

The Development of Personal Friendship Networks

by

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Abstract

Few researchers study how and why people develop their personal friendship networks when facing major life events. This exploratory research focused on how and why students develop their personal friendship networks during the transition to university. 56 first year university students (including 30 Canadians and 26 Chinese international undergraduate students of Carleton University) each participated in three, related longitudinal studies during the first six months after arriving at university. All completed questionnaires within two weeks after arriving at Carleton (Session A); they completed other questionnaires and were interviewed at the end of the sixth week after the Fall term 2004 began (Session B), and at the end of the sixth month after the Fall term 2004 began (Session C). Study 1, based on responses from some of the questionnaires, explored how the size and the composition of people's personal friendship networks change during the transition to university. Study 2, based on responses of interviews, examined why people added and dropped their friendships during the transition to university. Study 3 investigated cultural differences in friendship attitudes and interactions with friends.

Results for both Canadian students and Chinese international students show that, although the sizes of students' personal friendship networks increased during the transition to university; the proportion of student's close friends in their personal friendship networks remained relatively stable at about 20%, suggesting a natural limit on the proportion of close friends students have. Both situational and psychological factors influence the development of students' personal friendship networks. Results also show that Canadian students and Chinese international students developed their personal

friendship networks differently: Canadian students expanded their friendship networks faster than did Chinese international students. Surprisingly, only a few students reported dropping old friends, suggesting that both cultures develop two kinds of friendships within a personal friendship network: active friendships and inactive friendships. Based on the findings of this research, a model of the development of personal friendship networks was proposed for future research.

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Introduction

Friends are important to our life for many reasons. We can, for example, speak of our deepest concerns with friends, and we can help each other. As Aristotle said, “Without friends no one would choose to live, though he had all other goods.”

Most of us start to make friends from childhood. We accumulate friends while we are growing, and we lose friends as well. Friendships come and go. We often begin friendships when we meet people we like, and often end friendships when we come to dislike them. Our friendships can also be influenced by life events. For example, moving a long distance, changing our job or beginning university may give us opportunities to meet new people and make friends of some of them, or to lose old friends for lack of common experiences or for difficulties of meeting.

Researchers (e.g., Wellman, 1982; Wellman, Wong, Tindall, & Nazer) studied all social relationships of a person (e.g., family relationships, work relationships, and neighbours), a so called *personal social network*. However, few researchers focused only on voluntary friendships of a person, a so called *personal friendship network*, and little is known about how and why people drop their old friends and make new friends, and about who will be dropped and added during major life events. The present research explores how and why people’s friendships change over time by examining the changes of people’s personal friendship networks during one major life event: the transition to university. It addresses the following questions:

- How does the size and composition of people’s personal friendship networks change during the transition to university?

- Are there cultural differences in the size, composition and changes of personal friendship networks that occur during the transition to university? More specifically, do the size, composition and changes of Canadian students' and Chinese international students' personal friendship networks differ according to hypothesized differences between individualist and collectivist cultures?
- Why do people add or drop their friendships during the transition to university? And are there cultural differences in why people change their networks?

Motivations of the Research

My personal experiences lead me to become interested in studying how students develop their friendships during the transition to university. My friendships were greatly changed since I started my graduate program at Carleton University, Canada. As a student who came from China, I was very frustrated when I started my program at Carleton due to language problems, cultural differences, and schoolwork. I spent all my time studying; there was not enough time to sleep or to call my friends in China. I really missed my friends and had tried to contact them whenever I had a little bit of time, but it was too hard and expensive for me to phone them at their convenient time. In addition, it was too hard for my friends in China to understand my difficulties through a few short phone calls. I "lost" my friends! With my old friends far away, I made several new friends at Carleton. My new friends at Carleton helped me a lot in overcoming my difficulties during my transition to Carleton. I heard similar stories about changing friendships from other international students and from Canadian students who had a long distance move to their universities.

Beside my personal experiences, the practical importance of studying how students develop their friendships during the transition to university encourages me to conduct this research. The practical importance shows in two ways. First, the social support that friends provide is probably critical for students overcoming their difficulties during the transition to university, and how students overcome these difficulties and successfully adjust to university life is linked to the chances of completing their degree (Antrobus, Dobbelaer, & Salzinger, 1988; McInnis & James, 1995; Woosley, 2003). Entering university has been seen as a stressful life event which may bring students not only academic difficulties and career indecision (Lacina, 2002; Ramsey, Barker, & Jones, 1999; Samuelowicz, 1987; Wan, Chapman, & Biggs, 1992) but also social adjustment challenges such as moving away from family and friends, developing of new friendships, examining of values, accepting of new responsibilities, and experiencing of loneliness and depression (Beard, Elmore, & Lange, 1982; Blaum, 2003; Brooks & DuBois, 1995; Langston & Cantor, 1989; Lapsley, Rice, & Shadid, 1989; Oswald & Clark, 2003; Pauls & Brier, 2001). Research indicates that these social challenges may become difficulties for first year university students, and how they overcome these difficulties and successfully adjust to university life is related to the chances of completing their degree (McInnis & James, 1995; Woosley, 2003). Students, facing difficulties in the transition to university, can seek help with their difficulties from psychologists, counsellors, and other student affairs personnel (Gerdes & Mallinckrodt, 1994; Stone & Archer, 1990). However, researchers advise that one's personal friendship network is a primary resource for help (see Chen, in press; Gottlieb, 1983, 1985, 1988; Parham & Tinsley, 1980), and that people may adjust their personal friendship networks to gain social support that they

cannot procure from their previous friends (see Argyle & Furnham, 1982; Barrera & Baca, 1990; Cutrona, 1982; Fleming & Baum, 1986; Peat, Dalziel, & Grant, 2001; Peat, Grant, & Dalziel, 2001, n.d.; Skahill, 2002; Walker, MacBride, & Vachon, 1977).

There is also a practical reason for studying the friendship networks of international students. Studying how international students develop their friendships during the transition to university will benefit both education institutions and the students. Educating international students is an important topic for Western education institutions. An increasing number of international university students are enrolled in North American universities (Chen & Barnett, 2000; Walker, 2000). Canadian universities have attracted unprecedented growth in the number of international students in recent years. For example, in 2004 about 153,000 full-time international students studied in Canada, and international students “spend an estimated \$3.8 billion a year here (not counting tuition fees), providing a significant boost to the Canadian economy” (Leung, 2006). Among these international students, “a record 70,000 students from other countries enrolled in programs at Canadian universities in 2003/04, up 16.8% from the previous year. Almost five out of every 10 foreign students were from Asia, and China accounted for almost 44% of these Asian students” (*The Daily*, Statistics Canada, Tuesday, October 11, 2005). Beside the financial benefits of international students, educating international students may help to promote development in their countries of origin (Marion, 1986). For example, since the Chinese government first sent students to America in 1871, many of them returned to China and had significant influences to the modernization and democratization process in China. Currently, 75 percent of the Chinese university presidents have studied overseas (Liu, 2004).

Studying how international students develop their friendships during the transition to university will also benefit international students. Studying overseas is a stressful life event. Researchers have found that international students not only experience many challenges similar to those of local students (e.g., transition into a new academic environment), but also have unique challenges such as language and cultural barriers (Furnham, 1988, 1989, 1993, 1997; Furnham & Alibhai, 1985; Furnham & Bochner, 1982, 1986; Olaniran, 1996, 1999; Selvadurai, 1992; Thomas & Althen, 1989). Church (1982) argues that the larger the cultural differences between the host culture and an international student's own culture, the more adjustment difficulties the international student has (see also English, 1998; Klineberg & Hull, 1979; Lewthwaite, 1997; Searle & Ward, 1990; Tanaka, Takai, Kohyama, Fujihara, & Minami 1994; Ward & Kennedy, 1996). These adjustment difficulties are part of *culture shock* (see Oberg, 1960), caused by problems that people face when they are introduced suddenly to a culture that is very different from their own. Culture shock is typically manifested as stress, anxiety, and feelings of powerlessness, rejection, and isolation (e.g., Adler, 1975; Anderson, 1994; Baker, Child, Gallois, Jones, & Callan, 1991; Oberg, 1957; Yoshikawa, 1988). Anderson (1994) suggests that cultural adaptation can be conceived not as a mental health concept, but as one of learning, development and competence in response to new challenges. Studies about international students indicate that adjusting their friendships in the new social environment, specifically establishing social connections with local people, is very helpful for international students' adjustment (e.g., Al-Sharideh & Goe, 1998; Boyer & Sedlacek, 1988; Hurtado & Carter, 1997; Kagan & Cohen, 1990; Klineberg & Hull, 1979; Mallinckrodt & Leong, 1992; Steinglass, DeNour, & Shye, 1985).

Overall, my personal experiences of the transition to university and the practical importance of studying how students develop their personal friendship networks motivate me to conduct this research. In the next section, I review the ways researchers have studied the development of personal friendship networks, and what they have learned. I then discuss some of the limitations of their research methodology.

Overview of the Literature

How do researchers study the development of people's friendships? What can the literature reveal about how people develop friendships during the transition to university? In this section I first introduce the contributions of previous research in friendship, including the theoretical frameworks that social psychologists and sociologists have employed in studying how people develop friendships. Based on the theoretical frameworks, I then propose the concept of *personal friendship network* and the theoretical framework for my research. Next, I discuss the limitations of previous research in friendship.

Contributions of Previous Research in Friendship

The two theoretical frameworks. Researchers from different disciplines, especially social psychologists and sociologists, have studied how people develop their friendships, but have employed different approaches or theoretical frameworks—different sets of assumptions, concepts, and practices that constitute different ways of viewing reality. For example, friendship has long been of central interest to social psychologists, who believe that friendship is a voluntary relationship between two people and study what factors contribute to forming and developing these dyadic bonds (see Ginsburg, 1986; Hays, 1988). I call the way that social psychologists study people's friendships the *dyadic*

relationship framework. In contrast, sociologists (e.g., Granovetter, 1973; Wellman, 1982) prefer to study the collection of all social relations a person has, including friendships, and try to map the relationships among the people that the person knows. I call the way that sociologists study people's friendships the *social network framework*.

The concept of personal friendship network. The dyadic relationship framework and the social network framework help me to conceptualize the phenomena of all one's friendships. Within the social network framework, sociologists refer to all social relationships of a person a *personal social network* (see Wasserman & Faust, 1994), and define a social network as "a specific set of linkages among a defined set of persons with the additional property that the characteristics of these linkages as a whole may be used to interpret the social behaviour of the persons involved" (Mitchell, 1969, p. 2). Derived from the concept of personal social network, I define all friends of a person as a *personal friendship network*, which refers to the links among all one's friendships.

Yet, the above definition of a personal friendship network based on the social network framework does not help to distinguish friendship from other social relationships. The meaning of a friendship is a core issue of the dyadic relationship framework. Thus, the concept of personal friendship network should be defined with ideas from both the social network framework and the dyadic relationship framework.

In the social psychology literature, various definitions of friendship have been proposed suggesting that friendship is a relationship with broad and ambiguous boundaries (Wright, 1978). For example, Fischer (1982a, 1982b) suggests that the term *friend* is used as a label for personal relationships that do not fit in any other relationship categories such as colleagues, relatives, neighbours, and so on. However, other

researchers (e.g., Hays, 1988; Wright, 1978) argue that voluntary interdependence is the key behavioural criterion of friendship in contrast to other kinds of interpersonal relationships. My research uses Hays's (1988) definition of friendship: "voluntary interdependence between two persons over time, which is intended to facilitate social-emotional goals of the participants, and may involve varying types and degrees of companionship, intimacy, affection, and mutual assistance" (p. 395). Based on this definition of friendship and this definition of a social network, I propose that a *personal friendship network* refers to the links among all the people with whom a person voluntarily exchanges some degree of emotional and instrumental support.

The theoretical framework for my research. The social network framework and the dyadic relationship framework are complementary and reveal different approaches to studying how people develop their friendships. Social psychologists are interested in the micro level of a personal friendship network—dyadic friendships, and sociologists emphasize the macro level of a personal friendship network—the collections of dyadic friendships. My research adopts both of these theoretical frameworks to answer my research questions of how and why people change their friendships during the transition to university. Following the social network framework, I explore how the structure of people's personal friendship networks (e.g., the network size) changes over time. Following the dyadic relationship framework, I determine how and why people add and drop their friendships over time. Adopting these two theoretical frameworks in my research helps me triangulate a better understanding of how people develop their friendships during the transition to university.

The Limitations of Previous Research in Friendship

Neither sociologists nor social psychologists have incorporated a theoretical framework from the other discipline to study the development of all friendships of a person (see Adams, 1994; Adama & Blieszner, 1994; Levinger, 1994). Therefore, neither the sociology literature nor the social psychology literature provides a full understanding of the changes of people's friendships.

The limitations of sociological research in friendship. Most sociologists employ the social network framework to study friendships. However, in the sociology literature there are two distinct approaches to study social networks: the *complete (sociocentric) network* approach and the *personal (egocentric) network* approach (Marsden, 1990). The focus of the complete network approach is on measuring the structural properties of relations (e.g., the size, the density, and the centrality of the networks) among people within a defined group (e.g., students who participated in a course). The personal network approach focuses on the links between a person (the ego) and the people (the alters) he/she knows. The complete network approach gives a "bird's eye" view of interrelations among all group members. The personal network approach gives a "worm's eye" view of his or her relations with others.

Sociologists are more interested in studying complete networks than studying personal networks, and are more interested in studying how to measure and visualize social networks than studying how and why social networks form and change. For example, in the past two years more than 600 research papers were presented in the *International Sunbelt Social Network Conference*, which is the primary annual academic conference in the field of social network research. Among these papers, 20% were about

complete networks, but only about 3% were about personal networks (see the official website of *International Network for Social Network Analysis* at http://www.insna.org/INSNA/conf_inf.html for more information). Among these 3%, most are about personal social networks including all kinds of personal relationships such as kinships, friendships, and coworkers or neighbours, and very few are about personal friendship networks on their own.

A few researchers (e.g., Starker et al., 1993) who claim to study the development of personal social networks have focused on network stability, that is, on who remains in people's personal networks over time. To do so, researchers compare a name list of someone's social relations months or years apart. People whose names are consistently reported consist of the stable part of one's personal network (so called the *core network*), and people whose names are not consistently reported are of the unstable part of one's personal network – the so-called *peripheral network* (see Morgan, Neal, & Carder, 1996).

But studying network stability does not address the changes of one's personal friendship network. In social network research, network stability depends in part on the research time frame that researchers select. For example, if a person's name had not been reported consistently throughout a study on personal friendship networks, this person would be classified as an "unstable" member of a personal friendship network based on the literature of the network stability. If a person's name had been reported consistently through the study, this person would be classified as a "stable" member of a personal friendship network. Yet, the "unstable" friendship may last ten years before the research, and the "stable" friendship may last two years before the research. If so, network stability would not reflect the nature of the changes of one's personal friendship network. Instead

of studying network stability, my research attempts to focus on which friendships change and how and why these friendships change.

The limitations of social psychological research in friendship. In the past 15 years, more sociologists have become aware of the importance of studying dyadic relationships (e.g., Starker et al., 1993). However, few social psychologists have become interested in adapting a social network framework to study personal social networks, even though social psychologists acknowledge that the evolution of a dyadic personal relationship of a person may influence or be influenced by changes of the other personal relationships of the person (e.g., Hays, 1985).

Social psychologists assume that dyadic friendships are changing all the time (Hartup & Stevens, 1997; Hays, 1988), and believe that there are psychological reasons (e.g., liking and disliking) for people to make a new friend or to drop an old friend (Hays, 1988). Yet, social psychologists do not study how the changes of dyadic friendships influence the rest of people's personal friendship networks. Network relations likely have important influences on dyadic relations. For example, adding a new friend when a person has not lost any old friends might differ from adding a new friend when the person has lost many old friends. Similarly, dropping an old friend when a person has many new friends might differ from dropping an old friend when the person does not have many new friends, and new friendships are likely constrained by jealousies that may arise in friendship networks, as suggested by Heider's (1958) Balance Theory. I could find no social psychology literature related to network influences on dyadic relations.

Overall, the previous studies following either the social network framework or the dyadic relationship framework provide limited understanding about how and why people

change their personal friendship networks, but each of the social network framework and the dyadic relationship framework can help me to answer some of my research questions about how people change their friendship networks. In the next section, I review some previous studies that lead me to develop new research methodologies and predictions about the development of personal friendship networks.

The Development of Personal Friendship Networks

Although the sociology literature and the social psychology literature do not directly provide theories and explanations of how and why people change their personal friendship networks, they do provide clues about how to observe social networks, about the structural differences in personal social networks among different people, and about how and why a dyadic friendship changes. In this section, I review relevant research and theories and develop predictions about how people change their personal friendship networks during the transition to university.

Observing Changes of Personal Friendship Networks

In the sociology literature, researchers usually describe the structure of a social network by using the following indicators: the network size (the number of the people in the social network), the network composition (the proportion of different kinds of people or relationships), and the network density (the number and complexity of connections among network members). My research adapted some of these indicators.

Following the previous studies on social networks, my research defines the size of a person's personal friendship network as the number of friends a person has. The present research also defines the composition of a personal friendship network as the proportion of two types of friendships in personal friendship networks: casual friendships and close

friendships. Researchers argue that friendship is a relationship with broad and ambiguous boundaries (see Allan, 1977). For example, Day (n. d.) suggests that a person's friends not only include people who are emotionally close and who are good company, people the person can trust, rely on, confide secrets and share problems, but also those whom the person gives a nod of the head or says "hello". Researchers thus categorize friendship in different ways.

The most common way for researchers to categorize friendship is based on intimacy. Intimacy of friendship means the degree of a positive affective bond that is necessary for maintaining a friendship (Rose, 1985). Friendships have different intimacy levels varying from best friends, to close friends, to good friends, to social acquaintances, and to casual acquaintances. My research categorized friends as one of two kinds: casual friends and close friends. Casual friends are the people with whom a person has something in common and with whom the person feels comfortable sharing activities and interests. Close friends are the people with whom a person can show emotional closeness through communications and other activities with specific topics (e.g., personal secrets) or in a specific style (e.g., direct demands or orders). I used the proportion of close friends in one's friendship network as an indicator of the network composition.

In the sociology literature, researchers also prefer to analyze the complexity of relationships among all social network members by observing the density of all the relationships of personal social networks, which is a measurement of "the extent to which links which could exist among persons do in fact exist" (Mitchell, 1969, p. 18). This variable is usually used in the studies of complete networks (see Walker, Wasserman, & Wellman, 1993). However, few researchers who study personal networks (e.g., a personal

friendship network consisting of one's friends) have collected information about how network members link to each other because such an effort would be too difficult when someone has many social relationships in his or her personal social network (see Kochen, 1989). Facing this problem, researchers usually adopt one of the following three strategies: (1) study all relationships among network members only from the respondent's perspective but ignore how one's network members see the relationships with the respondent; (2) observe people's specified relations with a sample of their network members such as close friends; (3) ignore analyzing the social relations among one's friendship network members. Due to limited time and funds, my research did not include attempts to measure all the links among friends of friends.

Network size and network composition are two main indicators of a personal friendship network, but they are of limited value in tracking personal friendship network changes over time. For example, adding new casual friends may increase not only the size of one's personal friendship network but also the proportion of casual friendships in one's personal friendship network. However, dropping an old close friend and adding a new close friend may not change the size of one's personal friendship networks and the proportion of close friendships. Similar ambiguities can occur when an old close friend changes to a casual friend and an old casual friend becomes a close friend. Using only the network size and the network composition indicators cannot describe the changes of a personal network. The change of network membership and friendship category should also be considered as important indicators of changes in a personal friendship network. Thus, in addition to asking participants to estimate the total number of their friends, I asked them (1) to list the initials of their old close and their new close friends; and (2) to

list the initials of their old casual friends and new casual friends. Based on these reports, I then calculated the size and the proportion of close and casual friends, and the number added and dropped, as indicators of changes of personal friendship networks.

Changes in the Size and the Composition

Sociologists have found that one's personal friendship network can change when the person experiences major life events such as a long distance move, marriage or retirement (e.g., Wellman, Wong, Tindall, & Nazer, 1996). For example, Starker, Morgan, and March (1993) found that people who had a long distance move made more new friends than they dropped old friends and had only a small change in the intimacy of their remaining friendships. Other studies in the social network literature also suggest that, when entering a new social environment or encountering a major life event, people add new friendships to obtain social support that cannot be provided by existing friends in their personal friendship networks (Morgan, 1990). Based on these previous studies, I propose that:

Prediction 1: The size of personal friendship networks will increase during the transition to university.

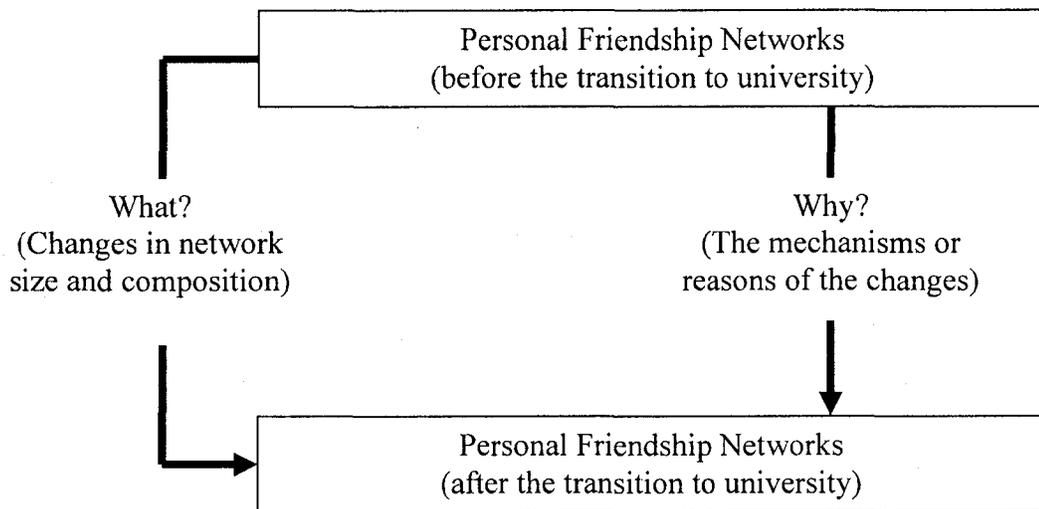
What does a change in the size of personal friendship network mean? Which part of personal friendship networks is most likely changed? Social psychologists believe that the intimacy of dyadic friendships may increase or decrease over time, and such an increase or a decrease may lead the changes of friendship categories (e.g., from a casual friendship to a close friendship) or an initialization/a deletion of friendship (Hays, 1988). Social psychologists have found that it is easier for people to make casual friends than to

make close friends and it is harder for people to drop their close friends than their casual friends (Altman & Taylor, 1973; Hays, 1984; 1986). I thus predict that:

Prediction 2: The proportion of close friends will decrease during the transition to university.

Based on previous empirical studies, I predicted what people would change in their personal friendship networks during the transition to university: (1) network size and (2) network composition. But why do people change their personal friendship networks? What are the mechanisms/reasons for the changes? Answer to the “What” and the “Why” questions would allow me to instantiate a theoretical model of the development of personal friendship networks (see Figure 1). I discuss the “Why” question in the next section.

Figure 1. A possible model of the development of personal friendship networks



Why the Changes Occur

The above predictions are about what changes people would make to their personal friendship networks during the transition to university. I also explored the mechanisms of the changes of people's personal friendship networks from the day of students' arrival university until six months after. There are probably, several possible mechanisms/reasons for why people add and drop friends, for example,

- People make new friends with people who share similarities; or the transition to university brings students opportunities of meeting others in a new social environment—a university—which may lead people to add friends;
- People make friends all the time; or the transition to university brings students adjustment difficulties, which may motivate students to seek help from others and to make new friends;
- People drop friends who they come to dislike; or the transition to university brings students new challenges of maintaining old friends such as expensive communication and time constraints, which may lead people drop old friends;
- People's personal characteristics such as shyness and social-economic status may affect their adding and dropping friends;
- People's attitudes and beliefs about friendship, which results partly from their culture, may affect how they add and drop friends;
- The particular social environment that people involved such as small or big classes may affect the amount of friends that people can make.

I explained these possible mechanisms/reasons in the following sections where I review the social psychology literature and the sociology literature, and investigate these in my research.

Making friendships. Social psychologists and sociologists provide various explanations of how and why people initialize and end a dyadic friendship. Both social psychologists and sociologists believe that “birds of a feather flock together”—people prefer to associate with others who are similar to them (Hallinan & Williams, 1987, 1989; Nahemow & Lawton, 1975). Similarities between two people can increase mutual liking which is an essential condition for friendship formation (e.g., Neimeyer & Neimeyer, 1981; van Duijn, Zeggelink, Hiramatsu, Stokman, & Wasseur, 2002). Duck’s *Filter Theory* (Duck, 1973, 1977, 1979; Duck & Craig, 1978; Duck & Miell, 1986; Duck & Stants, 1983; Duck & Silver, 1990; Duck & Spencer, 1972) also stresses the effect of similarity on friendship formation.

Similarities include visible similarity and non-visible similarity. Visible similarity is similarity on visual characteristics such as age, sex, and race; non-visible similarity is similarity of internal characteristics such as religion, attitudes, interests, and personality traits (see Kandel, Davies, & Baydar, 1990). Researchers found that similar attitudes reinforce relationships, and dissimilar attitudes weaken relationships (e.g., Byrne, 1971).

However, to become friends, people who are similar to each other must first have opportunities to meet. Previous studies have shown that social environments such as working places and communities determine “whom people will meet and make friends with” (e.g., Clark & Pataki, 1995). In addition, previous studies have also shown that existing social relationships influence whom people will meet and befriend (see Hess,

1972). Therefore, it is not so much “birds of a feather flock together” as “birds that are near each other grow similar feathers”. This effect is called the propinquity effect, which is the tendency for people to form friendships with those whom they encounter often (Festinger, Schachter, & Back, 1950).

In summary, *social psychologists propose that people befriend those who share similarities, and that people befriend those they can meet with by being in the same social environment or introduced by a mutual friend*. My research explores how frequently each of these reasons is mentioned for initializing friendships.

Social psychologists believe that making friends is part of the normal process of socializing, and that it helps to develop a sense of personal worth, a sense of self-esteem, and a sense of self-reference (e.g., Berndt, 1982). For example, Rangell (1963) believes that friends “serve as a giant projection screen or sounding board against which one can measure and check [one]self” (p. 20; cited from Hays, 1988).

Sociologists further argue that people choose a particular group of people to meet and befriend due to their needs (see Cohen & Wills, 1985). Lin (1999; 2001) concludes that people who make friends build their social capital from which they receive social support for their instrumental needs (for achieving gains such as a job) or expressive needs (for their own sake such as confiding feelings). The transition to university is a major life event, which confronts people with many new instrumental and expressive needs. To meet these needs, people may ask for help from their friends. Old friends who do not go to universities or go to a different university might not provide sufficient help. Thus, people may try to make new friends from the people in a new social environment such as university classmates or roommates.

In summary, *social psychologists propose that people making friends is due to their needs of socializing, and sociologists argue that people's particular needs of overcoming their major life events will guide their making friends.* My research explores how frequently each of these two reasons is mentioned for initializing friendships.

Dissolving friendships. Friendships can end in different ways. Social psychologists argue that a friendship can end when friends have conflicts (see Huston & Burgess, 1979) or people change their “like” criteria (expectations of what a friend should be) or “dislike” criteria (expectations of what a friend should not be) (Hays, 1988). However, sociologists argue that friendship can also end because of logistic difficulties of meeting friends (e.g., friends move to another location; see Jackson, Fischer, & Jones, 1977). Rose and Serafica (1986) suggest that the processes responsible for keeping and ending friendships vary with friendship level: casual friendships were likely to end due to increased proximity, whereas close and best friends could withstand changes in proximity. My research explores how frequently disagreements and logistic difficulties are mentioned for dissolving friendships by people with different cultures.

Cultural Differences

Culture is a set of rules, values, beliefs, and attitudes shared by most people of that society and passed from one generation to another (Lonner, 1995). Rubin (1980) argues that the meaning of friendship reflects “the style of social interaction that characterizes and is valued by one given culture and subculture” (p. 133). Investigations of cultural differences in personal friendship networks have focused on two comparisons: Eastern culture versus Western culture, and collectivistic culture versus individualistic culture (Triandis, 1990, 1995). These two comparisons have considerable overlap. My

dissertation follows a common assumption that Western culture is more individualistic, and Eastern culture is more collectivistic. By individualistic, I mean people prefer independent relationships with others and individual goals take precedence over group goals; by collectivistic, I mean people prefer interdependent relationships with others and group goals take precedence over individual goals.

Previous studies suggest that the size of personal friendship networks is associated with cultural background (e.g., Adams & Allan, 1998; Baumgarte, Lee, & Kulich, 2001). Adams and Plaut (2003) found that people from Eastern cultures have fewer friends but have a higher proportion of closer friendships and a lower proportion of casual relationships than do people from Western cultures. Based on these results, I propose that:

Prediction 3: Canadian students will have a larger network than will Chinese international students.

Prediction 4: Canadian students will have a lower proportion of close friends than will Chinese international students.

Prediction 5: Canadian students will make a lower proportion of new close friends than will Chinese international students.

Luo (2000), a social psychologist, reported that people from Eastern cultures have longer friendship in duration than do people from Western cultures. Based on this result, I propose that:

Prediction 6: Canadian students will drop a higher proportion of old casual and close friends than will Chinese international students.

Other Effects

The social psychology literature and the sociology literature also suggest factors such as socioeconomic status, shyness, and friendship attitudes may affect the size and the composition of people's personal friendship networks. My research also examines on how these factors are related to the changes in people's personal friendship networks during the transition to university.

Socioeconomic status. Sociologists suggest that the size of personal social networks is related to many socioeconomic variables such as family income. For example, Jaeyeol (n.d.) reported that people in higher socioeconomic classes had larger networks than did people in lower socioeconomic classes. My research examines how people's socioeconomic status relates to the size, the composition, and the changes of people's personal friendship networks.

Shyness. Social psychologists argue that personal characteristics such as shyness affect initiation of friendships after meeting others. As an index of social incompetence and immaturity (see Rubin & Asendorpf, 1993), shyness is defined as one's reaction to being with strangers or casual acquaintances: tension, concern, feelings of awkwardness and discomfort, gaze aversion and inhibition of normally expected social behaviour (Buss, 1980). Studies have shown that inhibitions from shyness are associated with social difficulties in making friends (see Chen, Rubin, & Li, 1995). My research examines how people's shyness relates to the size, the composition, and the changes of people's personal friendship networks.

Friendship attitude. Social psychologists believe that attitudes and actions influence each other (e.g., Bassili, 1995; Six & Eckes, 1996). However, no researchers

have tried to determine if there are cultural differences in people's attitudes towards to friendship and how these cultural differences relate to the development of people's personal friendship networks. My research examines cultural differences in people's values and attitudes towards friendship and personal friendship networks, and tries to interpret cultural differences in the development of people's personal friendship networks as a manifestation of cultural differences in people's values and attitudes towards to friendship and personal friendship networks.

Finally, few researchers have studied sex differences in the size and the composition (e.g., the proportion of close friends) of people's personal social networks (e.g., Bank & Hansford, 2000). My research also explores the sex differences in the size, in the composition, and in the development of people's personal friendship networks during the transition to university.

In summary, there is no general theory in the sociology literature or in the social psychology literature about what and why people develop their personal friendship networks. However, there are empirical studies about what people would change in their personal friendship networks, and there are theories about why people develop friends. Based on these studies and theories, I derived several predictions about what Canadian students and Chinese international students would develop their personal friendship networks and why they add and drop their friends during their transition to university. My research explored how many participants conformed to each of these predictions and possible reasons. In the next section, I will introduce how I examined these changes and its associated reasons in the present research.

The Present Research

The intent of my research was to explore how people change their personal friendship networks during a major life event—the transition to university. How do the size and the composition of people's personal friendship networks change during the transition to university? Why do people add or drop their friendships during the transition to university? Are there cultural differences in the size, the composition, the changes of personal friendship networks and the reasons for changing that occur during the transition to university? More specifically, do the size, composition, changes and reasons of Canadian and Chinese international students' personal friendship networks differ according to differences between individualist and collectivist cultures? To answer these questions, I undertook three parallel longitudinal studies, asking first year undergraduate students (Canadian and Chinese international students) to complete separate questionnaires and interviews for the studies on two or three different occasions.

Longitudinal Research

To observe how and why people change their personal friendship networks during the transition to university, I employed a longitudinal investigation technique with three research sessions (Sessions A, B and C). Most researchers (e.g., Hays, 1985; Hays & Oxley, 1986) measure participants' personal networks usually at the second or the third week after the life event begins. It would be better to measure students' pre-university personal friendship networks before their arrival and use their data as the baselines for comparing how their personal friendship networks change over time. To do so, I tried to recruit participants before they arrived at university. During the summer of 2004, I asked Carleton academic counselling staff to help me contact both Canadian and Chinese

students either before they arrived at Carleton University in September 2004, upon their arrival at Carleton but before the Fall term began. However, privacy policies at Carleton did not allow their staff to pass me any information about new students, so I had to recruit students as soon as possible after their arrival. Due to the difficulties of recruiting participants, my research began during the Orientation Week and the first week of the Fall term 2004 (Session A).

Sociologists who conduct longitudinal studies to explore the development of personal social networks when people are facing major life events usually survey at fixed time intervals (e.g., survey every two months or two years) after a major life event begins (e.g., Wellman et al., 1997). Such fixed intervals may not allow researchers to capture the changes in people's personal friendship networks arising from a major life event. Hays and Oxley (1986) have shown that the first six weeks after entering university is a critical time for students adapting to the new social environment, and is a critical time for seeking new university friendships and social support. Thus, my research selected the sixth week of arriving at university as the second time for collecting data (Session B).

In addition, I also collected data six months after students' arrival at university (Session C). This gave students enough time to develop their personal friendship networks, but six months after arriving is still considered within the phase of the transition to university.

Measuring the Network Size and the Composition

Because I wanted to examine how the size and the composition of people's personal friendship networks change over time, I needed a way to measure them. Sociologists have several ways of measuring the size and the composition of personal

social networks. For example, some sociologists believe that they can obtain all the information of the structural properties of people's personal social networks by using techniques such as "name generators" and sociograms (who knows/likes whom) or communication charts (who talks to whom) (see Campbell & Barrett, 1991). Researchers usually ask participants to name all their social relationships, hoping to capture all the memberships in people's personal social networks. To study the complex connections among networks members, researchers then ask participants to identify the relationships among all the people they report.

Even though these techniques theoretically allow researchers to obtain all the information of the structural properties of people's personal social networks, they are cumbersome and costly. Thus, few researchers adopt these techniques due to limited research funds and time. Many sociologists tend to focus on a part of people's social networks by asking participants to name a sample of their social relations (e.g., name five, ten, or twenty of their closest friends; see Campbell & Barrett, 1991). One advantage of this approach is that researchers can ask participants to identify the relations among the sample of people's social relationships within an hour, and researchers can afford to sample more than 100 participants in their research. Yet the information of a sample of people's social relationships may not reflect the size and the composition of people's personal social networks.

Due to limited time and research funds, and in keeping with the purposes of my research, I adopted another way of measuring the size and the composition of personal friendship networks over time. By using questionnaires, I asked participants to report the number of close friends and the number of casual friends living (a) in their hometown, (b)

in Ottawa, and (c) somewhere else, and then asked them to report the details of a sample of these friends: three of their close friends and three of their casual friends. By asking participants for estimates of the number of close and casual friends, I could calculate the size and the proportion of close friends in their personal friendship networks; by asking the details of a sample of their friends, I could explore the characteristics of their personal friendship networks such as social support exchanged with this friends and common conversation topics.

Exploring Why the Changes Occur

Sociologists usually use questionnaires to study changes in people's personal social networks. Questionnaires are normally used to capture information broadly but synoptically and superficially (see Smaling, 1992; Taylor & Bogdan, 1984). Seidman (1998) suggests that interviews should serve as a complementary method that could help researchers to cross-check the validity of questionnaire results and obtain a detailed picture of people's understanding. I took his suggestion.

To seek information about why people change their personal friendship networks during the transition to university, I employed the interview techniques in my research. I asked participants to report the initials of the friends added and dropped, and the reasons of adding or dropping their friends.

Observing Cultural Influences

The Canadian and Chinese samples. Previous studies about personal social networks used convenience samples (not randomly selected) including either local students (usually white students, see Hays & Oxley, 1986) or international students (see Bochner, Hutnik, & Furnham, 1985; Bochner, Lin, & McLeod, 1979; Bochner, Lin, &

McLeod, 1980; Bochner, McLeod, & Lin, 1977). To explore cultural differences in the size, the composition changes and reasons for changes of personal friendship networks that occur during the transition to university, I adopted two convenience samples of first year undergraduate students at Carleton University: Canadian students, who were born in Canada or came to Canada before age of 12, and Chinese international students, who came from Mainland China just before my research began. The Canadian students represented an individualistic culture, and the Chinese students represented a collectivistic culture.

Carleton is a university of approximately 20,000 students located in Ottawa, Ontario, the capital of Canada. At Carleton University 3,840 international students from 120 countries applied in 2002, and 1,584 students were accepted (Robinson, 2003). Students from the East Asian region including China, South Korea, Japan, and Hong Kong are the largest groups of international students, and students from China account for more than fifty percent of the international students. I selected Chinese international students as a target population because Mandarin is my first language and I could easily interview these students in our mother tongue.

The sample size. Published studies of personal social networks generally have around 200 participants. However, most of these studies only give participants a short questionnaire once. I tried to obtain information about network changes by asking participants to complete questionnaires three times and to be interviewed twice. The more information I tried to obtain from each participant, the more time I would spend to conduct the research. It was not possible to collect data more than 60 hours per week. Thus, my dissertation committee approved the modest sample size (25 Canadian students

and 25 Chinese international students) for my longitudinal studies, which is smaller than traditional one-shot survey studies, but is larger than other interview studies in the research area.

Examining Influences of Other Psychological and Sociological Factors

To examine what might predict personal friendship network characteristics and changes, I also assessed the effects of people's socioeconomic status, personality traits (e.g., shyness), and friendship attitudes through longitudinal surveys in my research.

- To explore the effect of sex on the changes of personal friendship networks over time, my research included both male and female students in the Canadian sample and the Chinese sample.
- To explore the effects of socioeconomic status on the changes of personal friendship networks over time, I asked participants to evaluate their socioeconomic status based on three categories: above middle class, middle class, and below middle class in a *Background Questionnaire* (see Appendix E).
- To explore the effect of shyness on the changes of personal friendship networks over time, I asked participants to complete a *Shyness Scale* developed by Cheek and Buss (1981) (see Appendix F).
- To explore the culture differences in friendship attitudes, I asked participants to complete a *Friendship Attitude Questionnaire* which I developed (see Appendix G).

Recruiting

During Orientation Week 2004 (a week before the Fall term began) and the first week of the Fall term at Carleton University, I circulated through campus to find new students and sent them flyers that invited first year undergraduate students to participate in my research. Flyers were also posted around campus. In addition, I went to the special activities for international students held by the Carleton International Academic Advisor to recruit participants.

During Orientation Week, I found 32 new Chinese international students who showed interest and promised to participate in my research. However, 26 of them did not show up, even though I contacted each of them three times or more. These students told me that they did not have time to participate in my research because they were preparing for an upcoming English exam that would identify their levels of English. So I recruited an additional 20 Chinese international students from those who registered in one of the three ESL courses at Carleton: ESL1300, 1500, and 1900. All 26 Chinese international students were taking credits from these ESL courses and had also registered in at least one course in their major.

I gave more than 200 flyers to new Canadian undergraduate students during Orientation Week, but few students showed interest because most of them did not know about psychological research and were busy enjoying many new activities at Carleton. About 80% Canadian students in my research were recruited from students who enrolled in *Introduction to Psychology* courses at the 2004 Fall term. I defined a Canadian student as one who had been in Canada before age 12. I included five Canadian students whose

parents emigrated from a non-Western culture; all these five students had completed grade school in Canada.

My original plan was to recruit first year Canadian undergraduate students who came from provinces other than Ontario to reduce any “old/new province” confound with Chinese international students. I successfully recruited Chinese international students who came from Mainland China, but I found only 20 Canadian students who came from provinces other than Ontario by the end of first week of the 2004 Fall term. Due to my research design, I could not spend more time looking for such out-of-province participants. So I recruited four Canadian students who came from Toronto, two from Guelph, two from Hamilton, one from London, Ontario, and one from Kingston. Though these 10 students came from within the province of Ontario, they at least were new to Ottawa, as were the other 20 Canadian and, of course, all Chinese participants.

It is preferable to have an equal number of male and female in each of the Canadian student sample and the Chinese international student sample. I was, however, at the mercy of volunteers, and fewer males volunteered than did females. Finding six or seven more male students many have postponed data collection another year. In the end, I sampled an approximately equal proportion of males and females from the two cultures. Thirty Canadian undergraduate students (eight males and 22 females) and 26 Chinese international undergraduate students (nine males and 17 females) were finally recruited.

Each participant was paid \$5 or given one experimental participation credit for completing research Session A, and \$10 or two experimental participation credits for completing each of research Sessions B and C. The maximum amount of money a

participant would receive was \$25; 80% students elected to be paid in cash rather than course credit.

Three Studies

Because my research design was time-sensitive, and because participants were so difficult to recruit, I decided to ask the ones I recruited to complete at least two research tasks during each of Sessions A, B and C – either completing different questionnaires or participating in interviews, or both. The different tasks focussed on different aspects of the development of participants' personal friendship networks. The aspects divided naturally into three themes, so I decided to call each theme a study. Study 1 explored how the size and the composition of people's personal friendship networks change during the transition to university by analyzing the estimated number of friends. Study 2 examined why people add and drop their friendships during the transition to university by doing interviews. Study 3 investigated cultural differences in friendship attitudes and interactions with friends.

Study 1

The purpose of Study I was to explore how the size and the composition of people's personal friendship networks change during the transition to university. The social network literature suggests that the size of personal friendship networks will increase during the transition to university (Prediction 1, page 15). Additionally, the social psychology literature suggests that the proportion of casual friends will increase and the proportion of close friends will decrease during the transition to university (Prediction 2, page 16). To test these two predictions, Study 1 gathered relevant questionnaire data in Sessions A, B and C.

Study 1 also explored how the size and the composition of personal friendship networks change differently among Canadian and Chinese international students during their transition to university. The social network literature suggests that Canadian students will have and make a higher proportion of new casual friends and a lower proportion of new close friends than will Chinese students (Prediction 5, page 20); it is also predicted that Canadian students will drop a higher proportion of old casual and close friends than will Chinese students (Prediction 6, page 20). Study 1 tested these predictions by including relevant questionnaire items for Canadian students and Chinese international students. Study 1 also examined the relations between the changes in the size and the composition of people's personal friendship network and respondents' sex, socioeconomic status, shyness, and friendship attitudes.

Methods

Participants

Fifty-six participants, including eight male and 22 female Canadian students, nine male and 17 female Chinese students, participated in Study 1 at Session A (between one and two weeks after students' arrival at Carleton). The mean age of the sample students was 19.7 years ($SD = 1.7$ years).

At Session B (the end of the sixth week since the Fall term 2004 started), one Canadian female student dropped due to her heavy work load (she was taking five courses and had a full time job off campus). The drop rate at Session B was thus 1.8%. All remaining 55 participants completed this second session.

At Session C (the end of the sixth month since the Fall term 2004 started), five Canadian students (four females and one male) dropped due to either sickness or heavy schoolwork. The drop rate from Session B to C was thus 9.1%. This is better than the 20% drop reported in the literatures).

Questionnaires

Three questionnaires were given to participants at Session A: a *Background Questionnaire*, a *Shyness Scale*, and a *Personal Friendship Network Questionnaire I*. The last two questionnaires were given again to participants at Session B and Session C.

The *Background Questionnaire* (see Appendix E) asked for demographic information (e.g., age, sex, race, and first language) and family income (above the middle class, middle class, and below the middle class).

Because previous research suggests that shyness may affect people's personal friendship networks, I tried to estimate the shyness of participants by using the *Shyness*

Scale (Cheek, 1983, Cheek & Buss, 1981; see Appendix F). The *Shyness Scale* includes 13 items, and all items are answered on a five-point scale (1 = strongly disagree; 5 = strongly agree). Cronbach's α for the scale has been estimated at +0.90, the average inter-item correlation +0.39, and 45-day test-retest reliability of +0.88 (Robinson, Shaver, & Wrightsman, 1991, p. 183). Here are three sample questions:

- I feel tense when I'm with people I don't know well.
- I am socially somewhat awkward.
- It is hard for me to act natural when I am meeting new people.

I constructed the *Personal Friendship Network Questionnaire I* (see Appendix H) to measure characteristics of personal friendship networks. In this questionnaire, participants are told that casual friends refer to "people whom a person has something in common with and feels comfortable sharing activities and interests", and close friends refer to "people with whom a person can show emotional closeness through communications and other activities with specific topics (e.g., personal secrets) or in a specific style (e.g., direct demands or orders)" (see page 13). Participants were asked to report the number of their close friends and casual friends who were living in their home town, in Ottawa, and in other places.

Procedure

Each participant completed the questionnaires alone in room A401 Loeb Building. On arrival, I greeted participants, explained the purpose of the research, and requested signing of the Informed Consent form (see Appendix J). Once the form was signed, I started the research session.

Chinese international students were allowed to answer questions in Mandarin to avoid problems of writing in English. On average, each participant used about 60 minutes to complete the background questionnaire, the *Shyness* scale, and the *Personal Friendship Network Questionnaire I* at Session A, and used about 30 minutes to complete the *Shyness* scale, and the *Personal Friendship Network Questionnaire I* at Sessions B and C. After completing the questionnaires, participants were debriefed, given the printed debriefing (see Appendix K), paid, thanked and excused.

Results

Changes in the Network Size

Recall that the first purpose of Study 1 was to determine if the size of personal friendship networks changes during the transition to university. The sociology literature suggests that the size of personal friendship networks will increase during the transition to university (Prediction 1, see page 15). The literature also suggests that Canadian students will have a larger network than will Chinese international students (Prediction 3, page 19). To test these predictions, I asked participants at each of the three research sessions to report the number of their close friends and the number of casual friends in three locations: hometown, Ottawa, and other places. Following traditional practices in social network research (see Wasserman & Faust, 1994), I summed these six estimates to obtain an overall measure of personal friendship network size.

Among the 50 students (seven Canadian males, 17 Canadian females, nine Chinese males, and 17 Chinese females) who completed Study 1 at all three research sessions, 44 gave numerical estimates of their close and casual friends at the three locations, but six (one Canadian male, one Canadian female, two Chinese males, and two

Chinese females) did not. Instead, these six students either wrote “many” or “a lot”. I excluded these six when analyzing the changes in the size of personal friendship networks. Among the 44 students who gave numerical estimates of their friends, two (a Canadian male and a Chinese female) gave extremely large estimates of their casual friends: one estimated 152, 192, and 193 casual friends at the three sessions, respectively, and the other one estimated 144, 164, and 171. These estimates were far greater than the averages of others (Mean = 43.9, 53.8, 58.6 at the three sessions, respectively) and were identified as statistical outliers. Statisticians suggest four ways of dealing with outliers: removing them, ignoring them, transforming them, and replacing them by estimates (e.g., means or medians) (see Howell, 2002). I decided to exclude these two outliers when analyzing the changes in the size of personal friendship networks. The mean estimated number of friends and the standard deviations of the 42 remaining students at the three research sessions are shown in Table 1.

Table 1

The mean estimated number of friends

Group	Sex	Session A		Session B		Session C	
		M	SD	M	SD	M	SD
Canadian	Male (N = 5)	36.0	21.3	52.4	38.9	57.0	37.3
	Female (N = 16)	40.9	18.5	51.5	26.0	60.1	28.4
Chinese	Male (N = 7)	50.4	25.5	58.6	27.1	61.4	32.3
	Female (N = 14)	32.0	26.0	36.6	27.8	41.6	32.0
Overall	(N = 42)	38.9	22.8	47.8	28.6	53.8	31.4

A mixed, repeated-measure analysis of variance was conducted to evaluate the effect of time, culture and sex on the average estimated sizes of students' personal

friendship networks over the three sessions as shown in Table 1. The between-subjects variables were culture and sex. The within-subjects variable was time with three levels: within one or two weeks after students' arrival at Carleton (Session A); at the end of the sixth week after the fall term 2004 began (Session B); at the end of the sixth month after the Fall term 2004 began (Session C). The dependent variable was the estimated number of friends (close friends and casual friends). Because the research included unequal sample sizes, type III sums of squares were used in conducting the analysis (see Howell, 2002).

The results of the analysis indicate a significant time effect ($F(2, 76) = 37.28, p < .001, \eta^2 = .50$). Within-subject contrasts show that the mean estimated number of friends (see the last row of Table 1) significantly increased from Session A to Session B ($F(1, 38) = 33.51, p < .001, \eta^2 = .47$) and from Session B to Session C ($F(1, 38) = 16.08, p < .001, \eta^2 = .30$). These results support Prediction 1 (page 15) that the size of personal friendship networks will increase during the transition to university.

The results of the analysis also indicate a significant interaction effect between time and culture ($F(2, 76) = 4.02, p = .029, \eta^2 = .10$). Within-subject contrasts, which used adjusted mean sizes for all groups due to unequal samples, indicate that from Session A to Session B the increase of the mean estimated number of friends of Canadian students (Adjusted Mean Difference = 13.5) is significantly larger than that of Chinese students (Adjusted Mean Difference = 6.4) ($F(1, 38) = 4.29, p = .045, \eta^2 = .10$), but from Session B to Session C the increase of the mean estimated network size of Canadian students (Adjusted Mean Difference = 6.6) is not significantly larger than that of Chinese students (Adjusted Mean Difference = 3.9) ($F(1, 38) = 1.06, p > .05, \eta^2 = .03$). These

results suggest that a cultural difference exists when students enlarge their personal friendship networks during the first six weeks of their transition to university. In particular, Canadian students expand their friendship networks faster than do Chinese international students. One possible reason is that Chinese students have a smaller pool of fellow Chinese students who could be potential friends.

Finally, the results of the analysis indicate a non-significant culture effect, a non-significant sex effect, and a non-significant culture-by-sex effect. These outcomes do not support Prediction 3 (page 21) that Canadian students will develop a larger network than will Chinese international students, and suggest that sex differences are, at most, small. I pooled the variability by re-running the mixed, repeated-measure analysis of variance to evaluate the effect of time and culture but excluding sex on the average estimated sizes of students' personal friendship networks over the three sessions as shown in Table 1. This new analysis gave the same results as before indicating a non-significant culture effect.

Changes in the Proportion of Close Friendships

The second purpose of Study 1 was to explore how the composition of personal friendship networks changes during the transition to university. The social psychology literature indicates that the proportion of close friendships will decrease during the transition to university (Prediction 2, page 16). The sociology literature suggests that Canadian students will have a lower proportion of close friends than will Chinese international students (Prediction 4, page 21). To test these predictions, I calculated the proportion of the estimated number of close friends at each of the three research sessions.

The six students who were unable to give a numerical estimate of their casual friends at all the three locations, and the two students who gave extremely large estimates

of their casual friends, were again excluded from my analyses. In addition, a Chinese male identified as an outlier was excluded due to his extremely high estimate of close friends relative to all friends (100% versus the average of 22% for all the remaining students). The mean proportion of close friends and the standard deviations at the three research sessions are shown in Table 2.

Table 2

Mean proportion of close friends in personal friendship networks

Group	Sex	Session A		Session B		Session C	
		M	SD	M	SD	M	SD
Canadian	Male (N = 5)	0.24	0.11	0.19	0.08	0.22	0.12
	Female (N = 16)	0.23	0.10	0.22	0.08	0.22	0.08
Chinese	Male (N = 6)	0.14	0.09	0.17	0.11	0.19	0.13
	Female (N = 14)	0.24	0.08	0.22	0.08	0.22	0.08
Overall	(N = 41)	0.22	0.09	0.21	0.08	0.22	0.09

Again, a mixed, repeated-measure analysis of variance was conducted, this time to evaluate how the proportion of close friends changed from Session A to C among male and female Canadian and Chinese students. The within-subject variable was time, with three levels: Session A, B, and C. The between-subject variables were culture (Canadian students and Chinese international students) and sex (male and female). As before, because the research included unequal sample sizes, type III sums of squares were used in conducting the analysis (see Howell, 2002).

The results of the analysis show no significant time effect ($F(2, 74) = 1.36, p > .05, \eta^2 = .04$), suggesting that the estimated proportion of close friends did not change consistently; indeed, as the last row of Table 2 shows, it was remarkably constant. Thus,

the results do not support the prediction that the proportion of close friendships will decrease during the transition to university (Prediction 2, page 16).

However, the results of the analysis indicate a significant three-way interaction of time, culture and sex ($F(2, 76) = 4.20, p = .027, \eta^2 = .10$). Further pairwise comparisons, which used adjusted mean sizes for all groups due to unequal samples, show only two significant contrasts: for Canadian male students, the mean proportion of close friends at Session B is significantly lower than that at Session C (Adjusted Mean Difference = 0.03, $p = .049$). For Chinese male students, the mean proportion of close friends at Session A is significantly lower than that at Session C (Adjusted Mean Difference = 0.06, $p = .027$). Though statistically significant, the differences are small and could not be explained.

The results of the analysis additionally indicate a non-significant culture effect, a non-significant sex effect, non-significant 2-way interactions among all three pairs of time, culture and sex, and a non-significant 3-way interaction of time, culture and sex. These results, therefore, do not support Prediction 4 (page 21) that Canadian students will have a lower proportion of close friends than will Chinese international students.

Other Explorations

The number of friends in different locations. To explore further how the composition of personal friendship networks changes during the transition to university, I calculated the average estimates of the number of friends in the three locations at the three research sessions: hometown, Ottawa, and other places (see Figure 2). Figure 2 does not include the six students who gave no numbers nor the two outliers.

Figure 2. The average estimated number of friends in different locations

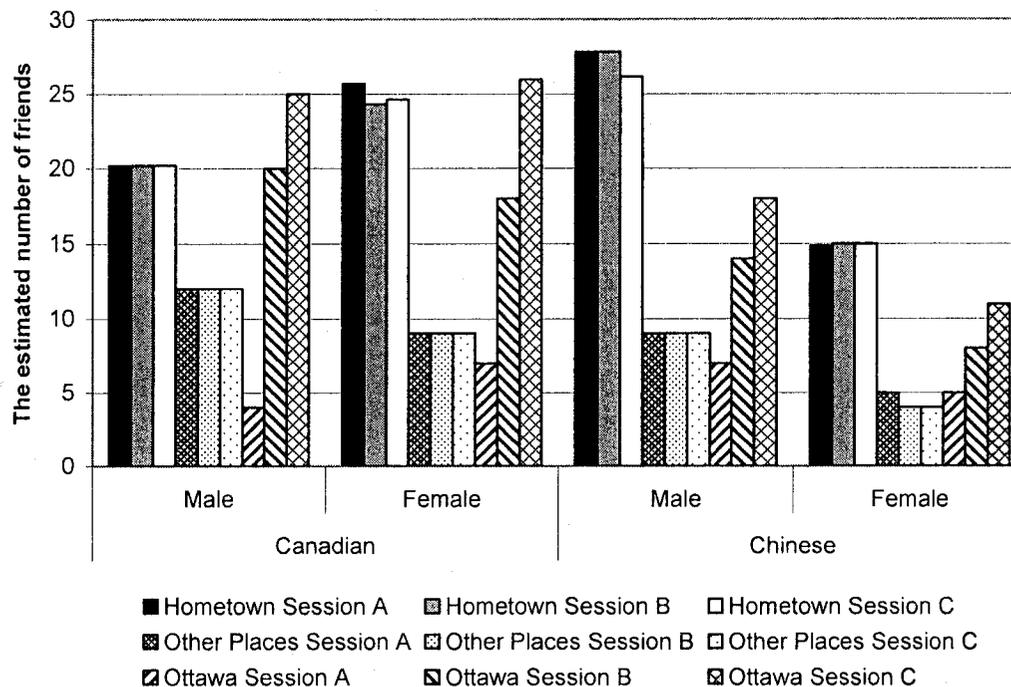


Figure 2 indicates that all growth in students' personal friendship networks occurred in Ottawa rather than in students' hometown or in other places. Two mixed, repeated-measures analysis of variance were conducted to evaluate how the estimated number of friends in students' hometown and in other places changed from Session A to Session C among male and female, Canadian and Chinese students. The results of the analyses do not show any significant effects of time, culture, sex and the two-way interactions, which are consistent with the "flat tops" of the representative bar graphs in Figure 2.

Another mixed, repeated-measure analysis of variance was conducted to evaluate how the estimated number of friends in Ottawa changed from Session A to Session C among Canadian and Chinese, male and female students. Again, the within-subject variable was time with three levels: Session A to Session C; the between-subject

variables were culture and sex. Once again, because the research included unequal sample sizes, type III sums of squares were used in conducting the analysis (see Howell, 2002).

The results of the analysis indicate a significant time effect ($F(2, 76) = 44.36, p < .001, \eta^2 = .54$). Within-subjects contrasts show that the estimated number of friends in Ottawa significantly increased from Session A ($M = 5.7, SD = 5.0$) to Session B ($M = 15.1, SD = 10.6$) ($F(1, 38) = 37.88, p < .001, \eta^2 = .50$) and from Session B to Session C ($M = 21.1, SD = 14.1$) ($F(1, 38) = 20.54, p < .001, \eta^2 = .35$). These results suggest that, on average, students continue to make new friends in Ottawa during the first six months of their transition to university. By the end of the six months, about 38% of their estimated number of friends are those made in Ottawa. The differences in the mean estimates at Sessions B and C, however, is smaller than that of at Sessions A and C, suggesting that the number of friends was approaching an asymptote.

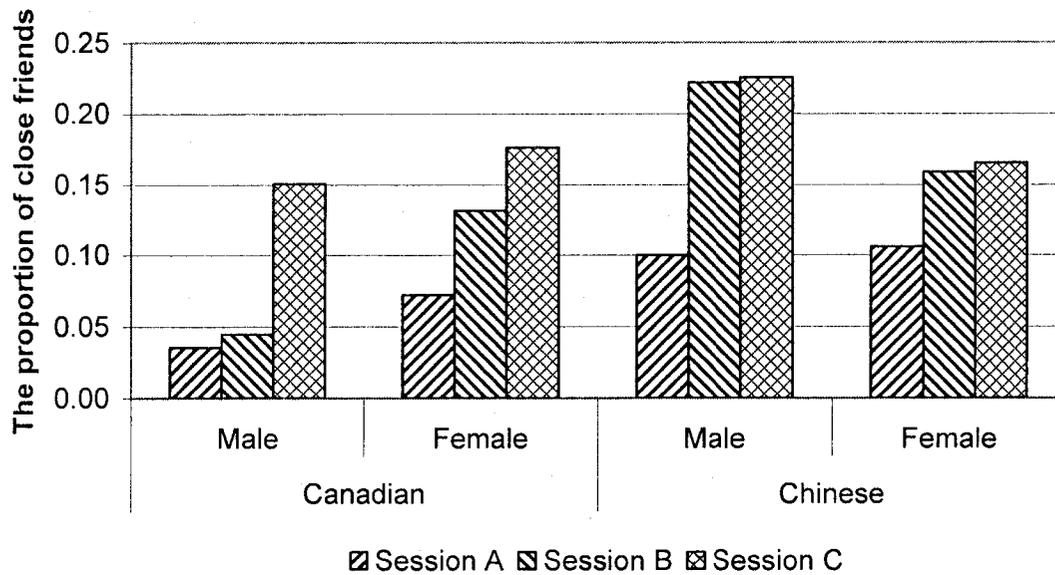
The results of the analysis also indicate a marginally significant culture effect ($F(1, 38) = 2.88, p = .098, \eta^2 = .07$), suggesting that, on average, Canadian students made more friends in Ottawa ($M = 16.9, SD = 9.7$) than did Chinese students ($M = 11.1, SD = 6.9$). The network size increase and cultural differences seen in the Ottawa results reflect the overall differences reported in the previous section because the estimates of friends in hometown and other place were constant.

In addition, the results of the analysis indicate a non-significant sex effect and a non-significant interaction effect of culture and sex, but indicate a significant two-way interaction of time and culture ($F(2, 76) = 4.19, p = .026, \eta^2 = .10$). Within-subjects contrasts show that the increase in the mean estimated number of Ottawa friends of

Canadian students from Session A ($M = 6.0$, $SD = 6.3$) to Session B ($M = 18.8$, $SD = 12.8$) is significantly larger than that of Chinese students (at Session A, $M = 5.5$, $SD = 3.5$; at Session B, $M = 11.5$, $SD = 6.3$) ($F(1, 38) = 5.04$, $p = .031$, $\eta^2 = .12$), but this cultural difference is not significant from Session B to Session C ($p > .05$). These results again suggest that a cultural difference exists in how quickly students enlarge their personal friendship networks during the first six weeks of their transition to university: Canadian students tend to accumulate friends more quickly than do Chinese students.

Whereas the previous analysis examined the changes in the estimated number of friends in different locations, now I explored how the proportion of estimated *close* friends relative to all estimated friends of students in different locations changed during the transition to university. Analyses of estimates of close and casual friends in students' hometown and in other places indicated no changes in proportions. So, I concentrated on changes in the proportion of *close* friends in Ottawa by excluding seven students (three Canadian females, one Canadian male, and three Chinese females) whose estimates of friends at Ottawa at Session A were zero (see Figure 3).

Figure 3. The proportion of close friends in Ottawa



Once more, a mixed, repeated-measure analysis of variance was conducted to evaluate how the proportion of close friends in Ottawa changed from Session A to Session C among Canadian and Chinese, male and female students. Again, the within-subject variable was time: Session A to C, and the between-subject variables were culture and sex. Because the research included unequal sample sizes, type III sums of squares were used again in conducting the analysis (see Howell, 2002).

The results of the test indicate a significant time effect ($F(2, 54) = 12.10, p < .001, \eta^2 = .31$). Within-subjects contrasts show that the proportion of close friends in Ottawa significantly increased from Session A ($M = 0.09, SD = 0.09$) to Session B ($M = 0.12, SD = 0.10$) ($F(1, 27) = 8.81, p = .006, \eta^2 = .25$) and from Session B to Session C ($M = 0.18, SD = 0.11$) ($F(1, 27) = 7.77, p = .010, \eta^2 = .22$). These results suggest that, on average, during the first six months of their transition to university students increased their estimated number of close friends faster than their estimated number of casual

friends in Ottawa because the rise in the proportion of close friends means a fall in proportion of casual friends.

Figure 3 shows that Chinese male students had higher proportion of close friends in Ottawa during the transition to university than did the other three groups. However, the results of the analysis do not indicate any significant effects of culture, sex, and the interactions among time, culture and sex. The lack of significance may be due to eliminating about 14% of students in this analysis. Again, I pooled the variability by re-running the mixed, repeated-measure analysis of variance to evaluate the effect of time and culture but excluding sex on how the proportion of close friends in Ottawa changed from Session A to Session C. This new analysis also indicated a non-significant culture effect.

Socioeconomic status. The sociology literature suggests that the size of personal social networks is related to many socioeconomic variables including family income. To explore the relationship between the estimated number of friends and students' socioeconomic status, correlation analyses using Kendall's tau (a rank order correlation analysis) were employed. The analyses still excluded the six students who were unable to give a numerical estimate of their casual friends at all the three locations.

The results of the tests (see Table 3) show non-significant correlations between the reported rank of students' socioeconomic status (three levels: high, middle, and low) and the ranks of their estimated numbers of friends among male and female Canadian and Chinese international students, but most of the correlations are positive which suggests that students with a higher rank of socioeconomic status accrue a larger friendship network than those with a lower rank of socioeconomic status.

Table 3

Kendall's tau correlations between socioeconomic status, the estimated network sizes, and the estimated proportion of close friends

Groups	Sex	<i>The estimated network sizes</i>			<i>The estimated proportion of close friends</i>		
		Session A	Session B	Session C	Session A	Session B	Session C
Canadian	Male (N = 6)	.13	-.13	-.13	-.13	-.39	-.27
	Female (N = 16)	.37	.34	.29	-.54*	-.19	-.27
Chinese	Male (N = 7)	.47	.56	.63	-.16	-.32	-.48
	Female (N = 15)	.30	.21	.21	-.21	-.30	-.30
Overall	(N = 44)	.29*	.25*	.27*	-.21*	-.20*	-.24*

Note: * means $p < .10$

The results of the tests also indicate a significant correlation between the reported rank of students' socioeconomic status and the proportion of close friends among Canadian female students at Session A. However, the correlations for all Canadian and Chinese international students are negative, indicating that a high rank of socioeconomic status associates a low proportion of close friends. This suggests that rich students collect more casual friends but fewer close friends than do less-rich students.

Shyness. The social psychology literature suggests that inhibitions associated with shyness lead to difficulties in making friends. To explore how people's shyness relates to the size and the composition of their personal friendship networks, I analyzed the relationship between students' Shyness Scale scores (which were quite constant across the three research sessions) and their estimates of the number of friends and the proportion of close friends. This time, I decided to include the two outliers (the two students who gave extremely large estimates of the number of their casual friends), but

computed rank order correlation analyses (e.g., Kendall's tau correlation) to avoid spurious results. The analyses still excluded the six students who were unable to give a numerical estimate of their casual friends at all the three locations.

The results (see Table 4) show small negative correlations between the estimates of the number of friends and their scores on the Shyness Scale in all three sessions, indicating that shyness has only a weak negative relation to personal friendship network size during the transition to university. The results of the correlation analyses for students with different cultural backgrounds and sex show that:

- the estimated network size of Canadian and Chinese males is negatively correlated with shyness;
- the estimated network size of Canadian and Chinese females is not correlated with shyness.

Table 4

Kendall's tau correlations between shyness scores, the estimated network size, and the estimated proportion of close friends

Groups	Sex	<i>The network sizes</i>			<i>The proportion of close friends</i>		
		Session A	Session B	Session C	Session A	Session B	Session C
Canadian	Male (N = 6)	-.36	-.50*	-.50*	.21	.55*	.50*
	Female (N = 16)	.03	-.10	-.11	.31*	.17	.30*
Chinese	Male (N = 7)	-.39	-.45*	-.49*	.00	.10	.25
	Female (N = 15)	-.14	-.02	-.10	-.06	-.20	.09
Overall	(N = 44)	-.12	-.13	-.14	.10	.11	.20*

Note: * means $p < .10$. Students' scores on the Shyness Scale were negatively correlated with their reported ranks of socioeconomic status among all students.

Table 4 also indicates that outgoing Canadian males and females are likely to have a higher proportion of close friends than are outgoing Chinese males and females.

Discussion

The purpose of Study I was to examine how the size and the composition of personal friendship networks change during the transition to university. The literature suggests that the friendship network size would increase (Prediction 1, page 15), but the proportion of close friendships would decrease during the transition to university (Prediction 2, page 16). The literature also suggests that Canadian students would have a larger network than would Chinese international students (Prediction 3, page 21), but would have a lower proportion of close friends than would Chinese international students (Prediction 4, page 21).

The results of Study 1 support Prediction 1 (page 15) that the estimated number of friends significantly increased during the transition to university among male and female, Canadian and Chinese students. This finding is equivalent to the previous finding (see Stark et al., 1993) of a steady growth in personal friendship networks after a long distance move.

Prediction 1 is based on the assumption that entering a new social environment or encountering a major life event will create adjustment difficulties, and that people need social support to overcome these difficulties, but this kind of social support cannot be provided by existing friendships (Morgan, 1990). People would thus make new friendships to obtain the social support they need. The results of Study 1 support Prediction 1, indicating that the assumption under Prediction 1 might be correct. To test

the correctness of the assumption more directly, I will explore why students expend their personal friendship networks during the transition to university in Study 2.

The results of Study 1 do not support Prediction 2 (page 16) that the proportion of close friendships will decrease during the transition to university, but suggest the estimated proportion of close friends remains quite constant at about 20-25% of all friends among Canadian and Chinese, male and female students. One reason for this finding is that the estimated proportion of close friends may not reflect changes of students' friendship networks during the transition to university. When I calculated the estimated proportion of close friends in Study 1, I use the estimated number of close friends and casual friends in all three locations: their hometown, Ottawa, and other places. However, further analyses showed that all changes in students' personal friendship networks occurred in Ottawa rather than in students' hometown or in other places. Thus, the estimated proportion of close friends in all three locations was not sensitive enough to the changes of students' friendships in Ottawa.

The results of the analyses by using the estimated proportion of close friends in Ottawa also do not support Prediction 2 (page 16), but suggest a faster increase in the estimated number of close friends than in the estimated number of casual friends. Three reasons may interpret this finding. First, students are not good at estimating the number of their close and casual friends in Ottawa. Previous research showed that people tend to report their strong ties more accurately than their weak ties (e.g., Freeman, Romney, & Freeman, 1987; Lin, 1999; Lin, Ensel, & Lai, 1997). If so, students might be more easily recall the addition of their close friendships than recall the addition of their casual friendships. The failings in recalling some new casual friends may lead to the appearance

of a slower increase in the estimated number of casual friends than in the estimated number of close friends in Ottawa. Second, students might maintain their new close friends, but might drop some of their new casual friends. The difference in maintaining new casual friends may lead to a slower increase in the estimated number of casual friends than in the estimated number of close friends in Ottawa. Third, Prediction 2 perhaps is wrong. Social psychologists who study friendship changes in daily life argue that people more easily make casual friends than close friends (Hays, 1988). However, in Study 1 I examined how students' friendships changed following what research indicates a stressful life event—the transition to university (see Lacina, 2002; Ramsey, Barker, & Jones, 1999). Perhaps people may develop their friendships differently during a stressful life event than during their normal daily life. I will explore the above three possible reasons in Study 2 by focusing on how many friends were added and dropped, and why students added and dropped these friends.

The results of Study 1 do not support Prediction 3 (page 21) and Prediction 4 (page 21), but instead suggest there is no cultural difference in the network size and the composition of personal friendship networks among Canadian and Chinese international students. These findings contradict previous research (e.g., Adams & Plaut, 2003), which showed that people from Western cultures had a larger friendship network and a lower proportion of close friends than did people from Eastern cultures. Three reasons may interpret these contradictory findings. First, the estimated network size and the estimated proportion of close friends in all three locations, again, may not reflect changes in the students' friendship networks during the transition to university. Further analyses of the estimated number of friends in Ottawa and the estimated proportion of close friends in

Ottawa showed that Canadian students reported making significantly more friends in Ottawa than did Chinese students, and on average Chinese students reported making a non-significantly higher proportion of close friends in Ottawa than did Canadian students. These results support Prediction 3 and weakly support Prediction 4. Because students were asked to estimate the number of their close and casual friends in Ottawa in Study 1, these results should be reconfirmed in Study 2 by focusing on how many new close and casual friends were added during the transition to university.

Another reason for finding no significant cultural difference in the estimated proportion of close friends is that Canadian and Chinese students may have different definitions of close friendship. Thus, the estimated number of close friends may not reflect a cultural difference in the composition of personal friendship networks but only a semantic difference. I will explore this possibility in Study 3.

It is also possible, of course, that there really is no cultural difference. Since China opened to the world in 1978, Chinese have had opportunities to learn Western cultures and have been considerably influenced by Western cultures. Many young Chinese greatly appreciate Western cultures and want to study or live in Western countries. As a result, these young Chinese may no longer represent the cultural values of previous generations, values that now define the concept of collectivist culture. The Chinese students in my research are likely from this group of young Chinese, and they might not show large culture differences compared with Canadian students when they came to Canadian universities. This possible reason will be tested in Study 3 by analyzing their values and attitudes towards to friendship.

My analyses of the relationship between students' socioeconomic status and their estimated network sizes show non-significant but suggestive correlations across culture and sex. This finding supports previous research (e.g., Jeayeol, n.d.), which showed that rich people report larger networks than do poor people. Perhaps, this can be explained by conjecturing that rich people are more socially skilled or confident than are poor people, or that rich people are more attractive than are poor people. This can also be interpreted by the possibility that poor students might spend more time to work or make money than do rich students, and spend less time making friends than do rich students.

The results of Study 1 also showed negative correlations between socioeconomic status and the estimated proportion of close friends across culture and sex, indicating that rich students reported a lower proportion of close friends than did poor students. This may be interpreted by the possibility that rich people may disclose less to their new close friends than do poor people, and thus lose more opportunities to form strong emotional bonds.

Study 1 showed that estimated network size is negatively correlated with shyness among Canadian and Chinese male students but not among Canadian and Chinese female students, and that outgoing Canadian males and females are likely to have a higher proportion of close friends than outgoing Chinese males and females. These findings partly support previous research (Rubin, Chen, McDougall, Bowker, & Mckinnon, 1995; Yasuhiko, 2003), which showed that shy people have difficulties in making friendships, but also suggest that the relation between shyness and personal friendship network size differs across culture and sex.

Such cultural and sex differences in the relation between shyness and network size might reflect differences in the social expectations of sex roles and cultural differences in the social expectations of shyness. In Chinese culture, males are expected to be socially active, and females are expected to be socially inactive; males are expected to initiate friendships, and females are expected to accept friendships. Thus, a shy Chinese male is supposed to have a smaller friendship network than does a shy Chinese female. In addition, shyness is positively evaluated in Chinese culture and is considered an indication of accomplishment, mastery, and maturity (Chen, Rubin, & Li, 1995). Shyness, as a positive personal trait in China, will attract others to initiate friendship. However, social expectations of sex roles and shyness in Canada are different from Chinese culture. I am not sure how to interpret the results in Canadian culture.

The findings of Study 1 led me to ask many more questions. Which friendships will be added or dropped? Why do people change these friendships? How do Canadian students and Chinese international students might change their personal friendship networks differently? I tried to answer these questions in Study 2.

Study 2

The first purpose of Study 2 was to examine the number and the nature of new friends made by Canadian and Chinese students during the transition to university. In the literature, researchers usually examine people's estimated number of friends or examine a sample of them by asking participants to list up to five or ten close friends (see Campbell & Barrett, 1991). The present study focussed on the new friends made and the new and old friends dropped by asking students to report the initials of each new friend added and each friend, old and new, dropped. This method of enumerating new friends served as a check on the validity of students' numerical estimates of friends made in Ottawa – the estimates made in Study 1. The method also revealed how many old casual friends or new casual friends became new close friends during the transition to university.

Another purpose of Study 2 was to explore differences in how many new friends were made by Canadian and Chinese students during the transition to university. Recall that the literature suggests Canadian students will make a lower proportion of new close friends than will Chinese international students (Prediction 3, page 21) and will drop a higher proportion of old casual and close friends than will Chinese international students (Prediction 4, page 21). To test these predictions, I employed a longitudinal technique to collect the information on how many close friends and casual friends that people added and dropped during the transition to university.

The third purpose of Study 2 was to explore why people add and drop their friends during the transition to university. The social psychology literature and the sociology literature suggest complementary reasons for people adding and dropping friends. Social psychologists propose that people befriend those who share similar

attitudes and values, but sociologists claim that people befriend those who come into repeated contact, perhaps by being in the same social environment or by knowing mutual friends (page 19). Social psychologists suggest that friendships may end because of conflicting attitudes or reductions in common topics of conversation or experiences, but sociologists declare that friendships may end due to practical difficulties of maintaining them (page 20). In addition, social psychologists propose that people make new friends to socialize, but sociologists argue that people's needs for assistance in overcoming their major life events will prompt them to make new friends (page 20). By employing a longitudinal interview technique in Study 2, I explored how frequently each of these reasons was mentioned when initializing and dissolving friendships by male and female, Canadian and Chinese students.

Methods

Participants

Fifty-five participants who participated Study 1 were asked to participate in Study 2, Session B (the end of the sixth week since the Fall term 2004 started) and Session C (the end of the sixth month since the Fall term 2004 started). Fifty participants, including seven male and 17 female Canadians, and nine male and 17 female Chinese students, completed both Sessions B and C of Study 2. Five female Canadian students dropped due to sickness at Session C (they also did not complete Studies 1 and 3), giving a drop rate of 9.1%.

Questions

The interviews (see Appendix I) were semi-structured and gathered information about three themes:

- Addition of new friendships. Questions concerned the number of new friends, how and why they were made (e.g., “How many new friends have you met since coming to Carleton?”, “Who are they (their initials)?”, “Why did you select them as your friends?”, “What have you done to develop these friendships?”);
- Change in students’ existing friendships. Questions concerned what had changed in their friendships (e.g., “Have your friendships with these people changed since you came to Carleton?”, “If yes, how have they changed? Why?”);
- Adjustment difficulties and students’ personal friendship networks. Questions concerned students’ adjustment difficulties and how they overcame these difficulties (e.g., “What have been the three greatest difficulties of adapting to life at Carleton University?”, “Have you asked for help in overcoming these difficulties? If so, whom have you asked?”).

Procedure

I sent the interview questions to participants one week before the interviews, and interviewed each participant separately in room A401 Loeb Building. On arrival, I greeted participants, explained the purpose of the interview, and requested signing of the *Informed Consent Form* (see Appendix J). Everyone signed. Then, I started the interviews.

All the interview questions that were asked at the Session B were repeated with minor changes in wording at the Session C (e.g., I changed the words “since you arrived at Carleton University” to “since the previous interview”). Each interview took between

50 and 150 minutes, and was tape-recorded. I interviewed Chinese students in Mandarin because Chinese international students have more difficulties in their oral English than in their writing and reading ("*Chinese Students' Immersion*," n. d.). During the interviews, I took notes on participants' answers. At the end of the interview, I showed each participant my notes about their answers and asked for their confirmation. When each interview was completed, I debriefed the participant, paid him or her \$10 in cash or gave two psychological experiment credits for being interviewed once, gave the printed debriefing (see Appendix K), then thanked and excused him or her.

I prepared an interview summary sheet immediately after each interview. Each summary sheet included useful quotations from each of the interview questions under the three themes.

Results

Comparison of the Two Measurements of New Friends

In Study 2 I asked students to list the initials of their new close and new casual friends. This included existing friends that had changed their status (e.g., if a close friend, new or old, at Session B became a casual friend at Session C, the initial of the friend was reported as a new casual friend at Session C). I then counted the number of the initials listed. I used the number of the reported initials as the indicator of the changes in the size of their personal friendship networks. In the literature, some researchers (e.g., Starker et al., 1993) explore the changes in the personal social network size by examining the difference between two estimates of personal social network sizes. However, Morgan and his colleagues (1996) argues that differences between the numerical estimates of the size of a personal social network reflect the development of a personal social network as well

as the instability and the unreliability of the network. To explore the difference between the above two measures, numerical estimates and listings, I compared the number of reported initials of new friends in Study 2 and the differences among students' estimated numbers of friends in Ottawa as reported in the three sessions of Study 1.

To compare the two measurements of how many new friends students made during the transition to university in Studies 1 and 2, I first correlated the count of all new friends whose initials were listed in Session B of Study 2 with the estimated number of all friends in Ottawa reported in Session B of Study 1, and correlated the count of initials of all new friends in Sessions B and C of Study 2 with the estimated number of all friends in Ottawa reported in Session C of Study 1. The Pearson correlations were quite high and statistically significant ($r = 0.71, p < .001, N = 39$, and $r = 0.74, p < .001, N = 39$, respectively).

I also correlated the count of new close friends whose initials were listed in Session B of Study 2 with the estimated number of close friends in Ottawa reported in Session B of Study 1, and correlated the count of new close friends in Sessions B and C of Study 2 with the estimated number of close friends in Ottawa reported in Session C of Study 1. The Pearson's correlations were also high and statistically significant ($r = 0.74, p < .001, N = 40$, and $r = 0.67, p < .001, N = 39$, respectively).

Finally, I correlated the count of new casual friends whose initials were listed in Session B of Study 2 with their estimated number of casual friends in Ottawa reported in Session B of Study 1, and correlated the count of new casual friends in Sessions B and C of Study 2 with their estimated number of casual friends in Ottawa reported in Session C

of Study 1. Once more, the Pearson correlations were statistically significant, though not as high ($r = 0.53, p < .001, N = 40$, and $r = 0.41, p < .001, N = 39$, respectively).

The results of the above correlation analyses on the two measurements of the number of new friends suggest that, the numerical estimates of friends in Ottawa as reported in Study 1 roughly parallels the number of new friends that students report making. I am thus more confident to use the estimated number of friends in students' hometown and in other places that they reported at Session A in Study 1 as an indicator of students' personal friendship networks before their arrival at university.

By asking students to report the initials of their new friends, close and casual, in Study 2, I obtained not only the number of new friends but also an opportunity to get additional information about each of the reported new friends. For example, in Study 2 I also asked students to report the initials of new close friends reported at Session B and Session C who were their old, pre-university casual friends, and to report the initials of their new close friends reported at Session C who were their new casual friends at Session B. Additionally, in Study 2 I asked students to report the initials of their old close friends who also came to Carleton, and to report the initials of their old casual friends who also came to Carleton and were still casual friends in Session C. Then, I counted the numbers of these initials. The results show that, among all Canadian and Chinese students,

- The average numbers of new close friends reported at Sessions B and C who were old, pre-university casual friends and who also came to Carleton are 0 and 0.1 respectively, and no significant culture, sex, and culture-by-sex effects were found;

- The average number of new close friends reported at Session C who were new casual friends reported at Session B is 1.8 ($SD = 1.4$; which accounts 76% of new close friends), and no significant culture, sex, and culture-by-sex effects were found;
- The average of the number of old close friends who also came to Carleton is 0 (only one Canadian female and one Canadian male reported they had a close friend also come to Carleton);
- The average of the number of old casual friends who also came to Carleton is 0.3, and no significant culture, sex, and culture-by-sex effects were found.

These results illustrate that the listing of new friends of Study 2 provides us opportunities to know the nature of new friends students made during the transition to university. In the following section, I present additional information about the changes of students' personal friendship networks during the transition to university by employing the measurement of new friends of Study 2.

Addition of New Friends

The proportion of new close friends. Sociological studies suggest that Canadian students will make a lower proportion of new close friends than will Chinese international students (Prediction 3, page 21). To test this prediction, I calculated the proportions of new close friends to all new friends whose initials were listed at Session B and Session C.

Table 5 shows the mean proportion of reported new close friends and the mean reported number of new friends after excluding the following seven students:

- Three students (a Canadian female, a Chinese male, and a Chinese female) who reported no new friends at Session C;
- A Canadian female student was identified as an outlier because of her extremely high proportions of new close friends in Sessions B and C (1.00 versus the average proportions of the remaining 39 students of 0.12 and 0.30 in Sessions B and C, respectively);
- Another three students (a Canadian female and two Canadian males) were identified as outliers because of their extremely low proportions of new close friends in Sessions B and C (less than 0.01) versus the average proportions of the remaining 39 students 0.12 and 0.30 in Sessions B and C, respectively).

Table 5

Mean proportions of new close friends and mean numbers of reported new friends

Group	Sex	% Close		# Close		# Casual	
		Session B	Session C	Session B	Session C	Session B	Session C
Canadian	Male (N = 5)	0.13	0.38	1.4	3.0	9.4	5.4
	Female (N = 14)	0.16	0.21	2.7	1.5	10.9	8.1
Chinese	Male (N = 8)	0.23	0.31	2.4	1.8	8.5	3.5
	Female (N = 16)	0.07	0.33	1.2	1.9	7.7	4.3
Overall	(N = 43)	0.14	0.29	1.9	1.9	9.1	5.6

A mixed, repeated-measure analysis of variance was conducted on how the proportion of new close friends changed from Session B to Session C among male and female, Canadian and Chinese students. The within-subject variable was time with two levels: Session B and C. The between-subject variables were culture and sex. The

dependent variable was the proportion of reported new close friends to all reported new friends. Because the research included unequal sample sizes, type III sums of squares were used again in conducting the analysis (see Howell, 2002).

The results of the analysis indicate a significant time effect ($F(1, 39) = 9.59, p = .004, \eta^2 = .20$), suggesting that the proportion of reported new close friends increased from Session B to Session C (see Table 5 for the means). These results are parallel with the findings of Study 1 that the proportion of close friends in Ottawa significantly increased from Session B to Session C, suggesting that students reported a faster rate of increase in making new close friends than the increase in making new casual friends between the sixth week to the sixth month of their transition to university. This is confirmed by the following statistical tests on the changes of the number of new close friends and of the number of new casual friends.

In addition, the results of the analysis of the changes of the proportion of new close friends indicate no significant culture effect, no significant sex effect, and no significant two-way and three-way interactions. I also re-ran the mixed, repeated-measure analysis of variance on how the proportion of new close friends changed from Session B to Session C among Canadian and Chinese students but excluding the factor of sex. This new analysis, again, indicated a non-significant culture effect. The above results do not support Prediction 3 (page 21) that Canadian students will make a lower proportion of new close friends than will Chinese international students, but suggest that, regardless cultural and sex differences, students included higher proportion of close friends in their friendship networks at the end of the sixth month after their arrival at university than they did at the end of six weeks after their arrival at university.

The number of new friends. To explore culture and sex differences in how the composition of students' new friends changed during the transition to university, I conducted two mixed, repeated-measure ANOVAs using between-subject variables of culture and sex and the within-subject variable of time on the following two dependent variables. I first checked how the number of reported new *close friends* changed from Sessions B to C. The results of the test show no significant culture effect, sex effect, time effect, and two-way or three-way interaction. I re-ran these analyses, excluding the factor of sex. The results were the same as the results which included the factor of sex.

I also tested how the number of reported new *casual friends* changed from Session B to Session C. The results of the test show no significant culture effect or sex effect, and no significant two-way or three-way interactions, but indicate a significant time effect ($F(1, 39) = 16.74, p < .001, \eta^2 = .30$). Students' listings of initials indicate that they made more new casual friends within the first six weeks after their arrival than they did between the sixth week and the sixth month of their arrival (see Table 5 for the means). The results also indicate that the addition of new casual friends is likely to reach an asymptote, perhaps limited by time needed to maintain existing friendships, as predicted by *Attentional Economic Theory* (Thorngate, 1988).

The proportion of friends before and after the transition to university. I also compared the proportion of all new *close friends* listed in the sixth month after students' arrival at university with the estimated proportion of close friends before their arrival at university. To compute the proportion of all new close friends in the sixth month after students entered university, I divided the number of all reported new close friends at Sessions B and C by the total number of reported new close and new casual friends at

both Session B and Session C (it was counted only once when a new casual friend became a new close friend or a new close friend became a casual friend during the transition to university). To calculate the estimated proportion of close friends before students entered university, I divided the estimated number of close friends in students' hometown and in other places (rather than in Ottawa, see Study 1) at Session A by the estimated number of all friends in students' hometown and in other places at Session A. The first two columns of Table 6 show the means of these two indicators after excluding

- The six students who could not give estimates of the number of their friends at Study 1 (see page 36-37);
- The three students who reported an extremely low proportion of new close friends (see page 62), and the one Canadian female student who reported an extremely high proportion of new close friends (see page 62) at Study 2.

Table 6

Mean proportions of close friends

Group	Sex	Pre-university	All New
Canadian	Male (N = 4)	0.30	0.24
	Female (N = 14)	0.27	0.19
Chinese	Male (N = 7)	0.23	0.29
	Female (N = 15)	0.25	0.19
Overall	(N = 43)	0.24	0.21

A repeated-measure analysis of variance was conducted on these two proportions of close friends with culture and sex as between-subjects variables. The results of the analysis do not indicate any significant differences, suggesting that there is no evidence to conclude that Canadian and Chinese, male and female students make different

proportions of close friends before their entering university and during the first six months of their transition to university. A correlation analysis was conducted on the proportion of close friends before and after students' arrival at university. The results of the correlation analysis show a significant positive correlation between the two proportions, $r = 0.36$, $p = .023$, $N = 40$, indicating that the estimated proportion of close friends before students entering university increases, so does the proportion of all new *close friends* reported six months after students' entering university. In addition, the relatively constant 21-24% (see the last row of Table 6) may indicate that there is a natural limit on the proportion of close friends we have.

Other explorations. To explore how people's shyness and socioeconomic status are related to the number of reported new close and casual friends and the composition of their new friends, I correlated students' Shyness Scale scores (which were quite constant across the three research sessions), the reported rank of their socioeconomic status, the number of reported new close friends, and the number of reported new casual friends at each of the two sessions. Also, I correlated students' Shyness Scale scores with the proportion of reported new close friends at each of the two sessions. This time, I excluded only the four students who had incalculable proportions of new close friends due to reporting no new friends at Session C and the three students who reported an extremely low proportion of new close friends (see page 62), and I computed rank order correlations again to avoid spurious results.

The results show no significant correlation between students' Shyness Scale scores and any of the indicators of their reported new friends, and no significant correlation between the reported rank of students' socioeconomic status and the

indicators of their reported new friends. Further analyses did not show any statistically significant correlations among male and female, Canadian and Chinese students. These results suggest that shyness and socioeconomic status are not good predictors of the number of new friends or the proportion of close friends that students make during the transition to university.

Patterns of reported new friends. As previously noted, the social psychology literature suggests that people make friends because of an emotional need to socialize, and the sociology literature indicates that people make friends for instrumental purposes, particularly to assist their adjustment to major life events (page 20). In addition, the social psychology literature suggests that people befriend those who share attitudinal similarities, but the sociology literature argues that people befriend those who are most often available, perhaps by being in the same social environment or being introduced by a mutual friend (page 19).

To test these proposals, I first examined students' motivations for making new friends by asking them at both Sessions B and C to report why they wanted to make new friends. I conducted a content analysis on the answers of 24 Canadian students, and another on the answers of 26 Chinese students. All 24 Canadian students met others in university and befriended those who shared similarities. For example, a male Canadian student reported, "Now I have a great opportunity to make new friends at university. When I meet others, I may befriend people who share many similarities." None of the 24 Canadian students reported that they made friends to assist them adjusting to university during the transition to university. The same theme was also common among Chinese

students; all 26 Chinese students met other Chinese students in university and befriended those who shared similarities.

In addition, all 26 Chinese students reported that they wanted to make Canadian friends. They reported that they wanted help from Canadian students for overcoming their cultural and language difficulties. For example, a Chinese female student said, “I want to befriend Canadian students so that I can practice my English”. Another Chinese male student said, “Canadian friends can help me to know Canada and to understand Canadian culture”. These results instantiate the sociological notion that Chinese students’ needs to overcome cultural and language adjustment difficulties motivated Chinese students to make particular friends, and the psychological idea that, because of an emotional need to socialize, students made friends who share similarities..

Because Chinese international students reported their motivations for making Canadian friends, I would expect that all Chinese students would report having new Canadian friends in their friendship networks during the transition to university. To test my expectation, I categorized the reported cultural backgrounds of students’ new friends into four groups: (1) students who were not in ESL classes and were Canadians; (2) students who were not in ESL classes and were not Canadians; (3) students who were in ESL classes and were Chinese international students; (4) students who were in ESL classes and were not Chinese international students.

I counted the students who reported having new friends in the above four categories of people within the six months of the transition to university. Each student can report having new friends in more than one category. For example, a Canadian male student reported having a non-Chinese friend who was in ESL classes and three Canadian

friends at Session B. The frequency of students who reported having new friends in the above four categories was shown in Table 7. For example, six Canadian male students reported having at least one new Canadian friend; three Canadian male students reported having at least one new non-Canadian friend who was not in ESL classes; one Canadian male student reported having at least one non-Chinese friend who was in ESL classes. The last two columns of Table 7 show the overall frequency of students who reported having new friends in at least one of the four categories. For example, overall seven Canadian male students reported having new friends in at least one of the four categories.

Table 7

Frequency of students who reported having new friends in different categories

Group	Sex	Non-ESL Students				ESL Students				Overall	
		Canadian		Others		Chinese		Others		Cl	Ca
		Close	Casual	Cl	Ca	Cl	Ca	Cl	Ca		
Canadian	Male (N = 7)	6	7	3	3	1	0	0	0	7	7
	Female (N = 17)	14	16	8	11	1	4	0	1	15	16
Chinese	Male (N = 9)	1	2	0	1	9	9	2	4	9	9
	Female (N = 17)	0	1	0	0	13	17	2	6	13	17

Table 7 demonstrates that only one male Chinese international student reported having at least a new Canadian close friend. He reported that he made a close friend with his Canadian landlord (21 of the 26 Chinese students reported that they had Canadian landlords). Three of the 26 Chinese international students reported having Canadian new casual friends. One of these three Chinese students reported that he made Canadian casual friends in the residency on campus (four of the 26 Chinese students reported living on campus). Two more Chinese students reported making Canadian casual friends in

small, non-ESL classes (five of the 26 Chinese students reported having small, non-ESL classes). These results indicate that few Chinese students befriended Canadians, despite their desire to do so.

To explore why only a few Chinese students reported having Canadian friends during the transition to university, I asked all Chinese students to report their difficulties in making Canadian friends. All the 26 students reported at least one of the following four reasons.

- (1) Language problems and cultural differences. As some said, “[I have] language problems when I communicate to Canadian students”, “It is difficult to communicate with Canadians due to different cultural backgrounds”, and “I do not want to communicate with people other than Chinese, because they cannot understand my problem. For example, they did not understand why I do not want to have a girlfriend. I feel shy when communicating with girls, but they thought I had some sexual problems (homosexual problems or sexual difficulties).”
- (2) Opportunities. Three of the 26 Chinese students reported no opportunities to meet Canadians. A Chinese female student said, “I want to make local [Canadian] friends, but I do not have opportunities to contact Canadian students personally.”
- (3) Stereotypes. Two of the 26 Chinese students reported that they believed Canadian students had stereotypes of making friends with international students. One reported, “Canadian students are not willing to communicate

with international students”. The other student said, “I heard that some Canadians do not like international students who are really rich.”

- (4) Interactions. One of the 26 Chinese students reported not liking interactions with Canadian students. He said, “I feel strange to speak to Canadian students on campus”, “When I met Canadians, I did not like to talk to them and to make friends with them”.

These findings indicate that language problems and cultural differences are by far the most common reasons for Chinese international students making friends with Canadians.

All the 24 Canadian students reported that they did not have any preferences in making new friends with students who are from other countries. Five of them reported having new casual friendships with Chinese international students, and two of these five students also reported having new close friendships with Chinese international students. Two of the five Canadian students are Chinese-Canadians and came to Canada when they were five years old. These two students reported that they made casual friends with Chinese international students when they met Chinese international students at a cafeteria on campus, and one of these two students reported making a new close friend with these Chinese international students following repeated interactions. The other three Canadian students reported that they made casual friends with Chinese international students in their small classes and in the residence on campus, and one of these three students reported having a close friendship with a Chinese classmate.

The remaining 19 Canadian students reported not making friends with students who were in ESL classes and came from other countries. These 19 students were asked to explain why. Three reasons were given. Seventeen of these 19 Canadian students

reported that “it just did not happen”. For example, one female student said, “I met some international students, but we did not become friends”. One of the 19 students reported that international students isolated themselves from the majority, “on my [residence] floor there was a Chinese international female student, but she never attended our activities and never talked to us”. One additional student said, “I would not get into international students, because they would not stay here for a long time. I do not like to make a friend who will leave you soon”. No Canadian students cited language barriers or interactions.

Table 7 also shows that two of the 26 and 10 of the 26 Chinese international students respectively reported having new close and new casual friends with students who came from countries other than Canada and were in ESL classes. All these students reported that the new friends were their classmates and/or their roommates, and a common reason for making these new friends: to practice English. For example, a Chinese male student said, “My ESL class has 21 students, but 17 of them are Chinese international students. The remaining four students came from South Korea, Japan, and Iran. I chose an in-class discussion group that included two of these non-Chinese international students. It is better to talk to other international students rather than Chinese international students because I could force myself to practice my English with them. After a while, these two non-Chinese international students became my casual friends”.

Eight of the 24 and 12 of the 24 Canadian students respectively reported having new close and new casual friends who came from other countries and were not in ESL classes. These Canadian students did not report specific reasons for making these new

friends. For example, a Canadian male student said, “It was just happened. I met him in my class. After we talked, I knew his family came from Greece. We became friends”.

Table 7 shows that every Chinese international student reported making new friends with other Chinese international students, and every Canadian student reported making new friends with other Canadian students. All 50 Canadian and Chinese students reported a similar reason for making new friends at both Sessions B and C that “I make friends because old friends are not here” and “I need to socialize”. For example a Canadian female student said, “I have great opportunities to make new friends at university. However, if my [old] friends were here, I would not make other friends”, and “it is so convenient to make new friends at university. I get to know people in my classes, and then we talked, had lunch together, and attended discussion groups together. We became friends”. A Chinese female student reported, “I do not have many friends in here, so that I have to make new friends”, and “I have more options to make friends with different backgrounds, even though there are many Chinese here”. These results demonstrate the social psychological principle that making friends reflects students’ need of socializing, and sociological idea that university provides students opportunities to socialize (see page 20).

To explore how students make their particular patterns of new friends during the transition to university, I also asked students to report the ways they made their new friends during the transition to university. All 50 students, male and female, Canadian and Chinese, reported a similar way of making new friends during the transition to university: they met new people and then befriended some of them, most often those with shared attitudes or circumstances. For example, a Canadian female student reported

making new close friendships with four others who lived in the same floor and shared many common problems such as financial problems and homesickness. A Canadian male student reported he made one new close friend in his class; he first spoke to the person during the class and found out that they shared the same interests. Afterwards, they helped each other with schoolwork and computer software, and they became friends. A Chinese female student made seven casual friends and two close friends in her ESL classes. She said, “my small ESL class provides me opportunities to talk to other students and to know each other.” Another Chinese female student reported that she made a new casual friend, “when I used a microwave for lunch. Because we are both Chinese, we started to talk and exchange our phone numbers. After some phone calls, we became friends.” These results suggest an ordered progression of making new friends during the transition to university: meeting others provides opportunities to exchange information, and then sharing similarities lead two people become friends.

How do students meet others? By excluding the three students who reported extremely low proportions of new close friends, the remaining 47 students (five male Canadian, 16 female Canadian, nine male Chinese, and 17 female Chinese) in Study 2 were asked to report how they first met each reported new friend. Seven themes emerged:

1. Living together or nearby (e.g., roommate, floormate, housemate);
2. Attending the same class (classmate);
3. Attending the same social activities (e.g., parties, swimming team, clubs);
4. Through mutual friends (e.g., “we met at one of my friends’ place”);

5. With old casual friends or acquaintances (e.g., “He is my old casual friend, and he came to Carleton too”, “I knew him in high school but we never had conversations”);
6. By chance (e.g., “I met him at a bus stop”);
7. Through relatives (e.g., “She is the daughter of one of my mom’s colleagues, and we became friends”).

The proportions of reported new close and new casual friends met in the above seven ways are shown in Table 8. A second person independently evaluated a sub-sample of 10 students’ reports; the intra-coder agreement was 94% of all coding decisions. Table 8 shows, for example, that Canadian male students reported only two ways of making their new casual friends (see the fourth column): 50 out of 58 new casual friends were made by meeting them in classroom, the remaining eight new casual friends were made by living together or nearby.

Table 8

Proportions of the reported ways of making new friends

Ways	Canadian				Chinese				Overall			
	Close		Casual		Close		Casual		Canadian		Chinese	
	M	F	M	F	M	F	M	F	M	F	M	F
1	3	35	8	113	5	6	2	9	11	148	7	15
2	14	10	50	113	37	22	79	97	64	123	116	119
3	0	5	0	41	0	0	0	0	0	46	0	0
4	0	1	0	20	0	13	18	88	0	21	18	101
5	2	12	0	0	0	8	0	4	2	12	0	12
6	0	0	0	0	0	0	0	4	0	0	0	4
7	1	0	0	0	0	0	0	0	1	0	0	0
Total	20	63	58	287	42	49	99	202	78	350	141	251

Table 8 shows that Canadian students reported making new friends with people who were in the same class (44%), who lived together or nearby (37%), and who

attended the same social activities (11%); Chinese students also reported making new friends with their classmates (60%). Additionally, they reported making new friends with their friends' friends (30%). These results suggest that Canadian students made new friends in somewhat more diverse ways than did Chinese students. These results likely reflect language barriers that limit Chinese students to make friends mainly with other Chinese students who are their classmates or their friends' friends.

I also explored the proportion of the same-sex-new-friendships among male and female, Canadian and Chinese students. The proportion of the same-sex-new-friendships was 70%. No statistically significant sex or cultural differences were found.

Deletion of Friends

The number of friends dropped. As noted in the Introduction, I predicted that Canadian students would drop a higher proportion of old casual and close friends than would Chinese international students (Prediction 6, page 21). To test this prediction, I asked students at Session B to report the initials of their close and casual friends they had dropped after their arrival at university; at Session C, I asked students to report the initials of the close and casual friends they had dropped since Session B.

Among 50 students, 18 students (three Canadian male, six Canadian female, two Chinese male, and seven Chinese female) reported dropping 1-3 friends (mode = 1 friend). I explored which friends, old and new, were dropped by male and female, Canadian and Chinese students. Among the nine Canadian students, two female students reported dropping one new casual friend; one female student reported dropping two old close friends, two old casual friends, and a new casual friend; the remaining six Canadian students reported dropping 1-3 old close or casual friends. Among the nine Chinese

students, two (one male and one female) reported dropping one new close friend, and the remaining seven reported dropping 1-2 new casual friends.

Because students can drop friends who may be their new or old, casual or close friends, I could not conduct inferential analyses due to the violation of the assumption of independence. However, the data suggest two interesting trends in students' dropping friends during the transition to university: (1) Canadian students reported dropping more old, pre-university friends than new, university friends; (2) Chinese students reported dropping more new, university friends than pre-university friends. These trends of dropping friends seem to reflect cultural differences in friendship attitudes which I report and discuss in Study 3.

To explore how shyness and socioeconomic status relate to the number of friends dropped, I correlated the number close friends dropped and the number casual friends dropped, with shyness score and the reported rank of socioeconomic status. The results showed only non-significant and weak relations. Thus, the results suggest that shyness and socioeconomic status are not good predictors of the number of friends that students drop during the transition to university.

I also calculated the ratio of the number of close friends dropped to the number of all reported new friends at Sessions B and C respectively, and the ratio of the number of casual friends dropped to the number of all reported new friends at each of the two sessions. Again, repeated-measures analyses of variance were conducted on these two ratios over the two sessions among male and female, Canadian and Chinese students, respectively. The results did not show any significant effects of culture, sex, time, and their interactions.

Reasons for dropping friends. Recall that the social psychology literature suggests that friendships end because of conflicting attitudes or disliking, and the sociology literature indicates that friendships end due to difficulties in maintaining them (page 20). To test these ideas, I asked students to report their reasons for dropping each friend.

Four kinds of reasons emerged from their answers: (1) conflict between friends (e.g., “I dropped this friendship because we had a conflict recently and we could not resolve the conflict”); (2) disliking (e.g., “I realized that he had what I dislike rather than what I like. I decided to drop this friendship”); (3) moving away (e.g., “Because this friend moved away, we stopped our friendship”); (4) losing contact (e.g., “I lost my friend’s phone number and had no way to contact this friend”). The number of friends dropped for these reasons is listed in Table 9.

Table 9

Number of friends dropped for different reasons

Reason	Canadian				Chinese				Total
	Close		Casual		Close		Casual		
	M	F	M	F	M	F	M	F	
Conflict	1	0	0	0	0	2	0	0	3
Disliking	1	1	0	1	1	1	0	4	9
Moving away	1	7	0	2	0	0	0	0	10
Losing contact	0	1	0	3	0	0	1	6	11
Total	3	9	0	6	1	3	1	10	33

Because the numbers in Table 11 are too small, inferential analyses are not reliable. However, Table 11 reveals three interesting trends in reasons for dropping friends during the transition to university: (1) “conflict” is by far the least common reason for students dropping friends; (2) “moving away” is the most common reason for

Canadian students dropping friends, but is not a reason for Chinese students dropping friends; (3) “losing contact” and “disliking” are the most common reasons for Chinese students dropping their friends.

Maintaining old friends. Recall that only 18 of the 50 students reported dropping friends during the transition to university; 32 indicated they kept all friends, including their old ones. How did these students maintain their old friendships? I asked students to report how they maintained their pre-university friends during the transition to university. Because the preliminary analyses did not show sex differences and differences in the two sessions, the results were reported for Canadian students and Chinese students collapsed across sex and session.

Among the 50 students who completed Study 2, 11 of the 24 Canadian students and 21 of the 26 students reported having fewer communications with their pre-university *close* friends after entering university than before entering university. One Canadian female student reported no communication with her old close friends, “I don’t have email addresses of my old friends who went to London”. Two students (one Canadian female and one Chinese female) reported more frequent communication with their old close friends than before. These two students reported that, by using online chat, they talked to their close friends more often after entering university than before entering university. The remaining reported no change in their communications with their close friends.

Similar to the above results for close friends, 12 of the 24 Canadian students and 12 of the 26 Chinese students reported having no communications with their pre-university *casual* friends. Ten of the 24 Canadian students and 13 of the 26 Chinese students reported having less communications with their pre-university casual friends

after entering university than before entering university. Only two Canadian female and one Chinese female student reported no change in their communications with their pre-university casual friends.

The above results clearly indicate that most students from both cultures spent less time maintaining old friendships, both close and casual, than they did before attending university. About 50% students reported having less communications with their old close friends after entering university than before entering university, and 94% students reported either having no communication or less communication with their old casual friends after entering university than before. The results are consistent with Thorngate's hypothesis (1988) that, because time is a limited resource, time spent on new activities will displace time spent on old activities including time spent on maintaining old friendships.

Would decreased communication with their pre-university friends lead students to drop them? I asked students about the possibility that they would drop some of these pre-university friends. Forty-four percent said yes, it is possible; 56% said no (see Table 10). The results suggest that about half the participants believe friendships, once formed, need little or no communication to be maintained. Chi-square tests were conducted on the frequencies of whether students would drop these pre-university friends among male and female, Canadian and Chinese students. The results of the tests were not statistically significant.

Table 10

Number of students reporting whether they would drop pre-university friendships

Group	Sex	Possible	Impossible
Canadian	Male (N = 7)	4	3
	Female (N = 17)	8	9
Chinese	Male (N = 9)	4	5
	Female (N = 17)	6	11
Overall (N = 50)		22	28

Note: 50 students completed Study 2 at Sessions B and C.

Among the 12 Canadian students who reported that they would not drop pre-university friends, 10 of them indicated that they would meet their old friends in hometown and their friendships would not change (e.g., “we would see each other when I went back to my hometown”), and two said “I still talk to my old friends, and my friendships did not change”. Among 16 Chinese students who reported that they would not drop pre-university friends, 12 of them reported that they believed their old friendships would never change because they would meet in China (e.g., “my friendships never change. When I go back to China, our friendships will be the same as before”). Four of them believed that their old friendships would not change because they still bonded their friends emotionally (e.g., “I miss my old friends, and our friendships won’t change”).

Among 12 Canadian students who reported that they would drop their pre-university friends, all of them indicated that they would lose their casual friends and might lose some of their close friends. Nine of the 12 Canadian students also reported logistic difficulties of meeting friends (e.g., “I might lose my friends because it was not convenient to talk to them and we did not know each other’s life”); the remaining three

reported that “friends come and go” (e.g., “I have many new friends in here, and it is hard to maintain old friends”). Among the 10 Chinese students who reported that they would drop pre-university friends, seven of them reported logistic difficulties of meeting friends (e.g., “it is very difficult to contact my casual friends because calls are expensive, and my friends were not online when I was available”); one said, “I do not want to contact my casual friends any more”; the remaining one reported, “I do not have enough time to maintain old friendship. I spent my time with my new friends in here. My old friends are busy now. They understand that our friendship will change”. The above findings suggest that a cultural difference does not exist in why people keep or drop their pre-university friends.

Other explorations such as correlation analyses of the number and the ratio of close and casual friends dropped, shyness and socioeconomic status show only weak and non-significant relations. These results indicate that the number and the ratio of close and casual friends dropped cannot be predicted from students’ shyness scores or from their reported socioeconomic status.

Adjustment Difficulties and Personal Friendship Networks

To examine the sociological idea that people’s current needs for overcoming their current major life events will lead them to change their friendships (see page 20), I asked students to report their current adjustment difficulties during the transition to university and whether or not they sought help from their friends when they faced these difficulties.

Among 55 students who completed Session B, 24 of the 29 Canadian students (five males and 19 females), and 24 of the 26 Chinese students (eight males and 16

females) reported adjustment difficulties. The remaining students reported that “I did not have any particular difficulties during the transition to university.”

The 50 students who completed Study 2 at Session C repeated their difficulties but reported that their difficulties became less severe than before. In order to obtain some sense of the content, I read and classified all the adjustment difficulties students reported during the transition to university. Five categories emerged, each with subcategories:

1. Homesickness

- a. For parents (e.g., “I really missed my Dad”);
- b. For hometown (e.g., “I had homesickness. I really missed the water of my home town and my dog”);
- c. For old friends (e.g., “I wish my friends could see me. I missed them”);

2. Social difficulties

- a. Social relations (e.g., “I did not get along with my roommate very well”);
- b. Loneliness (e.g., “I feel lonely”);

3. Personal life difficulties

- a. Personal problems (e.g., “I broke up with my boyfriend”);
- b. Financial problems (e.g., “I have to make money to pay my tuition fee and support myself because my parents could not afford my studying at university”);
- c. Health problems (e.g., “I got flu and stayed in bed for a week”);
- d. Living independently (e.g., “I should do everything myself and make all decisions on my own”)

4. Study

- a. Schoolwork (e.g., “There was so much reading, but I do not like reading.”);
 - b. Time management (e.g., “I made new friends and spent lots of time with them, but I did not do my work. I am so behind”);
5. Cultural difficulties
- a. Language (e.g., “It is difficult to communication with Canadian students because language difficulty in listening and speaking”, “I had difficulties in my history course because I could not understand what professor said in the class”)
 - b. Knowledge of Canadian culture, Canadian university and Ottawa (e.g., “I had little knowledge about teaching styles of Canadian professors”)

The frequency of each type of adjustment difficulties reported by male and female, Canadian and Chinese students showed in Table 11. A second person independently evaluated a sub-sample of 10 students’ reports; the intra-coder agreement was 93% of all coding decisions.

Table 11

Frequency of reported adjustment difficulties at Session B

Theme	Sub-Themes	Canadian		Chinese	
		Male	Female	Male	Female
Homesickness	Parents	1	2	0	3
	Hometown	0	2	0	0
	Friends	1	4	1	0
	<i>Sub-total</i>	2	8	1	3
Social Difficulties	Social relations	2	6	2	2
	Loneliness	1	0	2	3
	<i>Sub-total</i>	3	6	4	5
Personal Life Difficulties	Personal	0	1	0	0
	Financial	1	1	0	0
	Health	1	1	2	1
	Living independently	0	0	0	5
	<i>Sub-total</i>	2	3	2	6
Study	Schoolwork	4	2	1	2
	Time management	1	5	0	0
	<i>Sub-total</i>	5	7	1	2
Cultural Difficulties	Language	0	0	7	10
	Knowledge of Canadian university	0	0	0	3
	<i>Sub-total</i>	0	0	7	13
Overall		12	24	15	27

Again, because the numbers in the cells of Table 11 are too small, inferential analyses are not reliable. However, Table 11 suggests three interesting trends: (1) many more Canadian students than Chinese students reported adjustment difficulties in study and homesickness; (2) many more female students than male students reported homesickness; (3) not surprisingly, Chinese students reported more adjustment difficulties in language and culture than did Canadian students.

The number of students who sought help for reported adjustment difficulties at Session B was shown in Table 12. Chi-square tests were conducted, and none were statistically significant.

Table 12

Number of students who reported adjustment difficulties seeking help at Session B

Group	Sex	Difficulties	Sought help	Did not seek help
Canadian	Male (N = 8)	5	2	3
	Female (N = 21)	19	6	13
Chinese	Male (N = 9)	9	3	6
	Female (N = 17)	16	9	7
Overall (N = 55)		49	20	29

The 20 students who reported seeking help from others were asked to report whom they asked for. Four resources of help were reported by students: pre-university friends, new friends, family members, and university student services.

Ten students (two Canadian males, three Chinese males, five Chinese females) reported asking help from their new friends. Among the eight Chinese students, four (one male and three females) reported that they asked for help from their Chinese new friends when they missed their parents or felt lonely. For example, a Chinese female student said, "I could not sleep in the first two weeks because of homesickness. I made some friends with other Chinese international students. After talking with them, I became not that homesick." Two of the eight Chinese students (one male and one female) reported that they asked for help from new Chinese friends when they were sick; one Chinese female reported that she asked help from her Chinese new friends when she had problems with her landlord; one Chinese male reported that he asked "a Chinese friend who had already

passed all ESL courses about how to study English. He gave me some suggestions and his suggestions worked. He also helped me to edit my writing.” However, among the 12 of the 25 Chinese students who reported adjustment difficulties and did not ask for support, eight of them reported that they could not find new friends (e.g., “I want to ask for help, but I cannot find friends here. Therefore, I have to work by my own”), and four of them reported that their friends are helpless (e.g., “I did not ask for help from friends because my friends are not good at English as well”). Among the two Canadian male students who reported asking help from their new friends, one talked to his new Canadian friends about his “bad” roommate because his old friends “could not understand his problem with the bad roommate”. The other one discussed his problem of managing time with his Canadian roommate.

No students reported asking help only from their old friends, but three students (two Canadian female and one Chinese female) reported that they asked help from their old and new friends. For example, one Canadian female said that she told her problems to her old friends, but “old friends cannot understand, but is still helpful emotionally”, and then she told her problems to her new friends.

Three Canadian female students and one Chinese female student reported asking for help from their family members. Three of these four students (two Canadian females and one Chinese female) reported that they called their parents when they missed them. The remaining Canadian female student reported that she asked help from her sister who was in university to “give me advice about how to get along with my roommate”.

One Canadian female reported seeking help from both her family members and her friends. She said, “When I miss my old friends and my parents, I called them. When I had schoolwork problems, I talked to my new friends”.

Only two Chinese female students reported seeking help from university student services. One sought help from her TAs for her assignments. The other Chinese female student said, “I went to see the undergraduate advisor, my professor, and TA when I was considering dropping a course. I also went to the student success center to seek help.”

All these results suggest that adjustment difficulties during the transition to university are more likely to lead students to ask help from their new friends than from their old friends. Others, such as family and students’ services at university, are not the primary resource for students. The results are consistent with the sociological hypothesis that people’s current needs for overcoming their current major life events will lead them to change their friendships.

Discussion

The purpose of Study 2 was to explore how and why male and female, Canadian and Chinese students add and drop friends during the transition to university. I predicted that Canadian students would make a lower proportion of new close friends than would Chinese international students (Prediction 5, page 21), and would drop a higher proportion of old casual and close friends than would Chinese international students (Prediction 6, page 21). The social psychology and sociology literatures suggest complementary reasons for adding and dropping friends: people may befriend those who share similarities, physical space or mutual friends (page 19); people may seek friends to meet their needs for socializing or for overcoming their major life events (page 20);

people may end their friendships because of conflicts or disliking, or due to difficulties in friendship maintenance (page 20).

The results of Study 2 do not support the first of these predictions (5, page 21), but suggest that, on average, male and female, Canadian and Chinese students make a similar proportion of new close friends during the transition to university. Prediction 5 is based on previous research (e.g., Baumgarte, et al., 1983) showing that people from Western cultures (e.g., people from the U.S.) *have* more casual friends but fewer close friends than people from Eastern cultures (e.g., people from Hong Kong). These findings may not imply that people from Western cultures will *make* a lower proportion of new close friends in any one short period. Perhaps the inconsistency of results reflects cultural differences. Previous research (e.g., Baumgarte, et al., 1983) either surveyed Hong Kong Chinese or Koreans to represent collectivist cultures in their studies. Hong Kong and South Korea are quite different from China, and this difference may account for the different results. The difference in my results and previous results may also reflect situational differences. Previous research did not examine the kinds of friendships formed under stressful life conditions; my research did. Further research is needed to determine how cultural and situation differences influence friendship formation.

The frequencies of dropping friends were too small to test Prediction 6 (page 21) formally, but visual inspection of the trends of the small samples suggests a cultural difference: Canadian students tended to drop their old close friends, but Chinese students tended to drop their new casual friends. These findings imply that Chinese students keep their close friends longer than do Canadian students, supporting the observation that people from Western cultures have friendships of shorter duration do people from Eastern

cultures (e.g., Luo, 2000). However, this observation cannot explain why Chinese students drop new, casual friends. Chinese students dropping new casual friends can be interpreted by the difficulties of maintaining new casual friendship—losing contact with their new casual friends. This is supported by Chinese students' reports on why they dropped friends. Chinese students dropping new casual friends may also be interpreted by their attitudes towards friends—Chinese tend to be cautious to their friendships. I examined this in Study 3.

The results of Study 2 indicate that Canadian and especially Chinese students tend to make new friends within their own ethnic group. The result supports the hypothesis that people befriend those who share similarities (see Hallinan & Williams, 1989; Turner, 1985; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). In addition, the results support the hypothesis that people befriend those who they frequently meet, perhaps by being in the same social environment or by introduction through mutual friends (see Clark & Pataki, 1995). The results also indicate a cultural difference: Chinese students are more likely to make friends with their friends' friends and with their classmates than are Canadian students. This is likely because Chinese international students met their classmates very frequently in their ESL classes and other shared social situations and had language difficulties when meeting Canadian students.

The results of Study 2 also show that both Canadian and Chinese students were more likely to ask for help from their new friends than from their old friends or from other people or institutional offices when they experienced adjustment difficulties. Students frequently reported that they could not solve their adjustment difficulties by asking old friends for help. Chinese students, in particular, wanted to make friends with

Canadian students for English language help. This finding supports the sociological idea that people's particular needs of overcoming their major life events lead people to seek particular friends (page 20). However, the results of Study 2 also showed that only a few Chinese students reported having Canadian friends, primarily because of language difficulties.

In addition, the results of Study 2 support the social psychological idea that people make friends to socialize (page 20). Both Canadian and Chinese international students reported that they made friends with people from various cultural backgrounds.

Sociologists suggest that friendships, specifically casual friendships, may end due to logistic difficulties of meeting friends (see Jackson, Fischer, & Jones, 1977; Rose & Serafica, 1986). So it was surprising to discover that only a few students reported dropping old friends, close and casual, even though they had few, if any, contacts with them. Keeping close friends despite minimal interaction suggests that that close friendships can survive long periods of inattention. So too, it seems, can many casual friendships, suggesting that many close and many casual friendships either lower expectations of maintenance or increase tolerance of inattention. This finding goes beyond the previous explanations of the stability of personal social networks (Morgan, Neal, & Carder, 1996). According to the network stability assumption (Morgan, et al., 1996), stable friendships are those that are repeatedly reported. However, the finding of Study 2 suggests another dimension of describing personal social networks: active friendships and inactive friendships. According to *Attentional Economic Theory* (Thorngate, 1988), people cannot accumulate friendships forever during the life course due to limited attention. Yet, if people inactivate some of their old friends, they gain time

for making and maintaining new friendships. This could explain why 60% students did not report dropping their old friends despite few contacts.

Study 3

Studies 1 and 2 addressed questions of cultural and sex differences in the development of personal friendship networks among Canadian and Chinese international students. The similarities and differences I found led me to ask why these similarities and differences exist. Study 2 shows that Chinese international students make new friends mainly with their ELS classmates, and Canadian students make new friends mainly with their classmates. These findings suggest that the social situation or environment (e.g., classes) strongly influences the development of personal friendship networks among Canadian and Chinese international students. Yet other influences are also likely to exist, including attitudes, values and interaction styles. To what extent do the cultural similarities and differences in the development of personal friendship networks reflect cultural similarities and differences in values and attitudes about friendship and friends? To what extent do they reflect cultural similarities and differences in the nature of students' interactions with their friends? I conducted Study 3 to answer these questions.

Because no previous research has addressed these questions, Study 3 continued in the exploratory tradition of the two previous studies. I had no specific hypotheses to test in Study 3. Instead, I tried to derive some hypotheses by careful analyses of answers participants gave to a set of questions about friendship attitudes, values and interaction patterns. I asked the same students in Study 1 and 2 to complete a questionnaire about friendship attitudes and to complete a questionnaire about their interactions with up to three close friends and up to three casual friends. Their answers formed the basis of my analyses.

Methods

Participants

The 55 students who participated in Study 1 were also asked to participate in Study 3 during Sessions A, B and C. Fifty of these students, seven male and 17 female Canadians, nine male and 17 female Chinese, completed Study 3. Five female Canadian students dropped due to sickness at Session C (they also did not complete Study 1 and 2), a drop rate of 9.1%.

Procedure

After finishing the tasks of Study 1 and 2, all students were asked to complete a *Friendship Attitude Questionnaire* during Sessions A, B and C because people's attitudes may change during major life events (Lonner, 1995). The *Friendship Attitude Questionnaire* was designed to measure students' values and attitudes about friendship and friends. It was pre-tested and revised using a sample of 12 Canadian students and eight Chinese international students who were at the end of their first academic year. The revised *Friendship Attitude Questionnaire* (see Appendix G) includes nine Likert-scale items (1 = strongly disagree; 5 = strongly agree) and five open-ended questions.

Examples of the Likert-scale items include:

- The more friends I have, the better life I will have.
- I don't mind offering help to my friends whenever they need it.

Examples of the open-ended questions are:

- What are the three most important characteristics of a *close friend*
- What do you expect from your *close friend* that you do not expect from other friends?

All students were also asked to complete the *Personal Friendship Networks Questionnaire II* (see Appendix H) in all the three sessions, in which I asked students to report the initials of up to three of their close friends and the initials of up to three casual friends. I then asked for details of each of these friends with 16 standard questions such as “What are the three most frequent topics of conversation with this friend?” and “What are the three most frequent activities with this friend?” (see Appendix H)

Results and Discussion

Attitudes toward Friendship

Likert-scale items. As noted, I asked students to complete nine attitude items about friendship on a five-point Likert-scale during Sessions A, B, and C. Only two students (one Canadian male student and one Chinese female student) changed their answers by one point for one of the nine items. A principal components analysis was conducted on the averages of students’ answers at three sessions, and the results indicated two interpretable factors, *friendship importance* loading high on 4 items (item #1, #2, #5, and #9 in Appendix G; e.g., “Friendships are important, “Friends are useful”) and *friendship circumspection* loading high on item #4 (“Friendship can only be evaluated in the long run”). Four attitude items (item #3, #6, #7, and #8) were thrown out due to double loading or with a loading value less than .3 (see Field, 2005). The friendship importance factor accounted for 22.8% of the item variance, and the friendship circumspection attitude factor accounted for 22.1% of the item variance. The reliability coefficient, Alpha, 0.58, suggests that the scale scores are reasonably reliable.

A multivariate analysis of variance was conducted to evaluate the effects of culture and sex on students’ average *friendship importance* loading scores and on

students' average *friendship circumsppection* score. Two Chinese students (one male and one female) had extremely large negative *friendship importance* scores (-3.5 and -2.0), which were far below the average scores of 0.1. These two scores, as outliers, were excluded in the analysis. Because the research included unequal sample sizes, type III sums of squares were used in conducting the analyses (see Howell, 2002).

The results of the analysis indicate a non-significant sex effect and a non-significant culture-by-sex interaction, but indicate a marginally significant culture effect, Wilks's $\Lambda = .88$, $F(2, 43) = 9.41$, $p = .063$, $\eta^2 = .12$. Univariate analyses showed that Canadian students had a marginally significant higher mean *friendship importance* score ($M = 0.3$, $SD = 0.5$) than did Chinese students ($M = -0.1$, $SD = 0.6$) ($F(1, 47) = 3.71$, $p = .060$, $\eta^2 = .08$), but had a marginally significant lower mean *friendship circumsppection* score ($M = -0.2$, $SD = 1.0$) than did Chinese students ($M = 0.4$, $SD = 0.9$) ($F(1, 47) = 3.77$, $p = .059$, $\eta^2 = .08$). These results suggest that cultural differences exist in students' friendship attitudes: on average, male and female Chinese students were more likely to place less importance on friendship and to take more time to make new friends—two indications of caution towards friendship—than did male and female Canadian students. These findings can explain why Canadian students made friends quicker than did Chinese students (Study 1): Canadian students' ratings indicate that they have more need for friends and require less time to evaluate their new friends than do Chinese students. These findings can also explain why Chinese students were more likely to drop their new friends than were Canadian students (Study 2): Chinese students' ratings indicate they are more cautious than Canadians in selecting new friends and more inclined to drop a new friend if they find that the friend is not suitable.

Open-end questions. To explore further cultural and sex differences in students' beliefs about friendship, I also asked students in the *Friendship Attitude Questionnaire* to report the three most important characteristics of a close friend. Among all 50 students, four students (one female Canadian, two male Chinese and one female Chinese) reported two important characteristics, and the remaining students reported three. All 50 students reported the same answer in all the three sessions, indicating that their friendship attitudes were quite stable.

I coded the words students reported in the following seven categories: (1) *trust and loyalty* (e.g., trust, trustworthy, loyalty, reliability), (2) *honesty* (e.g., honest, frank), (3) *personal characteristics* (e.g., friendly, easy going, open), (4) *similarity* (e.g., common language, same interests, similar personality), (5) *support* (e.g., support each other, help each other), (6) *disclosure* (e.g., sharing secrets, feelings, difficulties), and (7) *fun* (e.g., makes me laugh, humour). The number of students who mentioned each of the seven categories is shown in Table 13. For example, four out of seven male Canadians reported a word about “*trust and loyalty*”, and 15 out of 17 female Canadians reported a word about “*trust and loyalty*”. A second person independently evaluated a sub-sample of 50 words students reported, and the intra-coder agreement was 87% of all coding decisions.

Table 13

Frequency of people who reported each of the seven characteristics of close friends

Category	Canadian		Chinese	
	Male (N = 7)	Female (N = 17)	Male (N = 9)	Female (N = 17)
Trust & Loyalty	4	15	2	7
Honest	4	8	5	8
Personal Characteristics	7	22	11	21
Similarity	2	1	1	6
Support	1	0	3	2
Disclosure	0	2	1	4
Fun	3	2	2	2

There is no simple statistical procedure to test these frequencies because the words students reported could be in more than one category. However, I used *Fisher's Exact Test* to examine the frequencies in each of the seven categories, no significant culture effect or sex effect was found, except that more Canadian students ($((4 + 15) / 24 = 79\%)$) reported "*trust and loyalty*" than did Chinese students ($((2 + 7) / 26 = 35\%)$) ($p = .001$, *Fisher's Exact test*). This significant difference suggests that Canadian students place greater importance on *trust and loyalty* than do Chinese students when evaluating their friendships. This finding is related to the result from the Likert-scale items in the *Friendship Attitude Questionnaire* that Chinese students are more cautious to their friends than are Canadian students: one's cautiousness towards friends may decrease the amount of trust and loyalty that the person expects from their friends.

I also asked students to report what they would expect from their close friends and from casual friends (labelled as "*From*" in Table 14) and what their close friends and

their casual friends would expect from them labelled as “Of” in Table 14). All the reported words and sentences were summarized into four categories: *social support* (e.g., “support and understand me when I am not in a good mood”, “to be there whenever I need help”), *disclosure* (e.g., “share feeling and secrets”, “tell each other’s secrets and something in each other’s heart”), *companionship and fun* (e.g., “hang around or chat”, “having a good time together”), and *others* (e.g., “recognize me”, “I am not sure”). The number of students who mentioned each of the four categories is shown in Table 14. A second person independently evaluated a sub-sample of 20 students’ reports, and the intra-coder agreement was 90% of all coding decisions.

Table 14

Frequency of people who reported each of the four expectations

Category	Canadian				Overall	Chinese				Overall
	Male (N = 7)		Female (N = 17)			Male (N = 9)		Female (N = 17)		
	From	Of	From	Of		From	Of	From	Of	
Close friends										
Social Support	6	6	15	14	85%	8	8	15	14	87%
Disclosure	0	0	0	2	4%	0	0	2	2	8%
Companionship	1	1	2	1	11%	1	0	0	0	2%
Others	0	0	0	0	0%	0	1	0	1	3%
Casual friends										
Social Support	1	1	2	2	13%	5	4	9	9	52%
Disclosure	0	0	0	0	0%	0	0	0	0	0%
Companionship	5	5	14	14	79%	3	3	6	5	33%
Others	1	1	1	1	8%	1	2	2	3	15%

Table 14 shows that 85% of male and female Canadian students $((6 + 6 + 15 + 14) / (7 + 7 + 17 + 17))$ were likely to report that they would expect *social support* from

their close friends and that their close friends would expect *social support* from them; most male and female Canadian students (79%) reported that they would expect *companionship* from their casual friends and that their casual friends would expect *companionship* from them. These findings demonstrate the idea of social exchange theory (Kelley, 1979; Kelley & Thibaut, 1978). However, even though most male and female Chinese students (87%) were likely to report expecting *social support* with their close friends, half of them (52%) also reported expecting *social support* with their casual friends. Only 33% of Chinese students reported expecting *companionship* with their casual friends

To explore cultural differences in reporting different expectations, I used *Fisher's Exact Test* to examine the average frequency of reporting *social support* with close friends, reporting *social support* with casual friends, and *companionship* with casual friends among Canadian and Chinese students, respectively. The results show a non-significant difference on reporting *social support* with close friends among Canadian and Chinese students, but show a significant difference on reporting *social support* with casual friends ($p = .006$, *Fisher's Exact test*) and *companionship* with casual friends ($p = .001$, *Fisher's Exact test*) among Canadian and Chinese students, respectively. These results suggest that both Canadian and Chinese students expect social support from their close friends, but Chinese students expect more *social support* and less *companionship* from their casual friends than do Canadian students. These findings illustrate the concept of *guanxi*, a critical concept for understanding interpersonal relationships in Chinese culture. *Guanxi* is a means of reciprocity or connectedness in a relationship (Chang & Holt, 1991); once *guanxi* is established between two people, regardless of close versus

casual friendship, each can ask for social support (Yang, 1994). These findings of cultural differences in students' expectations with their casual friends help to understand the results of Study 2 that Chinese students had difficulties making Canadian new friends: Chinese students may show more expectations of social support than expectations of companionship from the Canadian students they meet, but Canadian students usually expect more companionship than social support from the Chinese students they meet; these different expectations may block the development of cross-cultural friendships.

Interactions with Friends

To explore cultural differences in students' interactions with their friends, I asked students at each of the three sessions to write the initials of up to three close and three casual friends, and to report details of their interactions with each of these six friends. Forty-nine of the 50 students reported initials of three close friends and initials of three casual friends at each session; a Chinese female student reported only one close friend at all the three sessions, one old casual friend at Sessions A and B, and one new casual friend at Session C. Seven out of 51 casual friends reported by Canadian female students at Session A were listed as close friends at Session B or Session C. In addition, all friends reported by Canadian students were Canadians, and all friends reported by Chinese students were Chinese.

Friendship consistency. I counted the total number of close and casual friends listed by each student. For example, if a student reported initials of the same three close friends in Sessions A, B, and C, then I counted the number of reported close friends as 3; if a student reported three casual friends at Session A, one new casual friend at Session B, three new casual friends at Session C, I counted the number of reported casual friends as

$3 + 1 + 3 = 7$. After I counted the number of reported close and casual friends, I divided the number by nine (which is the maximum number of reported close or casual friends at all three sessions) and called the result as an indicator of friendship consistency. A low ratio means that a student consistently reported his or her friends at all the three sessions.

In order to determine cultural and sex differences in friendship consistency for close and casual friends, I conducted a mixed, repeated-measure analysis of variance on the average friendship consistency ratio among male and female, Canadian and Chinese students. The within-subject variable was friendship with two levels: close friends and casual friends; the between-subject variables were culture and sex. Once again, because the research included unequal sample sizes, type III sums of squares were used in conducting the analysis (see Howell, 2002).

The results of the analysis indicate only a significant friendship effect ($F(1, 26) = 15.85, p < .001, \eta^2 = .26$), suggesting that friendship consistency for casual friends reporting ($M = 0.4$) is significantly lower than that for close friends ($M = 0.6$). No significant culture, sex, or sex-by-culture effects were found. These results indicate that male and female, Canadian and Chinese students switch their close friends less frequently than they switch their casual friends, suggesting a cultural universal about friendship: close friendships are more durable and consistent than are casual friendships. These findings complement the results of Study 2 that only a small number of students reported dropping one or two close friends.

After reporting initials of their friends, students answered 15 questions about each. The questions included age, gender, first language, occupation, the three most

common conversation topics, and so on (see Appendix H). Analyses conducted on students' answers to the 15 questions yielded the following two important findings.

Social exchange. Students were asked to list up to three kinds of help they received from their reported friends and three kinds of help they provided to the reported friends. The 50 students reported 1,965 help descriptions (Canadian students, 962; Chinese, 1003) from their reported six friends across all three sessions. The most frequent help included schoolwork support, companionship, emotional support, listening to secrets, advice, and financial aid. All students reported similar proportions of each kind of help given and help received. Because no sex difference was found, Table 15 lists the percent of each kind of help students received from their close and casual friends. For example, among the social exchanges reported by seven male Canadians, 14% are about schoolwork, and 28% are about companionship. A second person independently evaluated a sub-sample of 20 students' reports, and the intra-coder agreement was 91% of all coding decisions.

Table 15

Percentage of common social exchanges with close and casual friends (six categories)

Help	Canadian		Chinese	
	Close	Casual	Close	Casual
Schoolwork Support	14	16	19	28
Companionship	28	43	15	32
Emotional Support	31	23	32	22
Listening to Secrets	19	13	27	8
Advice	4	5	2	3
Financial Help	4	1	5	7

The six categories of help can be divided into three subsets: social support (including schoolwork support, emotional support, advice, and financial help), disclosure (e.g., listening to secrets), and companionship. Table 16 shows the percentage of common social exchanges with close and casual friends based on these three subsets of social exchange.

Table 16

Percentage of common social exchanges with close and casual friends (three subsets)

Help	Canadian (Total = 962)		Chinese (Total = 1003)	
	Close (513)	Casual (449)	Close (526)	Casual (477)
Social Support	53% (272)	44% (198)	58% (305)	60% (286)
Disclosure	19% (97)	13% (58)	27% (142)	8% (38)
Companionship	28% (144)	43% (193)	15% (79)	32% (153)

Again, there is no straightforward inferential statistical procedure to test these frequencies because students reported more than one kind of social exchange. However, Table 16 shows the same trends as the results of *Friendship Attitude Questionnaire* (see Table 14). Canadians not only expect but also engage in more companionship with casual friends than do Chinese, while Chinese not only expect but engage in more social support with casual friends than do Canadians.

Common topics. Participants were asked to report the three most common topics of conversation with their three reported close friends and their three reported casual

friends. I conducted a content analysis of the reported topics. The topics could be summarized by eight categories based on their dominant theme:

- (1) *schoolwork* (e.g., homework, taking notes, how to prepare exams),
- (2) *personal matter* (e.g., boyfriends or girlfriends, family members, personal secrets, history, feelings, and difficulties),
- (3) *other friends* (e.g., other people or friends),
- (4) *daily life* (e.g., what they have done recently, daily activities),
- (5) *leisure activities* (e.g., movies, games, TV shows, pets, sports),
- (6) *politics* (e.g., political issues, religious views),
- (7) *life in Canada* (e.g., feeling of life in Canada), and
- (8) *others*.

A second person independently evaluated a sub-sample of 20 students' reports, and the intra-coder agreement was 84% of all coding decisions. Among the 2,253 reported conversation topics, *schoolwork* (26%), *daily life* (22%), and *leisure activities* (15%) were the three most frequent conversation topics with close friends and with casual friends reported by male and female, Canadian and Chinese students. All frequency differences between Chinese and Canadian students were negligible. These results suggest that the common topics between friends are universal. The results also indicate that, beside cultural differences, there are cultural similarities at dyadic level of people's personal social networks.

Summary and Conclusions

The purpose of my research was to explore how and why people change their personal friendship networks during the transition to university, and the cultural and sex differences in changing personal friendship networks. Three studies were conducted with the same participants and by employing both quantitative and qualitative research methods.

Changes in Network Size and Network Composition

Addition of friends. The results of Study 1 support Prediction 1 (page 15) that the estimated number of friends significantly increased during the transition to university among male and female, Canadian and Chinese students. The results of Study 1 also show that the network size increase is due to the new friends students made at university. Again, the results of Study 2, in which I asked students to report the initials of the new friends they made, confirm that the network size increase is due to the new friends students made at university.

The results of Study 2 suggest that students enlarge their friendship networks to socialize during the transition to university and to obtain social support for overcoming their adjustment difficulties. For example, the results of Study 2 show that Canadian students and Chinese international students need to socialize when they enter a new social environment. They report that they make new friends with people who have the same cultural background and sex, and with people whom they frequently meet in the same social environment or social network of mutual friends. The results of Study 2 also show that adjustment difficulties during the transition to university are more likely to lead students to ask help from their new friends than from their old friends. Others, such as

family and university student services, are not a primary support for students during their transition to university. For example, family members are geographically distant and do not share the transition experience. All these results indicate that both situational and psychological factors (e.g., Berndt, 1982; Cohen & Wills, 1985) influence the addition of people's personal friendship networks when facing a major life event.

Deletion of friends. Network size may also change from dropping friends. Surprisingly, however, few students reported dropping old friends. This cannot be interpreted by the stability of personal social networks (Morgan, et al., 1996), but can be interpreted by the *Attentional Economic Theory* (Thorngate, 1988). According to the *Attentional Economic Theory*, people cannot enlarge their friendship networks forever because people must pay attention to maintain friends and people's attention is limited. There appear to be two kinds of friendships within a personal friendship network: active friendships and inactive friendships. If people inactivate some of their old friends, they would save time for their new friends and would have time to make new friends. This could explain why 60% students did not report dropping any old friends despite limited contacts with them.

The results of Study 2 suggest that students drop friends for both situational and psychological reasons. For example, the results of Study 2 show that Canadian and Chinese students dropped their friends because of moving away, losing contact and conflicts or disliking. Overall, the results of students adding and dropping friends indicate that both situational and psychological factors influence the development of people's personal friendship networks when facing a major life event. These factors include, for

example, similarity, social environment, needs of socializing and adapting to their major life events, disagreements, changing criteria and logistics.

Changes in network composition. The results of Study 1 do not support Prediction 2 (page 16) that the proportion of close friendships will decrease during the transition to university, but suggest that the estimated proportion of close friends remains constant during the transition to university among Canadian and Chinese, male and female students.

The results of Study 2 show that students from two cultures reported a faster rate of increase in making new close friends than the increase in making new casual friends during their transition to university. However, the comparison between the proportion of close friends before entering university and at the end of the sixth month after entering university suggest a natural limit on the proportion of close friends students have—about 20%.

A possible reason for students keeping a consistent proportion of close friends is that the need for social support and intimacy pushed students to seek people, and that anyone who fulfilled their need would be called a close friend. Both Canadian and Chinese students needed social support and intimacy during their transition to university. Thus, they made new close friends. With the increases of both the number of new casual friends and the number of new close friends, students kept a consistent proportion of close friends during the transition to university. The consistency was surprising, and suggests what may be a “4+1” cultural universal: Most people have one close friend for every four casual friends.

Cultural Differences

The results of Study 1 also show that Canadian students expanded their friendship networks faster than did Chinese international students. This finding can be interpreted by the findings of cultural differences in dropping friends (in Study 2) and in friendship attitudes (in Study 3). The results of Study 2 show that Chinese students are more likely to drop their new friends than are Canadian students. The higher drop out rate slows the growth of Chinese students' personal friendship networks. The results of Study 3 show that Chinese students were more likely to be cautious to select new friends than did Canadian students. This finding suggests that Chinese students might need more time than would Canadian students to evaluate people before calling them friends.

Another possible reason for Canadian students' higher rate of personal friendship network growth is that Canadian students had more potential candidates for new friends than did Chinese international students. The results of Study 2 show that Canadian students made new friends mainly with people who lived together or nearby, who were in the same class, or who attended the same social activities. But Chinese students made new friends mainly with their classmates and their friends' friends. Considering that Canadian students are the dominant population at Canadian universities and Chinese international students spend most of their time at ESL classes (which include more than 80% of Chinese international students), Canadian students would have more potential candidates of new friends than would Chinese international students. In addition, the results of Study 2 show that few Chinese students befriended Canadians mainly due to language problems and cultural differences, despite their desire to do so.

The results of Study 1 do not support the prediction that Canadian students will have a larger network than will Chinese international students (Prediction 3, page 21), and do not support the prediction that Canadian students will have a lower proportion of close friends than will Chinese international students (Prediction 4, page 21). Furthermore, the results of Study 2 do not support the prediction that Canadian students will make a lower proportion of new close friends than will Chinese international students (Prediction 5, page 21). All these three predictions are based on the previous research (e.g., Baumgarte, et al., 1983) that either used Chinese who came from Hong Kong or used Koreans to represent collectivist cultures in their studies. Because I used Chinese and Canadian students, the previous findings may not apply to my research. I suspect that there are two other possible reasons for the discrepancy in findings: (1) there are cultural differences in the size, the composition, and the development of personal friendship networks in people's daily life rather than when people are facing a major life event; (2) there is no cultural difference in the size, the composition, and the development of personal friendship networks. Further studies should focus on the following two aspects: (1) differences in the size, the composition, and the development of personal friendship networks across different Eastern cultures; (2) cultural differences in the size, the composition, and the development of personal friendship networks developed without facing major life events.

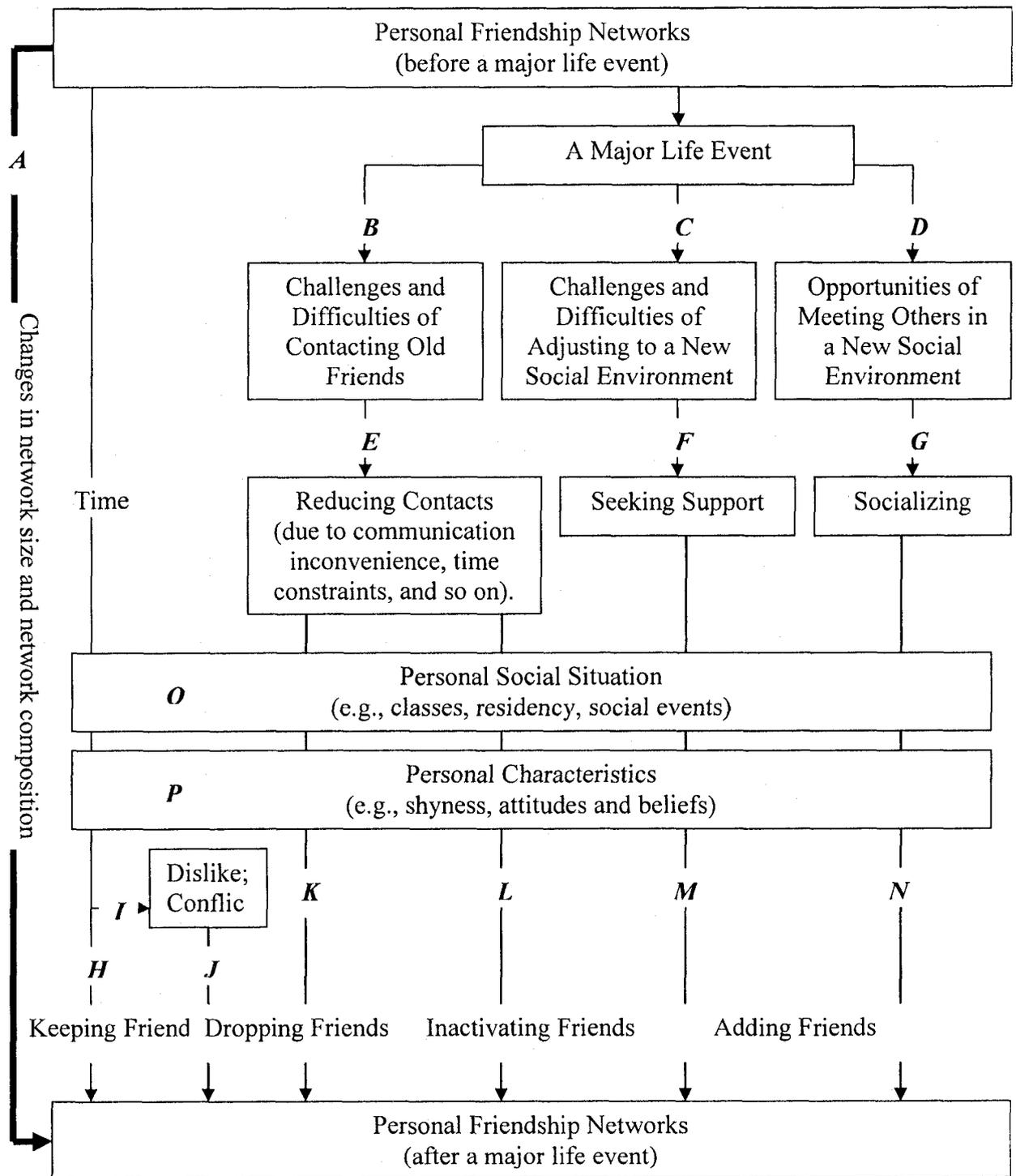
The results of Study 3 show that Chinese students are more cautious in selecting friends than are Canadian students, and that Canadian and Chinese students expect social support from their close friends, but Chinese students expected more *social support* and less *companionship* from their casual friends than do Canadian students. These results

can coincide with the findings that Canadian students' higher rate of personal friendship network growth (see page 109) and the findings about the difficulties of establishing a cross-culture friendship between Chinese students and Canadian students (see page 100-101).

A Model of the Development of Personal Friendship Networks

Recall that, in my introduction, I sketched the beginning and end states of a model of the development of personal friendship networks (see page 16). Based on the results of my three studies, I can now instantiate the model (see Figure 4).

Figure 4. A model of the development of personal friendship networks



The model shows that

- the size and the composition of people's personal friendship networks change during a major life event such as the transition to university (Figure 4, *A*). These were supported by the results of Study 1.
- a major life event (e.g., the transition to university) may bring challenges and difficulties in contacting people's old friends (Figure 4, *B*); these difficulties may cause people to reduce the communications with their old friends (Figure 4, *E*), which results in dropping old friends (Figure 4, *K*) or inactivating old friends (Figure 4, *L*). These were supported by the results of Study 2.
- a major life event (e.g., the transition to university) may bring challenges and difficulties in adjusting to a new social environment (Figure 4, *C*); these difficulties may cause people to seek social support (Figure 4, *F*), which results in making new friends (Figure 4, *M*). These were supported by the results of Study 2.
- a major life event (e.g., the transition to university) may bring opportunities for people to meet others (Figure 4, *D*); people socialize (Figure 4, *G*) and make new friends (Figure 4, *N*). These were supported by the results of Study 2.
- over time, people may keep their friends (Figure 4, *H*), or may dislike or have conflicts (Figure 4, *I*) which results in dropping them (Figure 4, *J*). These were supported by the results of Study 2.
- people's personal social situation (e.g., classes, residency, social events) influence whether they keep, add, drop, or inactivate their friends (Figure 4, *O*). These were supported by the results of Study 2.

- people's personal characters such as shyness, attitudes and beliefs influence whether they keep, add, drop, or inactivate their friends (Figure 4, **P**). These were supported by the results of Study 2 and Study 3.

Until there is a theory about the development of personal friendship networks, this model may help to guide the future research in this area

Practical Implications

The results of my research and the proposed model of the development of personal friendship networks may also have practical implications. For example, in order to help both Canadian students and Chinese international students to adjust to university life, university staff should provide social activities specifically designed to encourage first year students to interact with others. For example, a university could provide workshops about how to manage time efficiently, how to study efficiently, how to organize study groups, and so on, that require students to break into small groups for discussing each topic. The workshops should be sequential to encourage participants to return each week and have more interactions with other workshop participants. Through these activities, students can learn studying skills as well as meet other students, junior and senior. As part of such workshops, I would also suggest that students be informed of the results of research on the development of personal friendship networks, and of course cultural differences in expectations of casual and close friends. Such information might reduce potential misunderstandings between Canadian and international students.

Limitations

Due to limited funding and time, I could not successfully recruit a large sample of participants for my research. The relatively small sample of participants made it difficult

to conduct some useful inferential statistical analyses. Future research should utilize a larger sample of participants.

In my research, I chose the transition to university as the major life event to study the development of people's personal friendship networks. The results of my research about the development of people's personal friendship networks may or may not generalize to how people change their friendship networks when they face other major life events such as moving to another city, having a new baby, or starting a new job. Future studies should focus on the development of personal friendship networks over other major life events.

I included students from only two cultures in my research to explore the cultural differences in the development of personal friendship networks. Future research should involve other cultural comparisons such as comparing people from North America and people from Middle East or people from Europe.

Future Research

The results of my research show that students had two kinds of friends: inactive friends and active friends. Thorngate's Attentional Economic Theory (1988) states that people have limited time and attention, and therefore cannot accumulate friends forever. If so, how do people allocate their time and attention among their inactive friends and active friends? Future research may explore how people manage their inactive friendships and active friendships under limited time and attention, and explore what may happen for people's inactive friends in the long run.

In addition, during my research I found that some Chinese international students and Canadian students interacted with more than one of their friends at the same time.

Why does it happen? How does this kind of behavior relate to Thorngate's Attentional Economic Theory? Will this kind of interactions with multiple friends lead different consequences of friendships than will their interactions with single friend? If so, what are the implications? If not, why?

The results of my research indicate that Chinese international students and Canadian students had different expectations towards to their casual friends: Chinese students expected more social support and less companionship from their casual friends than did Canadian students. If we teach Chinese and Canadian students about these different expectations, what may happen? Would they like to talk to each other to reduce the different expectations? Would they like to talk to each other to reduce the different expectations? How can university staff help students to build cross-culture friendships? Future research may explore these questions.

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Appendix A

Ethics Approval Cover Sheet

Experiment Number _____

**DEPARTMENT OF PSYCHOLOGY PROPOSAL FOR RESEARCH WITH
HUMAN PARTICIPANTS**

PLEASE SUBMIT TWO COPIES OF THIS FORM AND TWO COPIES OF THE SUPPORTING MATERIALS TO THE ETHICS COMMITTEE (GICK MAILBOX IN B550 LOEB BLDG). PLEASE CONSULT ETHICS GUIDELINES BEFORE SUBMISSION. FAILURE TO FOLLOW GUIDELINES WILL DELAY APPROVAL.

1. **Date of submission:** July 28, 2004

Faculty Sponsor: Warren Thorngate **Phone:** 520-2600 ext: 2706 **EMAIL:**
warren_thorngate@carleton.ca

Principal Investigator: Zhigang Wang **Phone:** 520-2600 ext: 1415 **EMAIL:**
zwang4@connect.carleton.ca

Other research personnel: None **Phone:** N/A **EMAIL:** N/A

Project Title: The development of personal friendship networks

Type of research: Ph.D. Thesis

Approximate starting and completion dates: August 2004 - April 2005

Approximate length of testing sessions: 90 minutes

2. **Number, age, and source of participants:** 50 first year undergraduate students of Carleton
(25 Canadian and 25 Chinese)

3. **Will participants be paid or given course credit?** \$25

4. **Checklist: Are the following included?**

Description of Purpose	YES	NO	N/A
Procedure (including materials)	YES	NO	N/A
Informed Consent	YES	NO	N/A
Written Debriefing	YES	NO	N/A
Announcement for Recruitment	YES	NO	N/A

5. **Does the study involve anything that might cause participants anxiety, pain, or embarrassment?** NO

6. **Does the study involve deception?** NO

We (I) acknowledge that participants will be treated in accordance with the ethical guidelines of the Canadian Psychological Association. In accordance with the CPA ethical guidelines, we (I) acknowledge that it is our (my) responsibility to respect COPYRIGHT laws.

Principal Investigator: _____

Project Supervisor: _____

The Department Ethics Committee has _____ your application.

Date: _____ **Chair:** _____

Appendix B

Description of Purpose

The purpose of this study is to explore how first year university students change their personal friendship networks during their transition to university life in Canada. Students from the collectivistic culture (Chinese) and from the individualistic culture (Canadian) will participate in this study three time intervals: (a) just arriving in Carleton University (before the Fall term starts), (b) at the end of the sixth week, and (c) at the end of the sixth month.

The literature suggests that people from different cultures have different understandings of friendship. To test whether or not this cultural difference affects people developing their personal friendship networks, a longitude survey will be conducted as the first study. Participants will be asked to report over time the size of their personal friendship networks, the structure and strength of their personal friendship networks, and the nature of the exchanges among friends.

The literature has little about how and why cultural differences affect people developing their personal friendship networks. Therefore, a longitude interview will be conducted as the second study. Participants will be asked to tell their stories about how and why they make their new friends after entering Carleton University, how and why their pre-university friendships change over time.

Appendix C

Procedure

Participants will be recruited from first year university students who attend the Welcome Orientation programs when they just arrive at Carleton University. A package of five questionnaires as well as the Inform Consent Forms (see Appendix I) will be given to students who will be voluntary to participate my study: the introduction (see Appendix C), the background questionnaire (see Appendix D), the Shyness scale (see Appendix E), the Friendship Attitude questionnaire (see Appendix F), and the Personal Friendship Network questionnaire (see Appendix G). Demographic information of each participant (e.g., age, sex, race, and first language) will be collected in the background questionnaire. The Shyness scale (Cheek, 1983, Cheek & Buss, 1981) includes 13 questions (e.g., "I feel tense when I'm with people I don't know well"). All items are answered on a five-point scale (1, very uncharacteristic or untrue, strongly disagree; 5, very characteristic or true, strongly agree). The Friendship Attitude questionnaire includes nine questions that could be answered on a five-point scale (e.g., "Friends are very important in my life") and seven open-up questions (e.g., "What are the three most important characteristics of a close friend?"). The Personal Friendship Network questionnaire (see Appendix H) measures the characteristics of two levels of friendships (close friendship and casual friendship). Participants will be asked to write down the initials of three close friends and three casual friends. Then, participants will be asked to provide more information about these six friends by answering 16 questions about each. The 16 questions include biographic information such as sex, age, first language, and occupation; information about establishing the friendship such as "How did you first get to know this friend?"; and information about maintaining the friendship such as "How many hours have you spent communicating with this friend in the past month?", "What are the three most common activities you have with this friend?". The 16 questions will also ask for information about exchanging with this friend such as "Please list up to three kinds of support you receive from this friend (for example: schoolwork support, emotional support, financial support, listening to secrets, general companionship, other)", and "Please list up to three kinds of support you give to this friend." Participants will be asked to complete a new Informed Consent Form at each assessment, and hand in the inform Consent Forms and the questionnaires to the experimenter and will be paid at the same time.

Each participant will be asked to complete the shyness scale, the Friendship Attitude questionnaire and the Personal Friendship Network questionnaire twice more: once six weeks after the Fall term starts, and once about six months after entering Carleton University. Each participant will complete these studies in room A401 Loeb Building, Carleton University. On arrival, the researcher will greet the participants, explain the purpose of the research, then begin the studies. Following the survey, the participants will be interviewed about the changes of their personal friendship networks (interview questions see Appendix H) in their native languages (Chinese first year university students have been shown have difficulties in their oral English). Survey completing and interview will take around 90 minutes and the interviews will be tape-recorded. The participants then are debriefed, given the printed debriefing (see Appendix J), thanked and excused.

Appendix D

Introduction



Department of Psychology, Carleton University
 B552 Loeb Building, 1125 Colonel By Drive
 Ottawa, ON, Canada, K1S 5B6
 Tel: (613) 520-2644 Fax: (613) 520-3667

Dear _____,

I am Zhigang Wang, a PH. D. student at Department of Psychology, Carleton University, Canada. I am doing my dissertation research about friendship networks.

Friends, with whom we work and relax, are very important in our life. Social scientists have done lots of research about friendship. However, little research has been done about personal friendship networks, which refer all friends a person has. My dissertation research explores how people change their personal friendship networks over time after entering Canadian university, and how culture, sex, and social environment influence the development of friendship networks. It is my hope that, with your help, my dissertation will contribute to the literature of friendship networks, and will offer useful advice to university students and education institutions.

Attached to this letter is a package of four questionnaires. These questionnaires are used to measure different aspects of a person's friendship network. I believe the questions are interesting to answer, and I hope you do too. It is critical that your answers be as accurate and complete as possible. However, if any question makes you feel uncomfortable, you may skip it. After completing analyzing data, I will hold a meeting, in which a summary report of the key findings will be shared.

Everything you write here is confidential. This is assured in two ways. First, I do not ask for your full name and your friends' full names, instead I ask you to use initials of those names. Second, no one will see your questionnaire expect me.

If you have any questions or comments about this research, then please feel free to visit me in room A404 Loeb Building, Carleton University, or to contact me by phone on 520-2600 ext: 1415, or to contact me through e-mail on zwang4@connect.carleton.ca.

If you agree to participate my dissertation research, please sign an Informed Consent Form before you complete each questionnaire. Please hand in the inform Consent Forms and the questionnaires to me, and I will pay you at the same time.

Thank you for your participation.

Sincerely,

Zhigang Wang

Appendix E

Background Questionnaire

Please answer the following questions.

- What is the first letter of your first name _____
 - What is the first letter of your family name _____
 - Your date of birth (DD/MM/YY) _____/_____/_____
 - Your sex __ Male __ Female
 - Your major in university _____
 - Your first language _____
 - Your citizenship _____
 - Your family is __ above middle class __ middle class __ below middle class
 - Why did you choose to study at Carleton University? _____
-
-

Appendix F

Shyness Scale

Instructions: Please read each item carefully and decide to what extent it is characteristic of your feelings and behavior. Fill in the blank next to each item by choosing a number from the scale printed below.

- 1 = strongly disagree
- 2 = disagree
- 3 = neutral
- 4 = agree
- 5 = strongly agree

- _____ 1. I feel tense when I'm with people I don't know well.
- _____ 2. I am socially somewhat awkward.
- _____ 3. I do not find it difficult to ask other people for information.
- _____ 4. I am often uncomfortable at parties and other social gatherings.
- _____ 5. When in a group of people, I have trouble thinking of the right things to talk about.
- _____ 6. It does not take me long to overcome my shyness in a new situation.
- _____ 7. It is hard for me to act natural when I am meeting new people.
- _____ 8. I feel nervous when speaking to someone in authority.
- _____ 9. I have no doubts about my social competence.
- _____ 10. I have trouble looking someone right in the eye.
- _____ 11. I feel inhibited in social situations.
- _____ 12. I do not find it hard to talk to strangers.
- _____ 13. I am more shy with members of the opposite sex.

Appendix G

Friendship Attitude Questionnaire

Instructions: Please read the following nine questions carefully and decide to what extent it is characteristic of your feelings and behavior. Fill in the blank next to each question by choosing a number from the scale printed below.

- 1 = strongly disagree
 2 = disagree
 3 = neutral
 4 = agree
 5 = strongly agree

- _____ 1. Friends are very important in my life.
 _____ 2. The more friends I have, the better life I will have.
 _____ 3. Best friends can become the worst enemies.
 _____ 4. Friendship can only be evaluated in the long run.
 _____ 5. Friends can be useful.
 _____ 6. Useful people cannot be friends.
 _____ 7. Exchanging help between friends is the best way to evaluate friendship.
 _____ 8. I don't like to ask help from friends.
 _____ 9. I don't mind offering help to my friends whenever they need it.

Answer the following questions with a word or phrase:

10. What are the three most important characteristics of a **CLOSE FRIEND**?

1st most important: _____

2nd most important: _____

3rd most important: _____

11. What do you expect from your **CLOSE FRIENDS** that you do not expect of other friends?

Answer: _____

12. What do your **CLOSE FRIENDS** expect from you that they do not expect of other friends?

Answer: _____

13. What do you expect from your **OTHER FRIENDS**?

Answer: _____

14. What do your **OTHER FRIENDS** expect from you?

Answer: _____

Appendix H

The Personal Friendship Networks Questionnaire I

Instructions: In this questionnaire, friendships are simply categorized into two levels: casual friendships and close friendships. Casual friends are people whom you have something in common and feel comfortable sharing activities and interests. Close friends are people with whom you can show emotional closeness through communications and other activities with specific topics (e.g., personal secrets) or in a specific style (e.g., direct demands or orders). Please answer the two questions below based on your current friendships.

1. How many close friends do you have
 - a. Living in your home town? _____
 - b. Living in Ottawa? _____
 - c. Living somewhere else? _____

2. How many casual friends do you have
 - a. Living in your home town? _____
 - b. Living in Ottawa? _____
 - c. Living somewhere else? _____

The Personal Friendship Networks Questionnaire II

Instructions: In this questionnaire, friendships are simply categorized into two levels: casual friendships and close friendships. Casual friends are people whom you have something in common and feel comfortable sharing activities and interests. Close friends are people with whom you can show emotional closeness through communications and other activities with specific topics (e.g., personal secrets) or in a specific style (e.g., direct demands or orders). Please answer the four questions below based on your current friendships. The questions on the following pages are related to these two questions.

3. Please list the initials of up to three of your close friends:
 - a. 1st closest friend's initials: _____
 - b. 2nd closest friend's initials: _____
 - c. 3rd closest friend's initials: _____

4. Please list the initials of up to three casual friends who are not your close friends
 - a. 1st friend's initials: _____
 - b. 2nd friend's initials: _____
 - c. 3rd friend's initials: _____

The following 16 questions concern your **closest friend** in Question 3-a.

1. What are the initials of your **closest friend**? _____ (same as Question 3-a)
2. Sex of this friend? M ___ F ___
3. First language of this friend? _____
4. Age of this friend? _____
5. Occupation (including "student") of this friend? _____
6. How long have you known this friend? _____ (circle one: years, months, weeks, days)
7. How far away (in kilometers) does this friend now live from you? _____
8. How did you first get to know this friend? _____

9. How many times in the past month have you communicated with this friend
 - a. In face-to-face conversation? _____
 - b. On the telephone? _____
 - c. Using e-mail? _____
 - d. Using Internet chat? _____
 - e. Using letters and regular mail? _____
 - f. Other [please state: _____]? _____
10. How many hours have you spent communicating with this friend in the past month?

11. What are the three most common topics of conversation with this friend?
 - a. _____
 - b. _____
 - c. _____
12. What are the three most common activities you have with this friend?
 - a. _____
 - b. _____
 - c. _____
13. Please list up to three kinds of help you receive from this friend (for example: schoolwork support, emotional help, financial support, listening to secrets, general companionship, other).
 - a. _____
 - b. _____
 - c. _____
14. Please list up to three kinds of support you give to this friend.
 - a. _____
 - b. _____
 - c. _____
15. Which of the following topics of conversation would you feel comfortable discussing with this **friend**? Please put check marks.
 - Your school problems
 - Your financial problems
 - Your problems with family members
 - Your sexual difficulties
 - Your psychological difficulties
 - Your illegal activities
 - Your feelings about members of the opposite sex
 - Your political views
 - Your religious views
 - Your other friends
16. Please list up to five topics you would **never discuss with this friend**.
 - a. _____
 - b. _____
 - c. _____
 - d. _____
 - e. _____

The same 16 questions will be asked regarding to Question 3-b and 3-c, Question 4-a to 4-c with the following changes in Question 1:

1. What are the initials of your 2nd **closest friend**? _____ (same as Question 3-b)
1. What are the initials of your 3rd **closest friend**? _____ (same as Question 3-c)
1. What are the initials of your 1st **casual friend**? _____ (same as Question 4-a)
1. What are the initials of your 2nd **casual friend**? _____ (same as Question 4-b)
1. What are the initials of your 3rd **casual friend**? _____ (same as Question 4-c)

Appendix I

Interview Questions

Theme 1: Addition of new friendships

1. How many new friends have you met since coming to Carleton? If yes, when do you make them? Who are they (their initials)?
2. Why do you select them as your friends?
3. How many of them have become close friends?
4. What have you done to develop these friendships?
5. How many new friends have you made since coming to Carleton who were born in your home country? How many new friends have you made since coming to Carleton who were not born in your home country? What countries are they from?

Theme 2: Changes in existing friendships

1. Do you have friends from your home town studying at Carleton University? If yes, how many? How many are close friends? Did you meet them in your hometown, at Carleton or somewhere else?
2. Have your friendships with these people changed since you came to Carleton? If yes, how have they changed? Why?
3. What have you done to maintain these relationships?

Theme 3: Adjustment difficulties and friendships

1. What have been the three greatest difficulties of adapting to life at Carleton University such as emotional problems (feelings of loneliness, fear, homesickness, etc.), financial problems, health problems, schoolwork, interpersonal problems (disagreements, conflicts with people, etc.)?
2. Have you asked for help in overcoming these difficulties? If so, whom have you asked?
3. Have you had any other difficulties? If yes, have you talked to anyone about these difficulties? If so, whom have you asked? How have they responded? How helpful has their assistance been?

Appendix J

Informed Consent Form

An Informed Consent Form is required by the Ethics Committee of the Psychology Department for all research projects conducted in psychology department. The purpose of an Informed Consent Form is to ensure that you understand the purpose of the study and the nature of your involvement. The informed consent must provide sufficient information such that you have the opportunity to determine whether you wish to participate in the study.

Study Title: The development of personal friendship networks

Research Personnel. The principal investigator for this project is Zhigang Wang, Ph.D. candidate, Psychology Department, Carleton University, phone (613) 520-2600, ext. 1415, e-mail zwang4@connect.carleton.ca, or in room A404 Loeb Building, Carleton University. The project supervisor for this study is Professor Warren Thorngate, Psychology Department, Carleton University, phone (613) 520-2600 extension 2706, e-mail warren_thorngate@carleton.ca, or during his office hours (Tuesdays, 2:30 – 4:30) in room A402 Loeb Building, Carleton University. If you have any questions about the experiment, you may contact them at any time. If you have any ethical concerns about this study, please contact Dr. Chris Davis (Chair of the Carleton University Research Ethics Committee for Psychological Research, 520-2600, ext. 2251, e-mail chris_davis@carleton.ca) or Dr. M. Gick (Chair of the Department of Psychology at Carleton University, 520-2600, ext. 2648, e-mail mary_gick@carleton.ca).

Purpose and Task Requirements. The aim of the research is to understand how first year university students change their friendship networks during their transition to university life. You will be asked to participate in this study three times: before or just arriving at Carleton University, six weeks after you start your program, and six months after you start your program.

Before or just arriving at Carleton University, I will ask you to complete questionnaires concerning your social background (e.g., first language, family background), shyness (e.g., “I feel tense when I’m with people I don’t know well”), understanding of friendship (e.g., “Friends are very important in my life”), and structural characteristics of your friendship networks (e.g., “How many close friends do you have?”). The questionnaires will be mailed to you, and time to complete the questionnaires should be approximately 30 minutes.

In each of the rest two times, I will ask you to complete questionnaires concerning your understanding of friendship and structural characteristics of friendship network again. You will also be interviewed about how your friendship network develops (e.g., “What have been the three greatest difficulties of adapting to life at Carleton University such as emotional problems (feelings of loneliness, fear, homesickness, etc.), financial problems, health problems, schoolwork, interpersonal problems (disagreements, conflicts with people, etc.)? Why have they been difficult? ”, “How many new friends have you met since coming to Carleton? How many of them have become close friends? What have you done to develop these friendships?”). It will occur in room A401 Loeb Building, Carleton University, and time to complete the questionnaires and the interview should be around 90 minutes.

There are two ways that you can be paid: money or credits. The details of being paid in different stages of the study are as the following: (1) \$5 for completing the first stage of the study when

they just arriving Carleton: complete Background questionnaire, Shyness scale, Friendship attitude questionnaire, and personal friendship questionnaire (about 30 minutes); (2) \$10 or 2 credits for completing the second stage of the study at the end of the sixth week in the fall term: complete Shyness scale, Friendship attitude questionnaire, and personal friendship questionnaire (about 30), and attend an interview about personal friendship network (about 60 minutes); (3) \$10 or 2 credits for completing the last stage of the study at the end of the sixth month after entering Carleton University: complete Shyness scale, Friendship attitude questionnaire, and personal friendship questionnaire (about 30 minutes), and attend an interview about personal friendship network (about 60 minutes).

Potential Risk/Discomfort. There are no physical or psychological risks in this study.

Right to Withdraw and Anonymity/Confidentiality. Your participation in this study is entirely voluntary. At any point during the study you have the right to withdraw from the study or not to answer questions that make you feel uncomfortable, with no penalty whatsoever. You may also stop participating at any time. You also have the right to withdraw your data after the interview is over. Everything you write or say is confidential. This is assured in two ways. First, no people are identified. All data are coded such that your name is not associated with the data, and will be analyzed in the aggregate. Also we do not ask for your friends' full names; instead we ask you to use initials of those names. Second, the coded data are made available only to the researchers associated with this project. The tapes of interviews will also be erased at the end of the study.

Signatures. I have read the above description of the study entitled "The development of personal friendship networks" and understand the conditions and the tasks of my participation. The data collected will be used in research publications and/or for teaching purposes. My signature indicates that **I ACKNOWLEDGE THAT I HAVE READ AND UNDERSTOOD THIS AGREEMENT, that I have executed this agreement voluntarily.**

Participant's Name (please print): _____

Participant Signature: _____

Date (DD/MM/YY): _____ / _____ / _____

Witness's Name (please print): _____

Witness Signature: _____

Date (DD/MM/YY): _____ / _____ / _____

Address & Phone No.: _____

Appendix K

Debriefing Form

Thank you again for participating in this study. The purpose of a Debriefing Form is to help you understand the exact nature of the study. As I noted before you began, the purpose of this study is to understand how first year university students adjust their friendship networks during their transition to university life. I am trying to determine if the structure characteristics of your friendship network are associated with your personality (e.g., shyness), social status (e.g., sex), and with the time you put in your social life and the understanding of friendship. The culture that you come from might also influence your understanding of friendship and the way that you develop your friendship network during the transition to university life in Canada. I want to examine this too.

If you have any questions or comments about this research, then please feel free to contact Zhigang Wang in room A404 Loeb Building, Carleton University (520-2600 ext: 1415, zwang4@connect.carleton.ca). If you have any ethical or other concerns about this study then please contact Dr. Chris Davis (Chair of the Carleton University Research Ethics Committee for Psychological Research, 520-2600, ext. 2251, e-mail chris_davis@carleton.ca) or Dr. M. Gick (Chair of the Department of Psychology at Carleton University, 520-2600, ext. 2648, e-mail mary_gick@carleton.ca). If you have any personal concerns about your emotionality, or general physical or emotional well-being that you would like to discuss with somebody, you might wish to contact the Carleton University Health and Counseling Services, 520-6674; Distress Centre of Ottawa and Region, 238-3311.

The experimenter's name is: _____

Date (DD/MM/YY): ___/___/___

Appendix L

Announcement for Recruiting

Experiment Title: Cultural differences in the development of personal friendship networks

Experimenter's Name: Zhigang Wang

Experimenter's Phone No: (613) 520-2600, ext. 1415

Location of Experiment: A401 Loeb Building, Carleton University

Experiment Number: _____

Faculty Advisor: Warren Thorngate

Brief Description

The purpose of this study is to explore how cultural factors influence first year university students developing their friendship networks during the transition to university life in Canada. Students from Canada and China will participate in this study three time intervals: (a) before or just arriving in Carleton University (Canada), (b) at the end of the sixth week in the first term, and (c) at the end of the sixth month after entering Carleton University.

Previous research suggests that people from different cultures may have different understandings of friendship. To test whether or not this cultural difference affects people developing their friendship network, participants will be asked to report over time some features and changes in their personal friendship networks, and the nature of the exchanges among friends.

The project will also explore cultural differences in people developing their personal friendship networks. Participants will be asked to tell their stories about how and why they make new friends after entering Carleton University, how and why their pre-university friendships change over time.

Participants will be paid: (1) \$5 for completing the first stage of the study when they just arriving Carleton: complete Background questionnaire, Shyness scale, Friendship attitude questionnaire, and personal friendship questionnaire (about 30 minutes); (2) \$10 or 2 credits for completing the second stage of the study at the end of the sixth week in the fall term: complete Shyness scale, Friendship attitude questionnaire, and personal friendship questionnaire (about 30 minutes), and attend an interview about personal friendship network (about 60 minutes); (3) \$10 or 2 credits for completing the last stage of the study at the end of the sixth month after entering Carleton University: complete Shyness scale, Friendship attitude questionnaire, and personal friendship questionnaire (about 30 minutes), and attend an interview about personal friendship network (about 60 minutes).

Overall, participants may receive \$25 for completing the whole study. It is your responsibility to know where and when the experiment is held.

Sign-up sheets for this experiment are underneath. Please provide only your initials, student number, phone number and best time to call.

Appendix N

Reminder (Session B)



Department of Psychology, Carleton University
 B552 Loeb Building, 1125 Colonel By Drive
 Ottawa, ON, Canada, K1S 5B6
 Tel: (613) 520-2644 Fax: (613) 520-3667

Dear _____,

As a reminder, you have participated my dissertation research about friendship networks since the Fall term, 2004, started. The information you gave to me does help me to explore how first year university students develop their personal friendship networks after arriving at Carleton University. I really appreciate your cooperation.

Until now, you have been Carleton for almost six weeks. I wish you have had wonderful experiences at Carleton. In order to measure the changes in your friendship network, I ask you to come back to my dissertation research.

In the following studies, I will ask you to complete three questionnaires (Shyness scale, Friendship Attitude questionnaire, Personal Friendship Network questionnaire), which are identical to the questionnaires you had before. In addition, I will ask you some questions (1) about the changes in your friendship network such as "How many new friends have you met since coming to Carleton? How many of them have become close friends? What have you done to develop these friendships?", "Have your old friendships changed since you came to Carleton? If yes, how have they changed? Why?"; (2) about adaptation to Carleton University such as "What have been the three greatest difficulties of adapting to life at Carleton University? Why have they been difficult?", "Have you asked for help in overcoming these difficulties? If so, whom have you asked?"

Your participation in the following studies will be critical for my dissertation research. Please come back and continue to participate my dissertation research. However, I would like to tell you that you are not obliged to continue and always have the right to stop to participate my dissertation research at any time.

If you have any questions or comments about this research, then please feel free to visit me in room A404 Loeb Building, Carleton University, or to contact me by phone at 520-2600 ext: 1415, or to contact me through e-mail at zwang4@connect.carleton.ca.

Thank you in advance!

Sincerely,

Zhigang Wang

Appendix O

Reminder (Session C)



Department of Psychology, Carleton University
 B552 Loeb Building, 1125 Colonel By Drive
 Ottawa, ON, Canada, K1S 5B6
 Tel: (613) 520-2644 Fax: (613) 520-3667

Dear _____,

As a reminder, you have participated my dissertation research about friendship networks since the Fall term, 2004, started. The information you gave to me does help me to explore how first year university students develop their personal friendship networks at Carleton University. I really appreciate your cooperation.

Until now, you have been Carleton for almost six months. I wish you have had wonderful experiences at Carleton. In order to measure the changes in your friendship network, I ask you to come back again to my dissertation research.

In the following studies, I will ask you to complete three questionnaires (Shyness scale, Friendship Attitude questionnaire, Personal Friendship Network questionnaire), which are identical to the questionnaires you had before. In addition, I will ask you some questions (1) about the changes in your friendship network such as "How many new friends have you met since coming to Carleton? How many of them have become close friends? What have you done to develop these friendships?", "Have your old friendships changed since you came to Carleton? If yes, how have they changed? Why?"; (2) about adaptation to Carleton University such as "What have been the three greatest difficulties of adapting to life at Carleton University? Why have they been difficult?", "Have you asked for help in overcoming these difficulties? If so, whom have you asked?"

This is the last stage of my dissertation. Thus, your participation will be very important. Please come back and continue to participate my dissertation research. However, I would like to tell you that you are not obliged to continue and always have the right to stop to participate my dissertation research at any time.

If you have any questions or comments about this research, then please feel free to visit me in room A404 Loeb Building, Carleton University, or to contact me by phone at 520-2600 ext: 1415, or to contact me through e-mail at zwang4@connect.carleton.ca.

Thank you in advance!

Sincerely,

Zhigang Wang