th>Accessing K&amp;I from</th>
<th>Transfer counselors (N=15)</th>
<th>Minority counselors (N=4)</th>
<th>Special needs counselors (N=6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transfer counselors</td>
<td>3.73</td>
<td>4.50</td>
<td>3.17</td>
</tr>
<tr>
<td>Minority counselors</td>
<td>0.33</td>
<td>3.50</td>
<td>0.83</td>
</tr>
<tr>
<td>Special needs counselors</td>
<td>0</td>
<td>0</td>
<td>2.67</td>
</tr>
</tbody>
</table>

Note. According to the table, the transfer counselors and the minority counselors do not access K&I from the special needs counselors.

The first focal group.

The number of outward connections for K&I access for the transfer counselors are far fewer with the minority counselors \((M = 0.33)\) than among themselves \((M = 3.37)\). The transfer counselors did not have outward connections for K&I access with the special needs counselors \((M = 0)\).
**The second focal group.**

The minority counselors have more intradepartmental connections for K&I access with the transfer counselors \((M = 4.50)\) than among themselves \((M = 3.50)\). The minority counselors also did not have intradepartmental connections for K&I access with the special needs counselors \((M = 0)\).

**The third focal group.**

The number of intradepartmental connections for K&I access for the special needs counselors among themselves ranked as the middle value in the number of connections \((M = 2.67)\) because the special needs counselors have more intradepartmental connections with the transfer counselors \((M = 3.17)\) and fewer intradepartmental connections with the minority counselors \((M = 0.83)\) than among themselves. The existing intradepartmental connections indicate the special needs counselors had K&I access from the transfer counselors and the minority counselors.

In short, the pattern of K&I access among the three focal groups can be summarized as the transfer counselors and the minority counselors do not access K&I from the special needs counselors, but all other possible patterns of K&I access exist.

Next, the chi-square test was run using the number of existing connections (not the mean values) among the three focal groups (both row and column variables) in the cross-tabulation. The null hypothesis stated there was no statistical relationship between the row and column variables if \(p > 0.05\) from the test. Because the chi-square test \((df = 4, n = 133)\) yielded a chi-square value = 60.79 and \(p < 0.001\), the null hypothesis was rejected; the high chi-square value was mainly due to the absence of connections for the
purpose of K&I access between the transfer counselors or the minority counselors with the special needs counselors.

**The pattern of the intradepartmental connections at the individual-level.**

The detailed pattern of K&I access at the individual-level can be represented by the social network diagram. Figure 2 shows the pattern of intradepartmental connections for K&I access among the transfer counselors, the minority counselors, and the special needs counselors.

Although the social network diagram in Figure 2 only shows a partially completed social network structure (useable data was not obtained from all the potential respondents), some important characteristics can be observed in the diagram. First, some of the counselors, such as the transfer counselors TC4, TC5, and TC11, have more social network connections than others. Because these three specific counselors are connected by many inward connections (represented by the in-coming arrows), they are likely to be the source of K&I for other counselors. Second, intradepartmental connections for K&I access does not exist among all the counselors because there are a lot of missing connections, such as between the transfer counselors TC12 and TC14, between the minority counselors MC1 and MC3, and between the special needs counselors SNC1 and SNC2. Lastly, the male transfer counselors TC1, TC2, TC13, and TC14 either had intradepartmental connections within their focal group or had no connections.
Figure 2. The pattern of intradepartmental connections for knowledge and information access among 25 respondents. The transfer counselors (clear nodes), the minority counselors (gray nodes), and the special needs counselors (black nodes) are labeled as TC, MC, SNC respectively. Square nodes and circular nodes represent male and female respectively. The inward direction of arrows indicates the source of knowledge and information.

Freeman’s centrality, Freeman’s betweenness, and network density.

Table 7 shows the results from the analysis of Freeman’s centrality, Freeman’s betweenness, and network density for the focal groups. The results presented in Table 7 are directly related to the social network diagram in Figure 2.
First, the results of Freeman’s centrality analysis indicates the top 5 highest numbers of outward connections (represented by the out-degree values in Table 6) in the social network are 7, 7, 6, 6, and 5 connections for the transfer counselor TC6, and the special needs counselors SNC3, SNC1, SNC4 and SNC5 respectively. That means these 5 specific counselors have the largest number of individuals available for K&I access of all the counselors. Perhaps it is important to note that 4 out of 5 counselors are special needs counselors that had their office at a location on campus other than the counseling building. On the other hand, the top 5 highest numbers of inward connections (by the in-degree values in Table 6) in the social network are 17, 16, 11, 5, and 5 connections for the transfer counselors TC5, TC4, TC11, and TC10, and the minority counselor MC4 respectively. That means most of the counselors depend on these 5 specific counselors in order to obtain K&I. It is also important to note that 4 out of the 5 counselors are transfer counselors in the counseling building. In addition, the network centralization of in-degree value is 60.24%, which indicates the inequality of inward connections in the current social network is quite strong.

Next, the results of Freeman’s betweenness analysis in Table 7 indicates the top 5 highest betweenness values in the social network are 66.83, 42.17, 22, 48.17, and 45.33 for the transfer counselors TC11, TC6, and TC4, and the minority counselors MC2 and MC4 respectively. That means these 5 specific counselors have the most power in the social network, and they are important for connecting other counselors in the social network. In contrast, 13 out of 25 counselors (or 53% of the population) have betweenness values of zero. That means these 13 specific counselors have the least power in the social network, and they do not connect other counselors together. As a result, the
Table 7

*Analysis of Freeman’s Centrality, Freeman’s Betweenness, and Network Density for the Counselors in the Three Focal Groups*

<table>
<thead>
<tr>
<th>Counselor</th>
<th>Gender</th>
<th>Out-degree</th>
<th>In-degree</th>
<th>Betweenness</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC1</td>
<td>M</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TC2</td>
<td>M</td>
<td>2.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>TC3</td>
<td>F</td>
<td>3.00</td>
<td>2.00</td>
<td>7.17</td>
</tr>
<tr>
<td>TC4</td>
<td>F</td>
<td>2.00</td>
<td>16.00</td>
<td>22.00</td>
</tr>
<tr>
<td>TC5</td>
<td>F</td>
<td>2.00</td>
<td>17.00</td>
<td>19.08</td>
</tr>
<tr>
<td>TC6</td>
<td>F</td>
<td>7.00</td>
<td>3.00</td>
<td>42.17</td>
</tr>
<tr>
<td>TC7</td>
<td>F</td>
<td>4.00</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TC8</td>
<td>F</td>
<td>3.00</td>
<td>1.00</td>
<td>0</td>
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<td>TC9</td>
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<td>0</td>
</tr>
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<td>1.33</td>
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<td>TC11</td>
<td>F</td>
<td>4.00</td>
<td>11.00</td>
<td>66.83</td>
</tr>
<tr>
<td>TC12</td>
<td>F</td>
<td>2.00</td>
<td>2.00</td>
<td>0</td>
</tr>
<tr>
<td>TC13</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TC14</td>
<td>M</td>
<td>2.00</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TC15</td>
<td>F</td>
<td>2.00</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>MC1</td>
<td>F</td>
<td>4.00</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>MC2</td>
<td>F</td>
<td>4.00</td>
<td>4.00</td>
<td>48.17</td>
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<tr>
<td>MC3</td>
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</tr>
<tr>
<td>SNC1</td>
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<td>1.00</td>
<td>0.50</td>
</tr>
<tr>
<td>SNC2</td>
<td>F</td>
<td>0</td>
<td>2.00</td>
<td>0</td>
</tr>
<tr>
<td>SNC3</td>
<td>F</td>
<td>7.00</td>
<td>3.00</td>
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</tr>
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</tr>
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<tr>
<td>SNC6</td>
<td>F</td>
<td>1.00</td>
<td>2.00</td>
<td>0</td>
</tr>
</tbody>
</table>

*Network centralization of out-degree values* = 16.84%.

*Network centralization of in-degree values* = 60.24%.

*Network centralization index value (for betweenness)* = 10.45%.

*Network density* = 13.00%.

*Note.* The transfer counselors, the minority counselors, and the special needs counselors are labeled TC, MC, SNC respectively.
network centralization index value was affected by these 13 specific counselors and led to a value of 10.45%.

Finally, according to Table 7, the network density for the social network is only 13%. Therefore, there are 87% of intradepartmental connections missing in the social network. The transfer counselors, the minority counselors, and the special needs counselors are not highly connected with each other.

**Results for Research Question 1e**

Research question 1e asked “are there differences among CC counselors in the number of intradepartmental connections for the social network?” The results from the one-way ANOVA for the difference in the number of intradepartmental connections of the counselors are shown in Table 8. Please note that African-American, Asian, and unknown ethnicity were combined as “other ethnicities” for the purpose of running the one-way ANOVA due to the small sample size.

If p >0.05 from the one-way ANOVA, the null hypothesis would be supported by stating that there was no statistically significant difference in the number of intradepartmental connections between (when comparing two groups) or among (when comparing three or more groups) the independent variables. The one-way ANOVA shows that the only significant difference in the number of intradepartmental connections of CC counselors (including all counselors from the three focal groups) is due to gender, \( df = 1, n = 133, F = 7.01, p = 0.01 \); the female counselors have significantly more intradepartmental connections available for K&I access (\( M = 6.05 \)) than the male counselors (\( M = 1.50 \)). Although the rest of the results do not show any statistically
Table 8

Analysis of Variance for the Difference in the Number of Intradepartmental Connections of the Counselors

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>1</td>
<td>69.49</td>
<td>7.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Male</td>
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<td>1.50</td>
<td>1.73</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Female</td>
<td>21</td>
<td>6.05</td>
<td>3.31</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
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<td>--</td>
<td>2</td>
<td>0.84</td>
<td>0.06</td>
<td>0.94</td>
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<td>5.08</td>
<td>3.48</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>6</td>
<td>5.67</td>
<td>3.01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other ethnicities</td>
<td>6</td>
<td>5.50</td>
<td>4.59</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job Status</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>1</td>
<td>10.67</td>
<td>0.86</td>
<td>0.37</td>
</tr>
<tr>
<td>Full time</td>
<td>12</td>
<td>6.00</td>
<td>2.92</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part time</td>
<td>13</td>
<td>4.69</td>
<td>4.01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years of Work</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>2</td>
<td>0.94</td>
<td>0.07</td>
<td>0.93</td>
</tr>
<tr>
<td>4-6 years</td>
<td>4</td>
<td>5.50</td>
<td>4.80</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10-12 years</td>
<td>6</td>
<td>4.83</td>
<td>2.93</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+13 years</td>
<td>15</td>
<td>5.47</td>
<td>3.62</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office location</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>1</td>
<td>31.59</td>
<td>2.97</td>
<td>0.07</td>
</tr>
<tr>
<td>Counseling build.</td>
<td>19</td>
<td>4.89</td>
<td>3.16</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other location</td>
<td>6</td>
<td>6.67</td>
<td>4.55</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

significant differences by one-way ANOVA, the difference in the number of intradepartmental connections due to office location is very close to statistical significance, \( df = 1, n = 133, F = 2.97, p = 0.07 \); counselors at the other location on campus have more intradepartmental connections available for K&I access (\( M = 6.67 \)) than the counselors in the counseling building (\( M = 4.89 \)).
A Brief Note Related to the Results for Research Questions 2a, 2b, 2c, and 2d

According to the data collection process, each counselor in any of the three focal groups could identify up to 15 outward connections within the Counseling Department. The counselor then needed to provide the primary reason for K&I access, the frequency of K&I access, the accessibility of the contacted individual, and the quality of K&I received through each identified connection. Therefore, the explanation of the results for research questions 2a, 2b, 2c, and 2d are based on information that was obtained from each existing connection, and therefore, the sample size was the number of existing connections instead of the number of counselors in each focal group.

In addition, please also note that the results in Table 6 indicated the transfer counselors and the minority counselors did not access K&I from the special needs counselors, and therefore, the explanation for the results from research questions 2a, 2b, 2c, and 2d follow the unique pattern of K&I access among the three focal groups.

Results for Research Question 2a

Research question 2a asked “what kinds of K&I are CC counselors seeking to access through the existing intradepartmental connections?” Table 9 shows the percent of outward connections for the primary reason of K&I access. Some of the important results are described as follows:

The first focal group.

The primary reason for the transfer counselors to seek K&I from the minority counselors (represented by the between groups in the table) was solely due to reasons other than those listed in the table (100% of the outward connections). When the transfer counselors seek K&I among themselves, the reasons are mostly related to policies and
Table 9

The Percent of Outward Connections Primarily for Knowledge and Information Access

<table>
<thead>
<tr>
<th>Reason</th>
<th>Transfer counselors (n=5)</th>
<th>Minority counselors (n=18)</th>
<th>Special needs counselors (n=24)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Policies and procedures</td>
<td>0</td>
<td>28%</td>
<td>42%</td>
</tr>
<tr>
<td>Academic majors</td>
<td>0</td>
<td>5%</td>
<td>0</td>
</tr>
<tr>
<td>Transfer process</td>
<td>0</td>
<td>39%</td>
<td>29%</td>
</tr>
<tr>
<td>Transcript evaluation</td>
<td>0</td>
<td>28%</td>
<td>21%</td>
</tr>
<tr>
<td>Other reasons</td>
<td>100%</td>
<td>0</td>
<td>8%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>(n=56)</th>
<th>(n=14)</th>
<th>(n=16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Policies and procedures</td>
<td>32%</td>
<td>86%</td>
<td>63%</td>
</tr>
<tr>
<td>Academic majors</td>
<td>2%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Transfer process</td>
<td>32%</td>
<td>7%</td>
<td>0</td>
</tr>
<tr>
<td>Transcript evaluation</td>
<td>21%</td>
<td>7%</td>
<td>12%</td>
</tr>
<tr>
<td>Other reasons</td>
<td>13%</td>
<td>0</td>
<td>25%</td>
</tr>
</tbody>
</table>

Note. According to the pattern of intradepartamental connections in Table 5, the transfer counselors and the minority counselors do not access K&I from the special needs counselors. n=the number of outward connections.

procedures (32% of the outward connections), the transfer process (32% of the outward connections), and transcript evaluation (21% of the outward connections).

The second focal group.

The minority counselors seek K&I from the transfer counselors mostly related to the transfer process (39% of the outward connections), policies and procedures (28% of the outward connections) and transcript evaluation (28% of the outward connections).
When minority counselors seek K&I among themselves, it is often related to policies and procedures (86% of the outward connections).

**The third focal group.**

The special needs counselors seek K&I from the transfer counselors and the minority counselors mostly related to polices and procedures (42% of outward connections), the transfer process (29% of the outward connections), and transcript evaluation (21% of the outward connections). When they seek K&I among themselves, the reasons are often related to policies and procedures (63% of the outward connections) and other reasons (25% of the outward connections).

In short, the transfer counselors, the minority counselors, and the special needs counselors all seek K&I through the existing connections for very similar reasons; namely, for K&I related to policies and procedures, the transfer process, and transcript evaluation. Accessing K&I about academic majors is the least common reason for all three focal groups.

**Results for Research Question 2b**

Research question 2b asked “how often does communication for K&I occur through the existing intradepartmental connections?” Table 10 shows the percent of outward connections by the frequency of K&I access through each existing connection. Some of the important results are explained as follows:

**The first focal group.**

The identified connections from the transfer counselors to the minority counselors K&I access happens often (80% of the outward connections), and in only a few identified connections between these counselors K&I access happens only sometimes (20% of the
Table 10

*The Percent of Outward Connections by the Frequency of Knowledge and Information Access Through Each Existing Connection*

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Transfer counselors</th>
<th>Minority counselors</th>
<th>Special needs counselors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n=5)</td>
<td>(n=18)</td>
<td>(n=24)</td>
</tr>
<tr>
<td>Between groups</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rarely</td>
<td>0</td>
<td>6%</td>
<td>38%</td>
</tr>
<tr>
<td>Seldom</td>
<td>20%</td>
<td>22%</td>
<td>42%</td>
</tr>
<tr>
<td>Sometimes</td>
<td>0</td>
<td>50%</td>
<td>16%</td>
</tr>
<tr>
<td>Often</td>
<td>80%</td>
<td>22%</td>
<td>4%</td>
</tr>
<tr>
<td>Very often</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>(n=56)</td>
<td>(n=14)</td>
<td>(n=16)</td>
</tr>
<tr>
<td>Within group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rarely</td>
<td>13%</td>
<td>7%</td>
<td>6%</td>
</tr>
<tr>
<td>Seldom</td>
<td>14%</td>
<td>7%</td>
<td>6%</td>
</tr>
<tr>
<td>Sometimes</td>
<td>41%</td>
<td>50%</td>
<td>44%</td>
</tr>
<tr>
<td>Often</td>
<td>29%</td>
<td>36%</td>
<td>12%</td>
</tr>
<tr>
<td>Very often</td>
<td>3%</td>
<td>0</td>
<td>32%</td>
</tr>
</tbody>
</table>

Note. According to the pattern of intradepartmental connections in Table 5, the transfer counselors and the minority counselors do not access K&I from the special needs counselors. \(n\)=the number of outward connections.

outward connections). Forty-one percent of the outward connections between transfer counselors themselves result in K&I access sometimes, 29% of outward connections between them result in K&I access often and 3% of outward connections result in K&I access very often.

The second focal group.

Connections from the minority counselors to the transfer counselors K&I access happens sometimes (50% of the outward connections), and in only 6% of these
connections does K&I access happen rarely. When the minority counselors have connections among themselves, 50% of outward connections initiate K&I access sometimes, 7% of these connections initiate K&I seldom and an additional 7% initiate K&I access rarely.

The third focal group.

Forty-two percent of the outward connections from the special needs counselors to the transfer counselors and the minority counselors initiate K&I access seldom, and only 4% of the outward connections often initiate K&I access. When the special needs counselors communicate among themselves, 44% of outward connections initiate K&I access sometimes, 6% initiate access seldom and another 6% rarely initiate access to K&I.

In summary, although the frequency of K&I access through the existing connections are very different among the three focal groups, the results clearly indicate most of the identified connections do not initiate K&I access very often for the transfer counselors, the minority counselors, or the special needs counselors. Instead, more typically K&I access only sometimes happens through the identified connections.

Results for Research Question 2c

Research question 2c asked “how timely is the response to the request for K&I through the existing intradepartmental connections?” Table 11 shows the percent of outward connections by the accessibility of the contacted individual through each existing connection.

Because the results for all three focal groups were very similar, they can be explained as follows:
Table 11

*The Percent of Outward Connections by the Accessibility of the Contacted Individual Through Each Existing Connection*

<table>
<thead>
<tr>
<th>Accessibility</th>
<th>Transfer counselors</th>
<th>Minority counselors</th>
<th>Special needs counselors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n=5)</td>
<td>(n=18)</td>
<td>(n=24)</td>
</tr>
<tr>
<td>Between groups</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rarely</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Seldom</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sometimes</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Often</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Very often</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>(n=56)</td>
<td>(n=14)</td>
<td>(n=16)</td>
<td></td>
</tr>
<tr>
<td>Within group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rarely</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Seldom</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sometimes</td>
<td>2%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Often</td>
<td>5%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Very often</td>
<td>93%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

*Note.* According to the pattern of intradepartmental connections in Table 5, the transfer counselors and the minority counselors do not access K&I from the special needs counselors. *n* = the number of outward connections.

The majority of the counselors indicated that regardless of whether the outward connections exist between groups or within their own group, almost all of the contacted individuals were very often accessible for K&I.
Results for Research Question 2d

Research question 2d asked “what is the quality of K&I received through the existing intradepartmental connections?” Table 12 shows the percent of outward connections by the quality of K&I received from the contacted individual through each existing connection.

Table 12

The Percent of Outward Connections by the Quality of Knowledge and Information Received From the Contacted Individual Through Each Existing Connection

<table>
<thead>
<tr>
<th>Quality</th>
<th>Transfer counselors</th>
<th>Minority counselors</th>
<th>Special needs counselors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n=5)</td>
<td>(n=18)</td>
<td>(n=24)</td>
</tr>
<tr>
<td>Between groups</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not useful at all</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Most are not useful</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Neutral</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Most are useful</td>
<td>0</td>
<td>0</td>
<td>4%</td>
</tr>
<tr>
<td>All are very useful</td>
<td>100%</td>
<td>100%</td>
<td>96%</td>
</tr>
<tr>
<td></td>
<td>(n=56)</td>
<td>(n=14)</td>
<td>(n=16)</td>
</tr>
<tr>
<td>Within group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not useful at all</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Most are not useful</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Neutral</td>
<td>0</td>
<td>14%</td>
<td>0</td>
</tr>
<tr>
<td>Most are useful</td>
<td>11%</td>
<td>8%</td>
<td>19%</td>
</tr>
<tr>
<td>All are very useful</td>
<td>89%</td>
<td>78%</td>
<td>81%</td>
</tr>
</tbody>
</table>

Note. According to the pattern of intradepartmental connections in Table 5, the transfer counselors and the minority counselors do not access K&I from the special needs counselors. n=the number of outward connections.
The results for all three focal groups were again very similar. Therefore, they can be explained as follows:

The majority of the counselors indicated that regardless of whether the outward connections existed between groups or within their own group, the majority of the K&I obtained from the contacted individual was considered as either most were useful or all were very useful.

**A Brief Summary of the Chapter**

The transfer counselors, the minority counselors, and the special needs counselors in the three focal groups were different in terms of gender, ethnicity, job status, years of working experience, and office location. All three focal groups had off-campus connections with different educational systems; in particular, the number of connections was the highest with the University of California and the California State University systems.

The interdepartmental connections for the three focal groups extended to a total of 21 academic departments and 13 administrative offices on-campus. When comparing the difference in the number of interdepartmental connections of the counselors, the significant difference in number was solely due to their job status: full-time counselors had more connections than part-time counselors.

For the pattern of intradepartmental connections specifically for K&I access, the transfer counselors and the minority counselors did not access K&I from the special needs counselors, but all other possible patterns of connections exist. In particular, some of the counselors in the social network are more important and powerful than others. When comparing the difference in the number of intradepartmental connections of the
counselors, the significant difference in number was only due to gender: female counselors had more connections than male counselors.

In most of the existing connections within the Counseling Department, counselors in the three focal groups mostly sought K&I related to policies and procedures, the transfer process, and transcript evaluation. Although the frequency of K&I access through the existing connections are very different among the three focal groups, when the counselors initiated communication through the connections, the contacted individuals were very often accessible with useful K&I.
Chapter 5: Discussion and Conclusions

This chapter is organized according to the order of the research questions. A brief review of the purpose of the study is given at the beginning. Major findings that are related to each research question are discussed next. The implications, the recommendations, the conclusions from the study, and a brief summary are presented at the end of the chapter.

A Brief Review of the Purpose of the Study

The purpose of this study was to investigate how community college counselors (CC counselors) accessed knowledge and information (K&I) through their social network. The study sought to provide new knowledge from a social network study to enable counselors and college administrators to improve the function of the academic counseling community. Although many studies have been done to understand the effect of academic counseling on college students’ success (Bahr, 2004; Jones & Donovan, 1986; Preuss & Switalski, 2008; Seidman, 1991; Weston, 1993), no published research has been conducted to understand the social network and the pattern of K&I access by counselors. This study was conducted at a large, metropolitan, comprehensive two-year community college in Southern California, and the goals of this study were:

(1) To investigate the social network structure of counselors

(2) To evaluate the frequency, timeliness, and quality of K&I the counselors accessed

(3) To determine the impact on their job function counselors attribute to their social network
Research Question 1a

Research question 1a sought to answer the question, “is there any existing off-campus connection in the social network of CC counselors?” Because there were a lot of uncertainties in terms of social network connections for the respondents, the researcher decided to ask them to identify existing off-campus relationships by providing them with different categories of educational systems. The preliminary finding showed off-campus connections did exist for the three focal groups: transfer counselors, the minority counselors, and the special needs counselors, and they connected to various kinds of higher educational systems as well as the high school system.

In particular, the study discovered that some of the respondents have connections with an out-of-state educational system. That meant the size of the social network was not spatially restricted within the study intuition; rather it extended far beyond the region of California. In fact, research pertaining to social science also noted that social networks such as those for informational purposes could be larger than the organization itself (Cross et al., 2003; Cross & Parker, 2004). Although this study did not intend to determine the maximum size of the social network, the finding showed the respondents might potentially have an extensive networking system that would allow them to access K&I. In addition, when future research seeks to have a better understanding of the social network of CC counselors, researchers should consider out-of-state connections.

Furthermore, this study showed that many counselors had connections with the University of California (UC) and the California State University (CSU) systems, even though the transfer counselors, the minority counselors, and the special needs counselors provided academic counseling services to different student groups. This finding was
expected because helping students transfer to the four-year state universities is one of the primary missions in the California Master Plan for Higher Education (California Community Colleges Chancellor’s Office, 2012). The Community College League of California (2012) reported that among California’s community college students who had transferred to either the UC, the CSU, the in-state private, or the out-of-state private universities, 54% of the population actually went to the UC and the CSU systems in the 2009-2010 academic year. Because helping students transfer was one of the major job responsibilities for the counselors, anyone who could develop off-campus connections, especially with the UC and the CSU systems, would thereby increase the chance for obtaining useful K&I for academic counseling. The gained K&I could be used to support counseling activities and to help students for educational planning and decision-making processes. No matter what the reason might be for the respondents’ connections to the in-state public higher education systems, such connections must be beneficial to them. Therefore, counselors should be encouraged to establish more connections with various kinds of educational systems.

Unfortunately, this study also indicated that different kinds of off-campus connections were not equally common in the social network. Among the various kinds of off-campus connections, all three focal groups connected the least to a for-profit independent college/university in California. As discussed previously, because most college students would transfer to an in-state public university (Community College League of California, 2012), the unequal connections should be directly related to the needs of the college students. Students who plan to transfer to a particular kind of educational institution would follow its transfer requirements, and therefore, they would
acquire related K&I when meeting with the counselors. When only a small population plans to transfer to the private institutions, especially those for-profit, counselors do not need as much information as for the public universities because helping students with the for-profit institutions would be rare. Although this expectation is likely to be true, people should not ignore the fact that there are various kinds of students at the community colleges due to open access. As noted by Burt (1992) and Granovetter (1973), maintaining diverse contacts in the social network is beneficial to individuals as well as organizations because it increases the chance of accessing useful information any time. Similarly, maintaining diverse kinds of off-campus connections would benefit the counselors because when there are different contacts available in the social network, counselors would be able to obtain K&I right away, and as a result, they could provide necessary information whenever the students need it. Therefore, in order to ensure the academic counseling services can support the various needs of students, counselors themselves should also realize the significant benefit of developing various kinds of off-campus connections so that they can be ready to assist the students.

**Research Question 1b**

Research question 1b sought to answer the question, “to what extent do the interdepartmental connections of CC counselors extend beyond the Counseling Department?” The researcher expected counselors were very likely to have connections with people in different academic departments and administrative offices because they need to be familiar with academic majors and students’ resources. However, it was unknown how extensive the social network is within the study institution. In short, the
study found that interdepartmental connections of the three focal groups extended to a total of 21 academic departments and 13 administrative offices on-campus.

One of the important findings was all three focal groups were more densely connected to the Mathematics Department, the English Department, the Admissions and Records Office, and the Financial Aid Office than other identified departments and offices. Although the study did not ask the respondents to provide reasons for their connections, the reasons should be related to their major job duties (Fuller, 1983; Gites, Gordon, and Habley, 2008; Pascarella & Terenzini, 2005; Rosenbaum et al. 2006):

1. Assisting college students, particularly the freshmen and the sophomores, to pass the remedial courses in Math and English
2. Helping college students to overcome academic challenges, such as course retention and academic probation
3. Helping college students to graduate and to transfer to a 4-year university
4. Assisting college students such as students from low-income families to solve financial problems in order to go to college

In particular, Gites et al. (2008) noted that many students require assistance with financial aid issues because of the complex financial aid system in higher education:

The current financial aid system is confusing, inefficient, complex, and often not generally available to students who need it most. Although there are at least twenty separate federal programs providing financial aid or tax benefits to students, low-income families, especially, still have problems accessing financial assistance. (p. 458)
In order to perform the above duties, the counselors might often need specific information from the Mathematics Department, the English Department, the Admissions and Records Office, and the Financial Aid Office for academic counseling. Because the pattern of interdepartmental connections should represent the assistance that counselors might often need for their job, college administrators must pay specific attention to this pattern. Possible accommodations should be made for the counselors in order to improve their access to information outside the Counseling Department.

This study found that on average the special needs counselors had more interdepartmental connections than the transfer counselors and the minority counselors. To relate this finding to research question 1b, one must ask why special needs counselors have a greater need to connect with the academic departments and the administrative offices than other counselors? Tibar (2005) noted that personal contacts could be used to gain access to information that might not be easily acquired through formal sources. Therefore, one possible explanation might be related to the office location of the special needs counselors, which is far away from the counseling building, where most of the K&I for academic counseling originates. When information for academic counseling could not be easily obtained from the counseling building, the success of academic counseling might also depend on assistance through the interdepartmental connections, and therefore, they need to develop more connections than the other counselor groups.

Another possible reason might be the nature of their job duties; that is, special needs counselors might sometimes require very specific information in order to assist their student groups, such as information from some of the particular academic departments, or the administrative offices of the Learning Resource Center, the Scholarships Office, the
Student Judicial Affairs Office, and the Campus Police. Because this specific information might not be available in the Counseling Department, the special needs counselors would have to develop additional connections to access the K&I that they need. No matter what the primary reason for the additional connections, if special needs counselors experienced difficulty obtaining information, it is likely that other counselor groups that are not involved in this study could have the same challenge. The finding in this study raises an issue that might be common for many counselor groups.

More importantly, it was clear that those respondents who already established interdepartmental connections would have easier access to information than those respondents who did not have such connections. Perhaps one quick way to improve counseling services for students is to specifically target those counselors who only have a limited number of connections and to help them gradually build more relationships outside the department. It is important to note a good informational system for the employees could reduce the time and energy spent on searching for K&I, and allow them to focus more on the job’s tasks (Cross et al., 2003; Hansen, 1990; Liebowitz, 2007). A networking system with diverse and abundant contacts available for counselors would produce benefits similar to those seen in other organizations. As a result, resources formerly used for searching out information could be reallocated to face-to-face counseling. Counselors could spend more time with students during academic counseling, and increase the chance for positive counseling experiences for the students.

**Research Question 1c**

Research question 1c sought to answer the question, “are there differences among CC counselors in the number of interdepartmental connections for the social network?”
The researcher hoped to determine what demographic characteristics would lead to a significant difference in numbers of connections, and the finding might be used to identify counselors that might require assistance in developing relationships with other departments or offices. Interestingly, a significant difference was found solely by the job status: full-time counselors have more connections than part-time employees. Studies have shown social network connections are developed through human interactions through time, and the development of relationships requires an event of interaction, such as a face-to-face encounter, a phone call, or an email exchange (Cross & Parker, 2004; Goyal, 2007; Liebowitz, 2007; Senge, 2006; Small, 2009). Therefore, it was not surprising that the full-time counselors have more time and chances for personal interactions on-campus than the part-time counselors. However, it was surprising to the researcher that other demographic characteristics, such as the difference in gender, ethnicity, years of working experience, or office location, did not lead to any statistically significant difference in the number of interdepartmental connections for the social network. On the other hand, the finding clearly indicated being a part-time counselor would have the biggest disadvantage in terms of number of interdepartmental connections in their personal network. From the college administrator’s viewpoint, part-time counselors should be one of the primary targeted groups for assistance in establishing connections outside the department.

Besides the part-time counselors, counselors who had the least working experience at the institution also had very few connections. Even though this study did not show a statistically significant difference due to the different number of years of
working experience, a college administrator might still want to pay attention to these counselors for the purpose of enhancing counseling services.

**Research Question 1d**

Research question 1d sought to answer the question, “what is the pattern of the intradepartmental connections for K&I access among CC counselors?” This was one of the most important research questions in this study because the identified intradepartmental connections also represented the specific pattern of K&I access among the three focal groups. To discuss the findings properly, the discussion should focus on the pattern of K&I access at the group-level and at the individual-level.

**The pattern of knowledge and information access at the group-level.**

Getting an accurate view of the pattern of K&I access could promote effective collaboration among the counselor groups, and could benefit the outcome of academic counseling activities. This study identified the transfer counselors as an important focal group that might have a strong impact on the social network within the Counseling Department. In particular, the finding showed intradepartmental connections did exist in most of the focal groups, but the pattern of K&I access for all three focal groups was often in a particular direction, and that was toward the transfer counselors. One should note that social network connections commonly occur within the same team members because they share a lot of similar characteristics in their work (Burt, 1999; Cross and Parker, 2004). However, this study did not show this outcome because the minority counselors and the special needs counselors were more densely connected to the transfer counselors than to their own group members. Clearly, the role of transfer counselors was critical in the social network because the majority of K&I were provided by these people.
Another important finding was K&I was not often exchanged in both directions. Although special needs counselors did seek information from the transfer counselors and the minority counselors, neither of them sought information from the special needs counselors. As a result, there was only one-way contact between the special needs counselors and transfer counselors or the minority counselors. Studies have shown that missing connections in the social network are often considered to be a disadvantage because they prevent communication and ideas being exchanged between teams (Burt 1992, 1999). It would not be surprising to learn the special needs counselors have K&I that are useful for other counselor groups, but the transfer counselors and the minority counselors did not access this information. Thus, they might not recognize or be aware of the benefits they could gain by simply developing connections with the special needs counselors. The discovery of the missing connections would allow the focal groups to establish new relationships, to obtain new K&I for academic counseling, and to improve collaboration for the department.

The characteristics of the social network at the individual-level.

This study conducted social network analysis to map the pattern of K&I access among the respondents. The insights from the analysis could provide knowledge to address critical disconnections or rigidities in the social network, and allow counselors and college administrators to positively react to these invisible challenges. In fact, the analysis was able to identify several critical characteristics for the current social network. First, the analysis indicated the current social network lacked potential intradepartmental connections because 87% of possible connections were missing in a social network composed of 25 individuals. With only a few connections existing in the
network, most of the intradepartmental connections showed information seeking was limited to one-way contacts. Huotari and Wilson (2005) noted that one-way contacts are inadequate when aiming at strategic information system development in an organization. Instead, the development of two-way contacts would allow more effective communication and collaboration to happen among team members. In order for counselors to better access information for academic counseling and to form better collaboration among the counselor groups, more two-way contacts are necessary. Indeed, the analysis discovered two transfer counselors (male) who did not receive any benefits from the existing social network because they had no connections with anyone else in the network. That meant when they needed K&I during academic counseling, these two counselors did not have any resources available to them. Therefore, the current social network could be improved for them for sure.

Second, although the study discovered in general the transfer counselors provided most of the K&I for other focal groups, in fact, the social network analysis identified only three particular transfer counselors, TC4, TC5, and TC11, were the major sources of K&I. Therefore, the pattern of K&I access was disproportionately reliant on these three transfer counselors, and they played a predominant role in the social network. If they were removed from the current network for any reason, one would expect the efficiency of accessing K&I as a whole would be significantly impacted because most respondents would have to spend time finding knowledgeable intradepartmental connections needed for their job. In addition, the Counseling Department would lose both their valuable K&I repositories, and the relationships they had developed that in many ways were holding the network together. Perhaps the current accessing pattern was due to the fact that these
three counselors were all very knowledgeable about academic counseling because they have been working at the study institution over 13 or more years. However, providing K&I in the social network should not be considered the primary responsibility for these counselors; instead, they should be spending the majority of their time assisting students. As they continue to support the K&I accessing and sharing activities in the social network, college administrators may need to find a way to allow other counselors in the department to share this “extra” job responsibility. Improving the current social network could prevent these three counselors from ending up heavily overworked during the busy time in the semester, and at the same time, increase the channels for K&I access by allowing more senior counselors to assist in the social network.

Just as important, there were four main counselors in the social network who affected the flow of K&I in the social network: the transfer counselors TC6 and TC11, and minority counselors MC2 and MC4. They stood out in the analysis with high betweenness values. These counselors were not predominant people as the sources of K&I in the social network (except transfer counselor TC11), but they were influential in terms of connecting people together. These four counselors allowed the shortest path of K&I access between many people. Cross et al. (2003) noted these people are characterized by a wealth of indirect connections, and they know who can provide critical information or expertise when people need the information right away. Because these four counselors have also been working at the study institution 13 or more years, the social network as a whole might not exist and would be likely to become much more sparse and fragmented without them. In most cases, one would expect these four counselors would help many counselors reduce their time spent searching for K&I, but
they could also inhibit the K&I accessing and sharing activities if they are busy at the
time of being contacted. Being able to identify these influential people in the social
network is important because college administrators could make good use of the finding.

In order to create a more efficient and effective social network for K&I access, a college
administrator must formulate the action plan for improvement very carefully.

Because the invisible structure of the social network within the Counseling
Department now became visible, administrators can do a lot to improve and to support
the informational network. Based on information about the social network connections at
the group-level and at the individual-level, one simple way to improve K&I access is to
increase connectivity among different counselor groups. The recommendations for
improvement will be discussed later in this chapter, but the expected benefits are likely to
include a more effective department that could directly benefit the college students.

**Research question 1e**

Research question 1e sought to answer the question, “are there differences among
CC counselors in the number of intradepartmental connections for the social network?”

Similar to research question 1c, the researcher hoped to use the finding as a potential
indicator for any counselors’ group that might need specific attention for the
improvement of intradepartmental connections. The only indication of a statistically
significant difference in number of connections was between male and female
counselors: males had significantly fewer connections than females. As discussed before,
two male respondents in this study did not have any connections and they were isolated
from the social network. According to the Counseling Department, very few male
counselors were involved in leadership roles with extensive counseling experience, and
therefore, it was likely to be the major reason for the lack of connections. From the
researcher’s point of view, perhaps it might also be related to the fact that male and
female workers in an organization often handle human relations differently, especially
when interacting with the opposite gender (Eagly, Karau, & Makhijani, 1995; Hersey et
al., 2008; Katz & Williams, 1997; Powell, 2011). Therefore, differences in gender might
have an affect on the development of intradepartmental connections. A more in-depth
study is required in order to explain the major reason that led to the difference. At least
the study clearly showed male counselors should be a targeted group for the improvement
of intradepartmental connections because there were no other demographic
characteristics that distinguished individuals who had very few connections.

Research question 2a

Research question 2a sought to answer the question, “what kinds of K&I are CC
counselors seeking to access through the existing intradepartmental connections?” If
administrators are able to have an in-depth understanding about the kinds of K&I that are
often requested among the respondents, then one easy way to provide effective
counseling services to the students would be to simply distribute the needed K&I across
the Counseling Department. Regardless of whether the K&I access was between focal
groups or within focal groups, the transfer counselors, the minority counselors, and the
special needs counselors had very similar reasons for requesting K&I: seeking
information related to policies and procedures, the transfer process, and transcript
evaluation. In particular, all counselors requested K&I about policies and procedures the
most. In contrast, all three focal groups rarely accessed information related to academic
majors through the intradepartmental connections. This finding clearly shows the kinds of
K&I that would be particularly useful for the counselors. Therefore, the Counseling Department could prioritize the different information that might need to be shared immediately; namely, information related to policies and procedures first, then information related to the transfer process and transcript evaluation next. Goodner (2007, p. 53) noted that “the pace and quality of ‘counseling’ depends on how quickly they can access information.” By knowing what information the counselors would need the most, an administrator could help them to quickly access the information before the questions arise.

**Research questions 2b, 2c, and 2d**

Although research questions 2b, 2c, and 2d were three separate questions, these questions were all related to the value of communication that is initiated by respondents through the existing intradepartmental connections. Therefore, it is appropriate to discuss all the findings together. The three research questions are:

1. How often does communication for K&I occur through the existing intradepartmental connections
2. How timely is the response to the request for K&I through the existing intradepartmental connections
3. What is the quality of K&I received through the existing intradepartmental connections

There was no particular frequency for accessing K&I in all three focal groups. Respondents could initiate the contact from rarely to very often. Although this was the case, it was not common for respondents to initiate K&I access very often through the
existing connections. Therefore, they did not need to spend time constantly updating new 
K&I for academic counseling.

When they needed to have K&I access through the existing connections, most of 
the contacted people were very often accessible. Because the contacted people would quickly respond to the request, this also indicated that the current social network must be very reliable and it provided a fair return on the time spent searching for K&I.

Most of the obtained K&I through connections were very useful for academic 
counseling. That meant the quality of K&I that could be found in the social network was very high.

All the above findings showed there was high reward for seeking K&I from the existing network because the value of communication in terms of frequency, timing, and quality was very high. Therefore, the social network did provide invaluable support for the counselors, and assisted them to get the counseling job done.

The Overall Effect of the Social Network on Counselors

The last research question sought to answer the question, “based on the findings, does the existing social network assist CC counselors in doing their job?” In short, it is sure that the answer is “yes, it does.” The study clearly showed the different kinds of social network connections: off-campus, interdepartmental, and intradepartmental connections, would provide different channels for the respondents to access counseling-related K&I. Although the number of available connections was different among the counselors in the three focal groups, they did obtain useful information through their connections. Perhaps the positive effects of the social network could be generally summarized as follows:
(1) Allows counselors to obtain various kinds of K&I, including information that might not be available in the Counseling Department

(2) Allows counselors to seek K&I in a timely manner; in particular, the contacted people within the Counseling Department were often accessible

(3) The obtained K&I are useful for academic counseling

(4) More importantly, the social network is an invisible support system that assists counselors in doing their job

However, it is important to point out the current social network is not “perfect.” Consider how challenging it can be for some of the counselors during academic counseling if access to K&I is difficult in the best of times. This is particularly true for those people who have a limited number of social network connections or even none at all. In particular, counselors that are male, part-time, or who have limited working experience at the institution may find it difficult to access the K&I they need for effective counseling. Therefore, there are three major reasons to improve the existing social network. First, the number of connections in the social network needs to be increased so that there are more diverse channels for K&I access. More efficient and effective K&I accessing and sharing would be promoted with diverse contacts available in the network. Second, two-way contact should be promoted in the social network so that more effective communication and stronger collaboration can occur. Third, the social network within the Counseling Department needs to be expanded so that more counselors can share the responsibility for distributing useful K&I uniformly across the department.
Recommendations for Improvement

Because CC counselors need to be responsive to students, they would benefit from a social network that would allow them to easily seek K&I for academic counseling.

In order to improve the social network, several important planning elements are required:

1. Counselors and administrators need to realize the great value of a social network.
2. A supportive culture that promotes human relations needs to exist in the department.
3. The purposes and the goals for the improvement of the social network should be made known to every member.
4. Members of the department should be included in the planning process, especially the six people that are predominant and influential in the social network.
5. Depending on the unique environment of the department, the process of improvement may be conducted through training, workshops, meetings, or any suitable format.
6. Assessment needs to be conducted to keep track of the process of change.

Based on the findings in this study, the recommendations for improvement can be summarized into three basic steps:

In step one, specific K&I that are useful for the counselors should be widely distributed in the Counseling Department. In particular, K&I related to policies and procedures, the transfer process, and transcript evaluation. This is an easy way to support the counseling activities during the change process.
In step two, counselors who are males, part-time, or who have limited years of working experience at the institution should be targeted because they have very few social network connections.

In step three, promote more two-way contacts across all the counselor groups. Eventually, this would create a large, diverse, and equally connected informational network that would allow the flow of K&I in a uniform and timely manner, and likely improve collaboration. In addition, counselors in an equally connected network would share the responsibility for assisting one another rather than heavily depending on the six predominant and influential people in the network.

**Implications from the Study**

This study clearly showed that the social network is a valuable support system for academic counseling because counselors could access useful K&I through their existing connections. Because college administrators and the academic counseling community now know the structure and the positive effects of a social network, they should realize that the success of academic counseling should not be investigated solely from the students’ viewpoint, but they should also look at the system that can assist CC counselors in doing their job well. Good social networks aid their “becoming familiar with academic and co-curricular programs; institutional, departmental, and program policies, procedures, and requirements; referral strategies; student information sources; and support tools available to academic ‘counselors’” (Brown, 2008, p. 316). In addition, the findings in this study also give college administrators useful information for the improvement of K&I access which will possibly lead to a better functioning department. If counselors and administrators would benefit from a social network study, then more research about
social networking in the counseling community is needed. Social network studies have been well documented in sociology-, business-, and management-related fields, and the significant findings have been used to improve organizational structure, management, collaboration, innovation, human relations, and productivity in an organization (Baker, 1993; Granovetter, 1973; Jackson & Wolinsky, 1996; Montgomery, 1992; Podolny & Page, 1998; Rees, 1966). Similarly, additional social network studies for academic counseling could be conducted so that people could use the findings to promote collaboration, to improve the student services, and to have better management for the department.

**Recommendations for Future Study**

First and foremost, research related to this study is highly recommended in order to confirm the validity of the findings. If similar results are repeatedly found in numerous networking-related studies for CC counselors, then the positive effect of a social network on the academic counseling services will be greatly supported.

Based on the current findings about the social network, we could ask more in-depth questions in related research. For example, this study indicated that the social network could be spatially extended far beyond the study institution. However, the study was not able to determine the potential size of the social network. If a study could measure the maximum size of a social network through off-campus connections, perhaps we might be able to determine the various kinds of benefits from being connected to different educational systems. Second, although the study showed that interdepartmental connections existed in the social network, in-depth social network studies could be conducted to determine the pattern of communication of the Counseling Department with
academic departments and administrative offices for the purpose of improving collaboration. In addition, it would be valuable to know the social network structure of other counselors’ groups that are not involved in this study, so that we could have a better picture of the current networking system and could provide additional suggestions for improvement. Finally, members in a social network that has an information-sharing purpose will often benefit from referrals (Cross et al., 2003; Liebowitz, 2007). What if a counselor tries to seek K&I from a person in the social network, but the contacted person were not able to respond to the inquiry for some reason. Maybe a referral from the contacted person to someone else would allow the counselor to obtain the information in a timely manner. Therefore, a referral system could be a hidden benefit in the counselor’s social network even though it was not the research focus in this study.

Conclusions of the Study

Because of the changes in student population, technology, and environment in higher education of the 21st century, CC counselors need to seek out new sources of information, and to educate themselves constantly in order to be ready to meet the needs of the community college student. The obvious challenge for academic counseling is to advise students while maintaining good quality services. Therefore, a pool of knowledge for helping college students to understand and to acquire the skills they need for future education is part of the counselor’s responsibility. Academic counseling is an important student service that helps students succeed in education. As a researcher, I am using my knowledge and skills to investigate the academic counseling community, and to provide useful information to the counselors and administrators for better student services. The findings in this study clearly indicated the social network helped the CC counselors
perform a better job of academic counseling. Because the process of accessing the right K&I in a timely manner is critical for CC counselors, this process should not be ignored in the study of academic counseling services. Therefore, more research should look at the process of academic counseling through the lens of CC counselors.

A Brief Summary of the Chapter

There were many important findings in this study, and the major findings can be summarized as follows:

1. The existing social network can be spatially extended because the respondents indicated connections with out-of-state educational systems.
2. Most of the existing off-campus connections were with the UC and CSU systems. In contrast, connections with in-state for-profit institutions were the least common.
3. There were more connections with the Mathematics Department, the English Department, the Admissions and Records Office, and the Financial Aid Office than with the other departments and offices, so that having related K&I would be very useful for the counselors.
4. Among the transfer counselors, the minority counselors, and the special needs counselors, the transfer counselors were the major K&I providers in the social network.
5. The social networking analysis revealed the lack of two-way contacts in the social network within the Counseling Department and the network was mainly supported by six people.
(6) Counselors with very few social network connections were male, part-time, or had limited working experience.

(7) K&I related to policies and procedures, the transfer process, and transcript evaluation were commonly requested by all three focal groups.

(8) More importantly, the social network is an invisible support system that assists counselors with their job because there was high reward for seeking K&I from the existing network.

This study revealed the benefits of a social network among CC counselors for accessing K&I and further study of such networks is therefore recommended.
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Appendix A.

An Example of Experimental Subjects Bill of Right

The rights below are the rights of every person who is asked to be in a research study. As an experimental subject, you have the following rights:

1. To be told what the study is trying to discover
2. To be told what will happen to you and whether any of the procedures, drugs, or devices is different from what would be used in standard procedures
3. To be told about the frequent and/or important risks, side effects or discomforts of the things that will happen to you for research purposes
4. To be told if you can expect any benefit from participating, and, if so, what the benefit might be
5. To be told the other choices you have and how they may be better or worse than being in the study
6. To be allowed to ask any questions concerning the study both before agreeing to be involved and during the course of the study
7. To be told what sort of medical treatment (if needed) is available if any complications arise
8. To refuse to participate at all or to change your mind about participation after the study is started. This decision will not affect your right to receive the care you would receive if you were in the study
9. To receive a copy of the signed and dated consent form
10. To be free of pressure when considering whether you wish to agree to be in the study

If you have any question or concern about the study, please contact the researcher, Lut Hang Li, M.S., lut.hang.li@gmail.com. You may also contact my faculty advisor, Robert Kladifko, Ph.D., Associate Professor, Department of Educational Leadership and Policy Studies, California State University, Northridge, 18111 Nordhoff Street, Northridge, California 91330-8265. Office (818) 677-7890 or robert.kladifko@csun.edu. You may also direct your question to Research and Sponsored Projects, California State University, Northridge, 18111 Nordhoff Street, Northridge, CA 91330-8232, or phone (818) 677-2901.
Appendix B.

An example of Informed Consent Form

Introduction

The title of the study is “An Analysis of Social Networking of Community College Counselors for Accessing Knowledge and Information,” and it is conducted by Lut Hang Li, M.S., as part of the doctoral dissertation requirements for the Ed.D. degree in Community College Leadership at California State University, Northridge (CSUN).

Description of the Research

The purpose of this study is to understand how counselors at NAME OF THE INSTITUTION access knowledge and information that they need for academic counseling. The researcher hopes that a social network study will help counselors better understand how key individuals enhance their counseling service.

Subject Information & Risks

You (the participant in the study) will complete a 5-minute online survey on SurveyGizmo. The risks in this study include you may become bored and/or may be uncomfortable with some questions. You are free to stop the survey at any time. No compensation will be given to the participants.

Confidentiality and Final Disposition of Data

Please note that although your name will be asked in the survey (for the purpose of social network study), your information will be kept confidential. Your personal information such as your name, gender, or ethnicity will not be released to another party (including my dissertation committee members at CSUN, and faculty, staff, and student members at NAME OF THE INSTITUTION). After the data collection through this online survey is completed, I will translate the original data for the purpose of Confidentiality. Special identification numbers will be used to represent each participant and all other individuals in this study (for example, MB1 or OS1). Therefore, participants in this study will not be identifiable by another person. Only the researcher, Lut Hang Li, M.S., will have access to all the original data, including the identifiable data in this study. All data (electronic data) related to this study will be stored in a password-protected computer that is not accessible to any other person, and the computer will be stored in a locked file cabinet in the researcher’s home. All data will be stored no more than 5 years until the completion of the social networking study for the purpose of the doctoral dissertation and future publication.

Appendix B. (continued)
An example of Informed Consent Form

Benefit of Participation

You will not benefit directly from this study.

Benefit to Society

One of the major benefits from this study is to provide important information that may help to improve the counseling services at NAME OF THE INSTITUTION, and as a result, benefit college students on campus.

Concerns

If you have any question or concern about the study, please contact the researcher, Luit Hang Li, M.S., lut.hang.li@gmail.com. You may also contact my faculty advisor, Robert Kladifko, Ph.D., Associate Professor, Department of Educational Leadership and Policy Studies, California State University, Northridge, 18111 Nordhoff Street, Northridge, California 91330-8265. Office (818) 677-7890 or robert.kladifko@csun.edu. You may also direct your question to Research and Sponsored Projects, California State University, Northridge, 18111 Nordhoff Street, Northridge, CA 91330-8232, or phone (818) 677-2901.

Voluntary Participation

You should understand that participation in this study is completely voluntary, and you may withdraw yourself from this study at any time without jeopardy.