Residential Mobility, Technology and Social Ties

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Abstract

Humans are fundamentally social creatures and our social relationships depend on communication to survive. It is not surprising that communication is the most popular use of the Internet. Researchers have examined computer-mediated communication since the early 1980's, yet, the precise role of computer-mediated communication in growth, maintenance of social relationships has not been isolated. Recent movers are a perfect population for studying how people use information and communication technologies for the daunting task of maintaining existing social relationships and initiating new social contacts. By examining residential mobility, I studied how movers used mediated communication via phone or Internet as a way to retain contact with existing social relations, to build new relationships, and to adjust to the new location after a move.

Using results from qualitative interviews and a national sample survey of recent movers, I found that pre-move relationships tend to decline in psychological closeness and enacted support due to a move. However, movers who used email reported slower declines in both developing and mature friendships. Mature pre-move friendships relied on phone calls for relationship growth, whereas they used email in ways similar to postcards, as reminders of an existing relationship. In contrast, new, developing relationships relied on all forms of communication for growth. Even though movers used technology to maintain distant social ties, it did not help them adjust to the new location. In fact, those with less social involvement in the prior location reported better adjustment to the new location, even two years later. Adjusting to a new location after a move required focusing on the "here and now" of the local social context. Movers relied on friends or acquaintances that were close by to help them with day-to-day management, with settling into the new location and with accepting a residential move as a positive life event.

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Chapter 1

Introduction

An extensive body of research has examined effects of major life events on psychological well-being (Diener, Suh, Lucas, & Smith, 1999). Life events can be both positive and negative, but all of them can be stressful because they require adjustment. Although the severity of stress depends on individual circumstances, any major life event can have both short term and long term effects on health and psychological well-being (Williams, Ware, & Donald, 1981). Social relationships, that are perceived to offer social support, can serve as a buffer against adverse effects of stress (S. Cohen, Gottlieb, & Underwood, 2000). A residential move is a common major life event that can have a negative effect on psychological well-being (Magdol, 2002). A long distance residential move could also endanger movers' social relationships by introducing physical distance (Rohlfing, 1995). This in turn could limit the buffering effects of perceived social support on stress induced by a residential move, making effects of such stress more damaging.

Historically, technology has been associated with residential mobility through advances in transportation, information access and long distance communication (Kok, 2004). Although uses of information and communication technologies have been a question of interest to researchers over the last decade, little is known about the different patterns of such use and the impact they may have on the users' social relationships and psychological well-being. Recent studies of technology adoption and use report that many people have integrated use of the Internet, cell phones and other digital technologies into their daily lives (Hoffman, Novak, & Venkatesh, 2004). In the context of residential mobility, communication technologies may reduce both the stressful aspects of the move itself and the likelihood of damage to social relationships due to the move. People can cope with the stress of their residential move by using technology for communicating

with those left behind or people in the new location, entertainment and obtaining information to facilitate the move and reduce uncertainty about the new location. The short term and long term effects of doing so may depend on the way movers use the technologies available to them and the timing of these uses. This research proposes to investigate the process of individual's adjustment to a new location after a residential move. I will consider the short term and long term effects of different patterns of communication technology use on health and psychological well-being by examining how movers use communication technologies for social interaction and the upkeep of pre- and post-move social relationships.

1.1 Background

Residential mobility is a large and complex domain. The research scope of this work excludes more extreme types of relocations, such as transnational migrations, because these have already received substantial attention (see for example Aroian, Norris, & Chaing, 2003; Schmidtke, 2001). Transnational relocations also introduce a host of complicating factors such as cultural and linguistic differences and political immigration barriers (Levitt, 2001), which are unlikely in intra-national migrations. Though the generalizability of these findings to the phenomena of residential mobility in other countries and cultures is an open question, I focus on the United States as a kind of best-case scenario, in which barriers to internal migration are comparatively low, yet the geographical distance of the move can vary dramatically (Long, 1988). Even so, I expect people engaged with residential moves to be facing considerable challenges.

Historically, Americans have been a restless nation, associating voluntary physical relocation with self-improvement (Jasper, 2000). According to the US Census, 14% (over 40 million people) of the country's population moved in the year 2002-2003 (Schachter, 2004). Thus, the great majority of Americans have experienced residential mobility if not by moving themselves, then by negotiating the moves of people close to them. While more than half (60%) of the annual moves are local, made for various housing reasons, about 40% of yearly moves are made long distance, and nearly half of those are across state lines (Schachter, 2004).

Although causes of residential mobility have an impact on the kinds of issues movers encounter, research suggests that any residential move is a stressful event, often with short term and long term consequences (Stokols & Shumaker, 1982). Residential mobility can have a significant negative impact on health and psychological well-being, especially in women (Jones, 1973; Magdol, 2000, 2002; Magdol & Bessel, 2003; Stokols & Shumaker, 1982). Moving is frequently

associated with other major life events such as birth or death in the family, change in job or marital status, etc. However, it is also a separate source of stress, experienced in addition to stress generated by other major life events it often accompanies (Magdol, 2002). Various personal and situational factors like personality, familiarity with the new location, and others, are likely to moderate the process of adjustment to the new location, and the impact this process has on health and psychological well-being. However, regardless of personal and situational factors, frequent residential mobility is associated with increased risk of illness and lower levels of psychological well-being (Stokols & Shumaker, 1982).

As with any major life event, severity of stress depends on individual circumstances (Stokols & Shumaker, 1982). In the case of residential mobility, desirability of the move, the distance of the move, availability of social support, availability of financial resources and reasons for moving may have an impact on the severity of stress experienced (DaVanzo, 1976; Stokols & Shumaker, 1982). Some of the immediate sources of stress due to a residential move come from the challenges of managing the physical process of moving people and belongings from one location to another and the uncertainty associated with a lack of familiarity with the new location (DaVanzo, 1983; Magdol, 2002). The more long-lasting kinds of stress caused by residential mobility may come from lack of information about the new location and the sudden addition of distance as a factor in existing relationships, which may force movers to re-negotiate existing relationships and to seek new geographically proximal involvements (Fischer, 1982). In fact, of all the stresses generated by a residential move, changes in the movers' social context seem to cause most prolonged distress (Starker, 1990).

1.2 Thesis overview

The aim of this thesis is to investigate the connection between the changes in the social context of the movers and their adjustment to the new location. The following four parts describe the process of movers' adjustment to a new location after a residential move.

Part I: Exploring technology adoption and use through the lens of residential mobility:
The first part of this thesis was primarily interested in exploring the process of residential mobility as it happens in the technological age. The goal of this part was to collect a variety of real-world, detailed stories about recent (or immanent) long-distance moves, in order to understand such experiences from the mover's points of view, and value they did (and did not) find in information and communication technologies, before, during, and after the move. A

detailed description of this work is provided in Chapter 2. Insights gained from this work provided a basis for the development of a quantitative longitudinal study of recent movers, focusing primarily on the process of adjustment to a new location and the social and psychological aspects of this adjustment. Chapter 3 presents a detailed description of the study design.

Part II: Maintaining old relationships and building new relationships after a move. The second part of the thesis focuses on a sample of movers' friendships from before and after the move. Residential mobility has been named as one of the most common causes of relationship dissolution, yet recent advances in communication technologies may have attenuated this trend. A large amount of scholarship has praised new communication technologies for providing convenient and affordable tools for maintaining relationships at a distance. Yet the precise role of mediated communication in relationship maintenance has been difficult to isolate. Residential mobility can be conceptualized as a natural experiment that often forces social relationships that used to rely primarily on face-to-face interaction, to rely on mediated communication due to the introduction of distance. This work investigates how movers maintain their old relationships and initiate new ones and whether the two processes manifest as different patterns of use of communication modalities. A detailed description of this work is provided in Chapter 4.

Part III: Sense of well-being in the new location. While the question of how personal relationships are developed and maintained is certainly important, it does not answer what value movers' may derive from their social relationships. The third part of this thesis investigates how friendships developed before and after the move differ in their contribution to the mover's perceived social support after the move. Perceived support refers to people's beliefs about the ability of their social relationships to provide resources necessary to deal with major contingencies and daily life troubles. Residential mobility can put strain on social relationships by introducing physical distance at a time when these relationships are needed most. However, modern communication technologies can make social relationships accessible despite distance. Little research has considered the role of long distance relationships in perceived social support. This work first considers whether the mere existence of intimate pre-move friendships contributes to perceived social support after the move and whether uses of mediated communication modalities are important for keeping these relationships active. It then investigates the role that friendships initiated after the move in the new location play in perceived social support after the move. A detailed description of this analysis is provided in Chapter 5.

Part IV: Effects of social integration on adjustment to a new location after a long distance move. While social relationships may be beneficial to movers' perceived social support after the move, they may also contribute to feelings of nostalgia and homesickness. The final part of this thesis investigates when social embeddedness is valuable and when it may be damaging to a movers' sense of well-being. Research suggests that social involvement of any kind is beneficial and even necessary for health and happiness, yet few have considered whether social involvement in one location could create barriers to adjustment in another location through feelings of regret or homesickness for example. The major goal of this work is to understand how levels of social embeddedness in the prior location affect subsequent adjustment to the new location. It also attempts to extend prior research suggesting that having social ties in the new location prior to the move aids adjustment to the new location. Finally, this work considers whether social involvement in the new location affects eventual adjustment to the new location. A detailed description of these analyses is provided in Chapter 6.

1.3 Research approach and impact

Humans are fundamentally social creatures and our social relationships depend on communication to survive. It is not surprising that communication is the most popular use of the Internet and communication technologies have been proliferating at an impressive pace. This proliferation of information and communication technologies over the course of the last century has repeatedly lead many scholars to ask how technology use affects social relationships and psychological well-being of its users (e.g. Fischer, 1994; Gershuny, 2002; Katz, Rice, & Aspden, 2001; Kraut et al., 2002; Marvin, 1988). After nearly two decades of research, however, results are still unclear (Shklovski, Kiesler, & Kraut, 2006). Moreover, the precise role of computer-mediated communication in growth, maintenance and decay of social relationships has not been isolated.

My research examines the way people use communication technologies in their everyday lives to initiate, maintain and dissolve their social relationships and to attain a sense of belonging within an environment or a peer group. To achieve this, I employed theoretical frameworks derived from the fields of communication, social psychology, and sociology to motivate an empirical study that combined a quantitative survey and a set of qualitative interviews. The longitudinal nature of this research gave sounder basis for assessing a causal relationship between technology use and social

relationships than more common cross-sectional approaches that tend to focus on only one instant in time.

The general approach to this work is to start by understanding the role of information and communication technologies in relationship initiation and maintenance made evident through a disruption caused by a residential move. From there, the thesis undertakes a more thorough examination of the role of social relationships in the process in changes in perceived social support. Finally, the thesis presents an investigation—at a broad level— of the issues surrounding the process of residential mobility and subsequent adjustment to the new location.

Long-distance residential mobility is a fruitful domain for research into human-computer interaction. As application domain in its own right, it is a common, complex human endeavor, many aspects of which have only begun to be addressed by technology design. As a window onto the relationships people have with their possessions, local geographies, and social networks, it illuminates a range of practices around technology uses and unmet needs in which future technologies could play a role. For example, some of the results from this research suggest that location-based technology developers need to take into account not only long-time residents of urban locations but also new arrivals. In fact it is the new arrivals that would be most likely early adopters of such technologies.

This work also partially fills gaps in the literature on long distance relationships and the role of social involvement in general and long distance relationships in particular in perceived social support and adjustment to the new location. At the same time, this work presents a new approach to the study of the impact of technology on social relationships and psychological well-being, by taking a major life event as a starting point.

Chapter 2

Exploring Technology Adoption and Use Through the Lens of Residential Mobility

One of the outcomes of massive adoption of technology is that much of daily technology use and consumption is embedded into "unremarkable" daily life routines. Occasionally, these routines undergo major shifts, often in conjunction with major life events such as marriage, birth of a child, or a residential move. In this chapter, I report results of an exploratory qualitative study of recent movers and propose a model of settling into a new location as a function of balance between the pull of the things left behind and the demands of the new and unknown. It is through this experience of being unsettled that this chapter explores the processes of behavior adjustment and re-evaluation of old patterns of technology use as it relates to the old location and the demands of the new location.

2.1 Introduction

One of the outcomes of massive adoption of technology is that much of daily technology use and consumption is embedded into "unremarkable" daily life routines (Tolmie, Pycock, Diggins, MacLean, & Karsenty, 2002). Existing research into daily use of the information and communication technologies (ICTs) has produced valuable insights (e.g., Grinter & Palen, 2002; Kraut et al., 2002; Palen, Salzman, & Youngs, 2000), illustrating that people use available technologies to interact with their surroundings and their social network, to keep track of their environment, life plan, possessions, finances, hobbies, in ways that fit existing habitual practices. As Hoffman, Novak and Venkatesh point out, "it is the small things that people use the Internet for on an everyday basis that makes it so integral to people's lives" (Hoffman et al., 2004). Yet the routines of daily life are not static. Adjustments and reconfigurations are made continually to

satisfy emergent contingencies (Salvador & Anderson, 2003). Occasionally, these routines may undergo major shifts in conjunction with major life events such as marriage, birth of a child, or a residential move (Kanner, Coyne, Schaefer, & Lazarus, 1981). In order to cope with new circumstances and possibly even new senses of self and identity, routines and habits are re-evaluated and re-negotiated. Such disruptions are not only opportunities for new technologies to provide valuable, foreground support; the can also uncover hidden structures within the more settled periods they punctuate.

This paper reports on an exploratory ethnographic study of the role of contemporary ICTs in the event of a long-distance residential move. This is a common major life event particularly interesting from the perspective of wireless and location-sensitive technologies. In addition to the obvious physical challenges of transporting people and belongings, long-distance movers must disconnect from a set of infrastructures, routines, and social contacts that had been "home," and then somehow reestablish these in a distant locale. Historically, technology has been associated with residential mobility through advances in transportation, information access and long-distance communication (Kok, 2004). In this study, ICTs were implicated throughout, as they were used in planning and executing the move, orienting to the new location, keeping in touch with the old location, and re-balancing one's social network between old and new locations.

Residential mobility is a large and complex domain. This study focused on long-distance interstate moves within the United States. While, shorter-distance or intrastate moves do share many of the features of their longer relatives, they do so in forms more subtle, attenuated, and less amenable to detection. More extreme types of relocations, such as transnational migrations, because these have already received substantial attention (e.g., Levitt, 2001; Schmidtke, 2001) were also excluded. Such relocations also introduce a host of complicating factors such as cultural and linguistic differences, as well as political immigration barriers (Levitt, 2001), which are unlikely in intra-national migrations. Though the generalizability of these findings to the phenomena of long-distance residential mobility in other countries and cultures is an open question, I focused on the United States as a kind of best-case scenario, in which barriers to internal migration are relatively low, yet distances can vary dramatically. Even so, people engaged with long-distance moves often face considerable challenges.

2.2 Background

Historically, Americans have been a restless nation, associating voluntary physical relocation with self-improvement (Jasper, 2000). Although moving rates have declined somewhat over the past 50 years, according to the US Census, 14% (over 40 million people) of the country's population moved within 12 months in 2002-2003 (Schachter, 2004). Over 5% (15 million people) moved long distance (outside of their county or state). Thus, the great majority of Americans have experienced residential mobility if not by moving themselves, then by negotiating the moves of the people close to them. Although more than half (60%) of the annual moves are local, made for various housing reasons, nearly 20% of yearly moves are made long distance, across state lines (Schachter, 2004).

A long distance move requires packing, finding lost items, discovering forgotten memories, making choices. Although any move is a hassle, long distance moving is a commitment to a significant change of place and, in some cases, life style (Fischer, 1982). It may be more of a shock to the system than movers expect, or it may be far easier and smoother than they predicted. Pre-move expectations often differ from post-move success analysis (DaVanzo, 1983; Rohlfing, 1995; Winstanley, Thorns, & Perkins, 2002). Moving is an event, a chance to change aspects of life that have been deemed unsuccessful, an opportunity to try new things, a moment when life can sometimes feel as if it begins anew (Jasper, 2000, p. 63).

When people move the needs for communication (such as keeping up relationships, coordinating events) and information seeking (such as finding maps, getting directions, learning about a new locale, shopping for moving services, jobs, housing, etc) become more relevant and focused. Individuals may have to consider the availability of high-speed internet, mobile phone coverage, and the process of unplugging and plugging back into these networks as they select where they will live and how they will organize their "new" life. Pent-up impulses to reorder, abandon, or acquire technologies and services can be catalyzed into action, feeding the desire to "settle" into a new life in a new location.

The concept of "feeling settled" is difficult to define, yet our respondents were very clear about knowing when they were not settled. "Feeling settled" seemed to relate to the concepts of happiness, contentment, being familiar with your surroundings, having a developed local social network, etc. It was not the same as any of these concepts, but seemed to encompass some aspects of all of them at least for our respondents. Yet getting to the point of "feeling settled" in the new

location was often an important goal. For some participants, the term "settled" had negative connotations of stasis and loss of youth; even so, they engaged in settling behavior. Based on the interviews, we identified three major aspects to "feeling settled":

1. Having possessions and the living space set up in a way that is familiar and satisfying
2. Developing a level of local knowledge of the new location that is perceived to be impossible unless one lives in that location (knowing the best places to eat, the shortcuts and back roads to avoid traffic, etc.),
3. Balancing long-distance, technology-mediated and geographically proximal social ties in a way that is habitual, consistent and devoid of major conflicts.

The rest of this chapter explores the three aspects of "feeling settled," and focuses on how movers use and don't use ICTs to help them adjust to the new location.

2.3 The study

The goal of this study was to collect a variety of real-world, detailed stories about recent (or immanent) long-distance moves. These stories were used to understand such experiences from the mover's points of view. Interviews focused on the way movers used ICTs and value they did (and did not) find in ICTs, before, during, and after the move. Two-person research teams conducted a total of 11 interviews in the form of 2-3 hour home visits. Interviews were informal, asking people about their reasons for moving, the process of moving itself, and the mechanisms they used to adjust to the new location. The home interviews included several sketching exercises centering on the time-line of the move and discussing geography and social relations in the current and previous residential locations.

The sample was limited to long distance movers (300 km [186 mi] or more) who have moved (or were about to move) across state lines within previous 6 months. The sample was also geographically limited to the Los Angeles and Portland metropolitan areas, two rapidly growing regions but with disparate reasons for their popularity (Richardson & Gordon, 2001). Participants were selected using the snowballing technique by asking friends of friends and acquaintances, as well as our participants, if they knew anyone who had recently moved or were about to move to or from Portland or Los Angeles metropolitan areas. Six of our interviews were in Portland, four in Los Angeles, and one in Seattle. Table 2-1 illustrates some of the properties of our sample including origin, destination, distance moved, and length of tenure at the new location.

	Origin	Destination	Distance	Reason	Size	Examples of ICT use for "getting settled"
A	Seattle, WA	Portland, OR	315 km 196 mi	Employment relocation	2 adults 2 children	Collected e-mail addresses from everyone even if wasn't planning to keep in touch – to not hurt anyone's feelings
B	Mendocino, CA	Portland, OR	891 km 554 mi	Lifestyle change	2 adults 1 child	Decided where to live based on suggestions received on Craigslist.
C	Los Angeles, CA	Portland, OR	1577 km 980 mi	Employment relocation	2 adults	Decided to purchase a computer, but worried that they would spend too much time using it – too available.
D	Las Vegas, NV	Portland, OR	1908 km 1186 mi	Lifestyle change	2 adults	Sent postcards of Portland, because it meant more. Felt that cell phones/email made voice contact cheap.
E	Phoenix, AZ	Portland, OR	2148 km 1335 mi	Employment relocation	2 adults 1 child	Read online publications from the old location in order to maintain a sense of context when talking to friends.
F	Phoenix, AZ	Portland, OR	2153 km 1338 mi	Employment relocation	2 adults 2 children	Made the decision to buy the house based on pictures sent through email.
G	Portland, OR	Nashville, TN	3873 km 2407 mi	Employment relocation	2 adults 5 children	Found realty listings online. Acquired cell phones to talk to realtors and to family and friends long distance.
H	New York, NY	Los Angeles, CA	4497 km 2795 mi	Lifestyle change	1 adult	Made a decision for a major lifestyle change because of an email exchange. Met people through Friendster.
I	Providence, RI	Los Angeles, CA	4803 km 2985 mi	Employment relocation	2 adults 1 child	Wanted a way to de-clutter, keep memories but get rid of the volume of physical things.
J	Boston, MA	Los Angeles, CA	4816 km 2993 mi	Lifestyle change	1 adult	Used elaborate methods of keeping in touch through mailing lists, email, Friendster, SMS, IM, cell phone.
K	Providence, RI	Portland, OR	4956 km 3080 mi	Lifestyle change	1 adult	Disliked e-mail but found it an affordable way to communicate. Missed the "community" feel of a landline.

Table 2-1: Basic properties of the study sample

2.4 Results

The body of migration research suggests that the experiences of moving over long distances are different, depending on the life-stage of the movers, their gender (Magdol, 2002), their socio-economic status, whether they rent or own (DaVanzo, 1983), whether the move was assisted (corporate relocation program) or self-organized (Ritchey, 1976). Despite the diversity in this sample, the moves of the respondents had many things in common. For example, all of the respondents agreed that "the move started long before moving day and carried on long after the furniture arrived." They repeatedly stated that there were two parts to the move – the physical part, involving actual packing, heavy lifting, physical relocation, and the psychological part, involving reconciling with the reality of the move and all that it entails.

All of the respondents shared several seeming invariant aspects to the move – they went through the process of sorting their possessions (a form of cleaning), integrating into their new surroundings (exploring the new geography, re-arranging the new location to fit tastes and preferences), and renegotiating social relationships (adjusting newly long-distance relationships, rekindling old and weak ties, meeting new people). It is the latter aspect of the move that also

seemed the most complicated and painful. All of the respondents related these aspects of the move to the process of "getting settled" in a new location.

2.4.1 Renegotiating the relationship with possessions

The home domain has enjoyed an increasing amount of interest as a site of technology adoption and use (e.g. Crabtree, Rodden, Hemmings, & Benford, 2003; O'Brien, Rodden, Rounceield, & Hughes, 2000). Yet a household is not just a space filled with appliances and ICTs. A household is usually filled with our possessions, both technological and not. Over the course of use, we develop relationships with our possessions. We grow attached to things that end up defining our personal space – the art on the walls, the pictures on the table tops, the furniture, and the appliances. Things can collect dust of sentimental memories on them even as they get relegated to the basement or the boxes we rarely open. These caches of forgotten things lie undisturbed until their owners are forced to reconsider every corner of their dwelling when they are getting ready to move. As most "moving tips" leaflets will readily point out, any kind of moving is often a catalyst for a thorough "spring cleaning," an excuse to get rid of things, give, donate, or throw them away.

Confronting the weight of one's possessions was an important theme throughout our home visits. For example, consider the case (I) of Mary and Ryan, who had just completed a move from East to West Coast. Ryan's employer was taking care of all the expenses, but Mary was eager to do some spring cleaning before the packers and movers arrived. She saw moving as a "nice reason to get rid of stuff you don't really need anymore." She firmly believed that "material things weigh you down" and liked getting rid of them, giving them away. "Throwing things out becomes easier as you do more of it," she recounted.

However, we found that "spring cleaning" is not necessarily a straightforward process. It can be an emotion-laden balancing act between the desire to keep cherished memorabilia and the desire to cast off the oppressive weight of physical clutter. One of our participants explained that he was reluctant to throw away things, because these objects made him feel "more at home in the new place." This "stuff" that Mary saw as old and disused was really "part of who Ryan was, things that brought memories." Yet both Ryan and Mary agreed that accumulating things was a perpetual process. Another of our respondents lamented that "sometimes, you can't even remember when the last time you used some of these things was." Not only do items grow old with disuse, but the uses of many possessions and their necessity are often a mystery even to their

owners. While to some, possessions are fraught with memories, to others, they are simply causes for clutter and hassle. ICTs have yet to adequately address "inventory control" issues within the home that deal with possessions as both objects and memories. Could ICTs help reduce the clutter by somehow retaining memories beyond the objects?

Although cleaning is part of the moving process, movers rarely rid themselves of all their possessions to start wholly anew (household E came close, however, discarding their previous "Las Vegas" décor to embrace a new "Northwestern" sensibility). A substantial part of what they own gets transported to the new location – an activity that has fostered a whole industry. While local and regional moves can often be done by the movers themselves, long-distance moves are much more involved and require assistance from others to varying degrees. This is especially true for coast-to-coast moves, where large distances make hiring professional movers more cost-efficient. With long-distance moves come the horror stories of moving, where packers don't pack things right, possessions get damaged for any number of reasons, and it is often impossible to tell when and in what condition your "stuff" will arrive.

Our respondents expressed anxiety over not being able to track their possession as they were transported to the new location by someone else, not knowing where their possessions were at any given time, or what may have been happening to them. In fact, one of our respondents even suggested the use of RFID tags as a way to track possessions in transit. This concern over "is my stuff safe" was more than just an economic concern over possible replacement expense, it was a concern over material that bore great personal meaning and in many respects signified personal (and household, familial) identity. Apart from some initial forays by the home-alarm and security industry, the potential for technologies to address these concerns both in the context of a move and the larger context of "settled" life is, for the most part, unexplored.

While moving presents a kind of imperative for casting off unwanted things, and for transporting the bulk of one's possessions to create continuity in a new context, it is also an occasion for acquiring new things – and new forms of connectivity. In some cases, the new possessions are acquired in direct support of the move, though they may persist long afterwards, marking the beginning of new habits and behavior patterns.

For example, one of the families we interviewed (G) found that it was difficult to communicate with real estate agents without a cell phone. At the same time, they were expecting to spend a

large amount of time communicating long distance because their oldest sons were staying behind. Suddenly, it became cost efficient to adopt cellular phones and national calling plans. Another family (C) decided to purchase a computer for the household. Their living situation was about to change due to the move that required both spouses to change jobs. Where previously it was convenient to use computers available through their school and place of employment, uncertainty of future employment, plans for having a child, and change in the size of the living space due to the move, provided enough reasons for the purchase.

Notions of physical stuff, technological connectivity, and personal identity were particularly intertwined when it came to questions of outfitting a new home with the internet, telephone, and/or television service. While most of our respondents already owned various types of technology equipment, including computers, cellular phones, and televisions prior to the move, they found that they had to make a set of decisions about reconnecting to the infrastructure that provided various ICT services at the new location. In many cases, it became clear that their relationships to these meaning-laden technologies were ambivalent.

For example, family (I) decided that they did not want to reconnect to cable TV, in order to encourage a less TV-oriented lifestyle; nor did they want to reconnect a landline telephone, seeing it as superfluous given their increasing reliance on cell phones. However, they wholeheartedly continue to embrace the internet as central to their lifestyle, and perceived broadband Internet access to be a requirement. They found that satisfying all three of these lifestyle statements to be impossible, however, as DSL apparently required a landline telephone connection, as a cable modem would cable TV. Paying for a "side effect" service they would not use was most unpalatable.

In the end, they decided to reconsider getting landline telephone after all. They were unwilling to give up the greater reliability it offered. They were also bothered by a secondary, unexpected effect of switching from a landline to cell phones. They found that after dropping a landline, they lost incidental interactions with their spouse's friends. These friends did not call the shared phone and talk to their spouse for a minute or two anymore, losing the opportunity for polite chit-chat of life updates with their friend's spouse. The couple realized they were missing these spontaneous moments of inclusion into each other's social lives. This effect was similar to one documented several decades ago, when "party lines" disappeared in favor of more private phone lines and families felt they had lost an intimate connection with their neighbors (Fischer, 1982).

Several form-factor reasons also made the cell phone a poor fit for use as a home phone. Its small size, while a boon when being carried outside the home, became a liability within. At home our respondents developed a "home within the home" for their cell phones, usually next to the keys, the wallet, and the handbag - a cognitive trick used to reduce the potential of losing it. However, precisely because of the small size, the phone could be carried anywhere in the apartment during a conversation and then left, and lost, where the conversation ended.

Unlike cordless home phones, cell phones usually lack a handset locator function, producing a loud noise upon receiving a "locate" command. Instead, most have the opposite: a "vibrate" mode to help reduce unwanted, socially unacceptable interruptions. It's a good feature, unless there is a glass of water standing underneath the shelf where it resides together with keys and wallet when someone calls and it happens to vibrate off into the water. It can also simply vibrate off the shelf and fall on the floor, vibrating itself under a desk or a cabinet, successfully hiding itself. When was the last time we had to deal with technology that walked of its own accord?

Although these issues are not new to the design community, we want to call attention to the fact that our respondents did not expect to encounter these problems when they made the decision to abandon the landline. Thus their choice of hardware was driven more by factors of "look and feel" so heavily advertised by wireless providers. While the hardware that provides some solutions for these problems already exists, it is nascent in its development. Our participants ended up working around these problems, because they found themselves locked into a year-long plan which was costly to terminate. For example, because Mary's activities at home were mainly reading and talking on the phone, she used her cell phone as a bookmark. This prevented it from vibrating off the surface and she was less likely to forget it in a random location. These examples illustrate to potential confrontations between people, their stuff, and how they want to live (i.e., who they want to be). Our respondents clearly indicated that there exists a need for better integration of the physical and the digital domains. Things designed for use in one particular space or domain may migrate to others, because people function in many spaces and domains and will carry their mobile possessions with them.

2.4.2 Renegotiating geography

Decades of cognitive mapping research have analyzed how individuals map their neighborhoods and how this type of cognitive mapping is essential for development of routine behavior (Lynch, 1960). Having a good cognitive map of the immediate surroundings may also play a comforting

function, making the place where one lives familiar in an intimate way. Unlike online mapping utilities, these maps operate through obscure personal landmarks, memories and word of mouth advice. As one of our respondents explained, "it's the people you know in the favorite places you go that makes the place you live yours. It's not something you can do when you visit, only when you live there. But it's exciting to explore a new place."

Many of our participants told us that before the move they rarely felt the need to the use online mapping utilities or local information services. After the move, however, most of our respondents used online mapping utilities in some capacity to orient themselves in the new location and to gain some spatial understanding of the layout of the new environment. For example, the one family explained to us that they did not own a map of Portland but couldn't have survived without online maps. "Every time we have to go somewhere we just look at the map… and I can zoom out… and there… you see, there is our street and we can plan our route and it almost always works. Its great, we would be so lost without it." Yet few of our respondents used online information and location-based services to find out about social events or "best" places for food, shopping, entertainment, etc. When they did use online systems for this purpose, they often qualified this as something more personal than simply getting information: "we like to use Craigslist to ask advice, because it really feels personal and we feel like the people on there… they are like us… like we can trust them a little more." Some of our respondents insisted on using local newspapers and advertisements despite reliance on online services for man of their other needs: "We find what's playing and where for the movies in the newspaper and then we use the map-thing on the Internet to find out how to get there." It was as if the physical artifacts specific to the location, like local newspapers, often carried more clout and credibility than their online counterparts. As if online location-based services and information listings were too impersonal to seem credible.

Even though movers spent time exploring the new location, they also put effort into keeping in touch with their old location by following local news and checking on weather on the Internet. One of our respondents checked the weather in Phoenix every day through the Portland summer, by setting up an indicator on one of the portal sites he used, which enabled him to compare the two. This way he not only retained a sense of involvement with the old location, but also re-asserted that moving was indeed a good thing on a daily basis: "every time I look it up, its some ridiculous over 100 temperature over there… global warming getting worse… so then I just walk outside into the yard… with the dogs and enjoy the weather." Another respondent at first

subscribed to the paper versions of both the New York Times and the Los Angeles Times in order to maintain connections in the old and the new location. However, he quickly realized that it was simply too much paper to read and the costs were prohibitive: "at first I wanted to really preserve that morning coffee and reading the Times on the porch, but then there were two different Times … and I didn't have enough time or money to have both… and I figured I'd keep the LA version since I live here now. I find I spend quite a bit of time reading the New York Times online though… strange, I never used to, its an inferior version, it just doesn't have the same impact… no physicality to it… like its less real." Several of our respondents insisted on subscribing to new local newspapers and reading them in their physical form, but switched to reading the old local newspapers online.

This switching from a physical object made of paper to its online version seemed to be not just a substitution, but a substitution forced by distance and a reminder of it. Some of our respondents articulated effects of the ability to keep in touch with a place in this fashion: "it's great, you can read about what happens in the old place online and you sort of are a part of it still… I email my friends when I find out interesting things, just a note here and there… just to see if they know, it's fun if it turns out I'd found out about something first and it's a good reason to start a conversation," explained a man who spent most of his time at home as a stay-at-home dad. For him, knowing about the events in a location was a way to keep in touch with people in that location, a social vehicle and a catalyst for social interaction. Yet easy access to information about anywhere anytime was not always an advantage: "sometimes, I feel like... the more I spend reading the newspaper online, the more I realize I am not there anymore… the place has hold on me and my friends expect me to know what's going on, since I can read the paper… but I don't really have time… I am sort of more interested in what's happening here," explained another participant. The ease of access is known both to the mover and the people they have left behind, which sometimes may create burdensome expectations. While online services make it easier to follow events in any corner of the world, this ease can have an unexpected effect on social relationships, at least for those who migrate.

2.4.3 Renegotiating social networks

Of the tasks that movers' face, renegotiation of social relations seems both most challenging, and most amenable to technological support. Social science research on migration suggests that geographic relocation may result in disruptions of existing social networks and increase stress and depression (Magdol, 2002). In fact, geographic relocation has been cited as the most frequent

cause of relationship dissolution (Rose, 1984). Moving throws much that is taken for granted into question: How and where will I receive emotional and practical support? Which of my now-distant contacts should I try to keep in touch with, and how? How will I make new friends and local contacts? Yet as ICTs make promises, explicitly and implicitly, of continuous connection, inexpensive access, and erasing concerns of distance or location, these concerns never vanish. Social relations were a central and serious concern for all of our participants, and all made substantial use of ICTs to address them. ICTs do enhance one's ability to maintain relationships over distance (Sproull & Kiesler, 1991). In fact, in some cases, ICTs played a central role in terms of delivering support and easing move-related stress. Some of our participants told us they felt less along and more secure and confident because they could always pick up the phone and talk to family and friends. Yet, far from "solving" the many problems encompassed by the notion of renegotiating one's social network, ICTs seemed to add additional layers of social complexity. Far from erasing effects of distance, the stories of our participants support Cummings et al.'s findings that despite the improvements in the array of ICTs, contact with many people from the past tends to trickle away to nothing (Cummings, Kraut, & Lee, 2006).

Although a number of HCI researchers have given this topic much thought (see for example Golder, 2004; Siio, Rowan, & Mynatt, 2002; Tolmie et al., 2002), "keeping in touch" with people may be only half of the story. Long distance moves to a new location make it necessary for the movers to establish a new geographically proximal social circle in order to eventually "feel settled" (Duck, Miell, & Miell, 1984). This process may take years to complete and requires a certain amount of time commitment. It may start with the revival of old social ties or activation of weak and opportunity ties (neighbors, new co-workers). Eventually however, individuals build a circle of ties they find most comfortable (Duck et al., 1984; Fischer, 1982). Our participants anticipated this process to last anywhere between 3 and 6 years: "it will really feel right when we meet the right people… but that takes a long time and it's not that easy."

In our study we found that there were three main types of relationships that movers had to negotiate due to the move: two types of pre-existing relationships – mediated and "left behind", and new relationships – ones that the movers initiated in the new location. Mediated social relationships were a stock of long distance relationships that individuals have maintained mostly via ICTs for a period of time prior to the latest move. These relationships tended to experience little or no change due geographic relocation because the pattern of interaction over distance was already pre-established and proven successful. The number of such relationships seems to have

been directly proportional to both the age and the propensity towards mobility of the respondent (younger, more mobile individuals tended to have much more extensive and spread-out networks), as well as personality differences (more gregarious participants seemed to simply know more people). Surprisingly, an overwhelming proportion of close mediated relationships were blood kin, rather than friends: "I call my parents a lot, once every couple of weeks… that's a lot for me … it's always been like that," one participant explained. "There is my sister, I call my sister once a week… Even when we were in Sweden, I called her… not quite as often, and we emailed more then, but we like to talk," told us another.

The mediated friendships, however, were often relegated as "important contacts" rather than as close friendships. These weak ties could be re-activated when needed, but that required less consistent maintenance: "It's like a fraternity, - said one of our respondents – we update each other about the important events, you know, birth, marriage and it's all through announcement postcards… we find out more from those announcements than through email… email and phone are kind of rare." Some movers, however, did have close mediated relationships with friends: "this family, we met them before we moved to Kansas, which was before Seattle and we always kind of kept in touch… we email a lot, and sometimes we call and spend hours on the phone, but that's not nearly as often… now we are moving again and they are moving here, which is funny… but its ok… we will keep in contact just the same."

Several of our respondents spoke about re-activating the relevant "contacts" dependant on their geographical location both as potential friends or sources of information. "Well, I didn't really know them very well before, they lived far … we didn't really keep in touch very much… but now that we are practically neighbors… I expect we will be spending some time getting to know each other," explained a respondent about a couple she had met previously and had kept in touch with via Christmas cards for several years.

Previously mediated relationships that did not become geographically proximal due to the move, remained unchanged during the process of geographical relocation. Close relationships may have been more likely to provide the kinds of social support and warm presence that the new migrants perceived necessary while they got adjusted to the new location: "I call my mom a lot. I always call her a lot when I just move." One of our respondents (K) was having a hard time adjusting to the new location so she spent what seemed to her a huge amount of time talking on the phone to her parents: "it's amazing, I call them more now than I have before, but they … I've always

mostly talked to them on the phone, since I moved the first time to Providence, so it's ok… I call and I can talk to the whole family and I feel better. I can't really call my friends from Providence too often because… they are busy." It was easier to call family because she had already established a method of long-distance communication with them. The friends who used to be in her immediate geographical location, however, were a more complicated issue. Previously mediated relationships have already withstood the test of time and distance prior to the move, and have already been selected for preservation. During this new move, they did not need re-adjustment. The pattern of communication has already been established and, most of the time, did not need to change significantly due to the new relocation. Partners already knew what was appropriate and what actions allowed this relationship to remain salient and alive.

The friends left behind in the previous location comprise the second type of relationships: ones that were heavily based on face-to-face interaction prior to the move. The number and breadth of these relationships is, of course, related to the length of tenure in the previous location as well as personality of the individual (how sociable they are for example). These relationships vary not only by how important individuals perceive them to be but also by how feasible they are to be maintained at a distance.

At the time of migration or even before, when migration becomes inevitable, geographically proximal relationships may be evaluated for utility and level of closeness. "She tends to sort of cut people off when… when she is about to move…" explained one of our participants about his wife. She confirmed: "well, not really cut people off, but I went to some baby showers… and I didn't really feel I needed to be there anymore, because … most of these people I wasn't going to see anyway [after the move]". These relationships are then "prepared" for distance through notifications of impending departure, exchange of contact information, and exchange of gifts and memento's. "I've been collecting emails and addresses from friends, you know, being so far, we will email and call, but probably email more."

Most relationships in a person's geographically immediate social circle will be dropped or at least made dormant, while a few select friendships will be relegated to an attempt to make them mediated. "This woman, we met at church, and I like her and we are kind of friends… so I think we will email each other for a while… but it's kind of like that, it will fade with time… its not that strong." In a sense, individuals have to renegotiate a set of their social relationships in their

old location, making agreements on new patterns of communication – new ideas of what is/is not appropriate.

Relationship research suggests that relationships with friends need to be enacted in order to survive (Duck et al., 1984). Each relationship needs to be injected with communication episodes in order to retain a level of involvement and perceived importance. Distance makes certain types of communication much harder and more costly; changing the opportunity costs for enacting relationships that depended on these types of communication – face-to-face interactions and landline phone calls for example (Salvador & Anderson, 2003; Winstanley et al., 2002). Thus, relationships that require these types of communication to survive either fade or are recast to accept other types of communication and/or a different pattern of face-to-face meetings and phone calls. "We have wonderful neighbors here, really great people, we watch each other's kids, trade spices over the fence… but its neighbors… they move, or we move, and you never talk again…" Our respondents were aware that some parts of their existing social network will not survive the strain of a long distance move. It was a resignation to inevitability, a utilitarian approach to selection based on the feasibility of maintaining a particular connection: "there is only so much time you can spend keeping in touch … and some people… they require a lot of time… and sometimes, it's just not worth it... even with email, it does not work."

Among our respondents, we found that more experienced long distance movers had developed skills that allowed them to gage whether a particular relationship would survive the process of such renegotiation or slowly fade. Most movers still expected a large proportion of their now-long-distance friendships to endure at least for some time after the move, but their approaches to this process differed. Less experienced movers wanted to keep in touch but were at a loss of how to accomplish that: "I have emails addresses and phone numbers for so many friends… I really want to try and keep in touch… so many great people left behind… I don't really like email and calling on the phone… I run out of minutes, it gets expensive." More experienced movers simply applied previously developed processes again: "with [my business school class], we are all on a big e-mailing list, but I always create my own, small ones, for specific groups of friends, so we chat over it… I let them know when I am around… and I can select who I want to meet that way… and we text message a lot… not so much call, but text message… its nice sometimes just to know… be thought of." Some forms of communication, while low on content, such as SMS, can provide movers with an ability to remind others about themselves, to tell someone they are "being thought of," without the invasiveness of a phone call. However, these forms of

communication were not common among our participants, despite the fact that all of them were comfortable with using computers and cell phones.

2.4.4 The social adjustment model

Throughout our interviews, there was a common theme of tension between the old, the things left behind, and the new, the unknown of the things discovered in the new location. This tension was evident in decisions about possessions, in exploring the new geography and social contacts and keeping in touch with the old places and people. Social geography research has long used such "Push-Pull" models in the studies of migration (Golledge & Stison, 1997) to illustrate tensions between the economic and individual factors that encourage individuals to stay in their old residence and those that encourage them to move to a new location. Most of these models habitually focused on institutionalized social and economic structures as potential factors that motivate or hinder migration (Golledge & Stison, 1997, p. 440; Tolmie et al., 2002). While we do not argue that economic factors play a role in migration decisions, in this study, we were concerned with behavioral adjustments that happen after the decision has been made.

Our data suggest that at the time of the move and for some time after the move, new arrivals experience a tension between the things that still draw them back to the old location and the task of negotiating the demands of settling into the new location (DaVanzo, 1983). Some of the reasons for this tension are temporal and happen due to the inelastic nature of time: "there are only so many hours in a day!" explained one of our respondents. As people move, their desire to retain connections with the things left behind run aground when the demands of the new location take up available resources. Some of the reasons for this tension are emotional and happen because it is simply impossible to "take everything with you" even if the move is supported by a corporation. Things like the existing community, personal relationships, or favorite haunts are often not transportable. We propose the social adjustment model (Figure 2-1) as a way to make sense of this tension.

In order to illustrate the model fully, we will take the case social relationships as an example. While relationships that were already mediated do not require many changes, face-to-face relationships at the old location and newly acquired/reactivated relationships at the new location place different demands on the movers. Research on relationships demonstrates that maintaining personal relationships requires significant investment in time and resources (Duck et al., 1984) in order to survive. One such investment is often done in the form of communication episodes.

As face-to-face communication becomes rare due to the distance between the mover and the people in the old location, partners usually substitute other modalities to make up the lack created by this change. As such, they tend to move much of the emotional support from face-to-face communication to other modalities, such as phone or computer mediated communication, which were previously mostly used for micro-locational scheduling. As some of our respondents told us, communication episodes in other modalities, specifically via email and phone, became less frequent but much lengthier, changing in content.

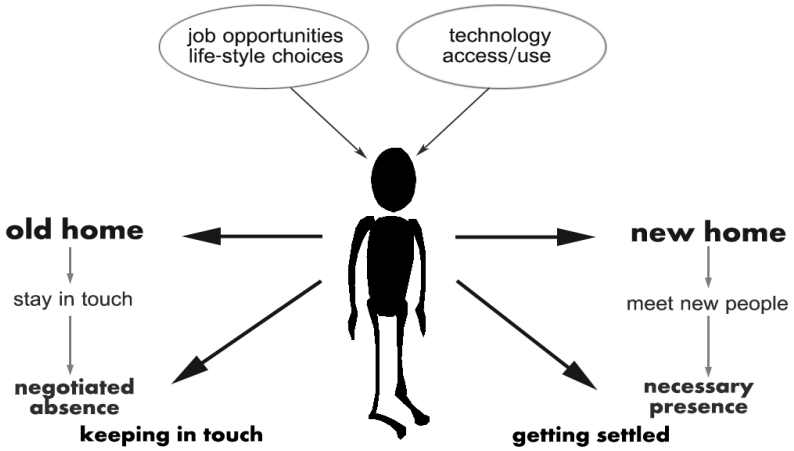

Figure 2-1: The Social Adjustment Model

Prior to easy availability of the Internet and national cell phone plans, long distance communication was costly and its occurrence signaled the value of each particular relationship. Over the last decade, financial costs of long distance communication have drastically decreased, allowing movers to invest more time into particular relationships even at a distance. However, relationship partners in the old location may come to expect movers to pay attention to them in the form of email, IM, or phone calls precisely because it is so cheap and easy to do. Financial burden of communication is no longer a consideration or an excuse for reduction of the frequency of communication episodes. Yet, despite the selection and availability of various communication modalities and the ease with which they can be used, they still require time and effort from the mover.

Immediately after the move is the most time-intensive period of adjustment for movers. This is the time when they are largely unfamiliar with the geography of the new location and have to invest time and effort into a host of activities (such as adjustment to a new job or looking for one,

adjustment to a new home or looking for one, helping children adjust to the move, etc.). In order to meet new people and recreate a geographically proximate social network, movers also need to invest time into the social landscape of the new location and go through the painful process of initiating new relationships. Thus the demands of adjustment to the new location and the expectations of long-distance contacts borne of cheap and easy methods of communication may create a set of conflicting demands.

Our respondents dealt with this tension in different ways. At one extreme were a gay couple (D), who not only convinced some of their closest relatives (parents) to move along with them, but spent a considerable amount of time playing host to their closest friends in attempts to convince them to move as well. Essentially, they dealt with the problem of keeping in touch by attempting to simply move the closest parts of their social network with them to the new location. They combined the process of getting to know the city with spending time with old friends. At another extreme was a musician (H) who was so intent on keeping up the social relations from his old location, that he made 8 cross-country trips in the space of five months. In the end, he still was not able to sustain many of these now long-distance relationships. He also realized that he had "missed the window that new arrivals are granted, when locals attempt to get to know [them]." He was now faced with having to put a lot more effort into his social life because he found himself left alone in Los Angeles, with his social network in the old location being several thousand miles away.

Ability to correctly balance the amount of time spent on keeping in touch with the old and the effort put into exploring the new seemed to be something that came with experience of long distance moving. Yet even those of our respondents that had experience, had trouble finding this balance immediately. A common theme in our data was that overcoming this tension between the old and the new, finding the right balance of keeping in touch and meeting new people, was a large part of getting settled in the new location. In part, easily available communication methods made this process harder, although other aspects of moving, such as getting information about the new location, finding places, coordinating activities or receiving emotional support were made easier by the same technologies.

2.5 Summary

Long-distance residential mobility is a fruitful domain for research into human-computer interaction. As application domain in its own right, it is a common, complex human endeavor,

many aspects of which have only begun to be addressed by ICT design. As a window onto the relationships people have with their possessions, local geographies, and social networks, it illuminates a range of practices around ICTs and unmet needs in which future ICTs could play a role.

In an initial exploratory study of long-distance interstate movers within the United States, our participants' experiences have pointed to a number of potential future directions for research:

- Everyday conceptions of "place" are being changed by geographic databases and other online services. Our initial study has highlighted the roles the ICTs already play in financial/economic understanding of places in terms of real estate markets, climactic understandings in terms of weather monitoring, and social perceptions in terms of bulletin board suggestions and recommender systems. However, many other aspects of place understanding and support for cognitive mapping can be expected to evolve.
- Online merchants and services such as Craigslist and eBay may be making getting rid of stuff easier, though they also ease the acquisition of new stuff, potentially making the problem worse. There may be a role for object tagging and tracking technologies to be domesticated into useful tools for households, though we could also see a system that tracked complete household inventory backfiring to produce more contention within the home, greater feelings of burden and an invasion of privacy.
- Social and cultural norms around obligations of connection and "keeping in touch" are evolving, as long distance communication methods drop in price and usability of ICTs continue to improve. Yet, sometimes natural barriers to communication are good. Removing those barriers can build sets of new expectations in social relationships which, in turn, may be damaging to these relationships in the first place. Arguably, ICTs have given their users better tools to accomplish sets of goals, but because existence of these tools is common knowledge, the social environment exerts pressure on the users creating a larger, often uncoordinated set of demands.
- Our participants benefited from the ability to easily maintain mediated relationships. They also suggested that the reason why most of these relationships were kin rather than friends may have had to do with the qualities of ICT-based modalities. Cell phones and email were not able to replace physical presence regardless of the level of fidelity, or produce a sense of shared social context so important in the growth and development of friendships. However, ICTs were able to give a sense of support and assurance, which was important in a situation with as many unknowns as a residential move. New designs may need to take into account how these limitations and advantages affect the people who use these technologies.
- When designers consider a need, they also must consider why that need exists and what other needs may be connected to it. For example, many ICT designs have addressed the need to "keep in touch", some have addressed the need to "meet people" and to "create or expand a social circle", yet few have considered that these needs are connected through temporal demands. The new designs then, need to address the questions of time-investment into both activities, considering potential time-management conflicts as a necessary part of the design process.

Chapter 3

Considering a Residential Move

The social adjustment model described in the previous chapter captured one of the socio-emotional aspects of the long-term adjustment to the new location after a residential move. The model described a tension between social relationships that were developed prior to the move and relationships developed in the new location after the move, and the way this tension had manifested in movers' lives. We had observed that some movers tried to limit social interaction with pre-move friends in favor of spending time meeting people in the new location and this strategy seemed to be beneficial although there was a sense of loss and distance from the pre-move ties. Others focused all of their energies on the maintenance of pre-move relationships at the expense of the social involvement in the new location. At its extreme, this strategy resulted in what appeared to be dissatisfaction with the new location and loss of pre-move relationships despite the efforts. Most movers, however, tried to strike a balance between paying attention to their pre-move relationships and putting energy into developing relationships in the new location. Many conceded that finding a balance between managing pre-move relationships and getting socially integrated into the new location was one of the most difficult aspects of adjustment after a move.

A residential move is not a singular instance in time, but a lengthy process which begins long before the actual physical move occurs and continues long after the last box is unpacked (DaVanzo, 1983; Magdol, 2000, 2002; Stokols & Shumaker, 1982; Winstanley et al., 2002). Yet the qualitative study described in the prior chapter was able to focus on just one instance in time by conducting just one interview with each respondent. We were not able to follow the same movers over the course of their adjustment to the new location. Though we observed movers at

different stages before and after the move, we were unable to answer questions motivated by our original findings.

Our respondents differed in how they approached maintenance of pre-move relationships. Some of our respondents were able to maintain more pre-move relationships than others whether because they focused more energy into this process or because they were tech-savvy and extensively used available communication technologies for the task. Whether differences in maintenance strategies reflected on how many pre-move relationships were retained and how well, remained a question of interest. Despite being able to retain pre-move relationships, it was unclear whether these pre-move relationships were beneficial to the movers' sense of happiness and well-being in the new location. Finally, our respondents differed in how they approached the process of social integration in the new location. Some spent substantial time and effort on getting socially involved in their new neighborhoods, joined organizations and spent time with new acquaintances. Others spent more time communicating with pre-move contacts both in an effort to bolster those relationships and to obtain some forms of emotional support as they coped with the stresses of the move. Yet we were unable to ascertain what role social integration in the new location had played in movers' eventual acceptance of the move as a positive life event through a short qualitative study of residential mobility.

In order to address these questions, we conducted a longitudinal national survey of recent movers. The quantitative component of this research surveyed recent movers three times over the course of two years, as they adjusted to a new location. The time-frame of two years was chosen because prior research has indicated that the probability of a subsequent move drops dramatically for those who have lived in particular location for more than one year (DaVanzo, 1983). Two years was also the average amount of time it seemed to take to "feel at home" in the new location as participants in our qualitative study had indicated. The panel design allowed inference of causality in ways that cross-sectional designs usually do not permit, because it enabled evaluation of changes in variables of interest over time (Shklovski, Kraut, & Rainie, 2004). The movers' survey was designed as a longitudinal study, with data collection conducted over the course of two years.

3.1 Participant selection

The initial survey was administered in January 2004, using a sample of approximately 6000 recent movers, obtained from the United States Postal Service's National Change of Address

database (USPS NCOA). The sample was selected to match Census population density data by zip code. The National Change of Address database is updated on average two months after an individual moves. Thus, we were able to make initial contact with respondents approximately two to six months after their move. The majority of annual moves in the US are 50 miles or less and defined as local by the US Census (Long, Tucker, & Urton, 1988; Schachter, 2004). We intentionally over-sampled long-distance movers, because distance is an important factor in determining the stress associated with a residential move. The initial sample consisted of approximately 1/3 local movers and 2/3 long-distance movers. Unfortunately, the USPS NCOA database provides only an indicator of whether the move was more or less than 50 miles away and not the actual distance of the move. After 3 reminders, approximately 32% of the initial sample, or 1779 respondents, completed the first survey (Time 1 - T1) [1]. The median move distance was 97 miles (197 miles for long-distance movers, 4 miles for local movers).

In September of 2004, nine months after the first survey, a follow-up survey was conducted among those who replied the first time. Of the 1779 respondents in the first survey sample, 65% (1156 respondents) completed the second survey (Time 2 - T2). In August 2005, approximately 11 months after the second survey, we conducted a third survey among those who completed the first survey. Of the 1779 respondents in the first survey sample, 56% (910 respondents) completed the third survey (Time 3 - T3). Of these 85% (771 respondents) responded to all three surveys. The comparatively low response rate for the follow-ups may have been due to the fact that people are most likely to move again within a year after an initial move (DaVanzo, 1983; Guest & Stamm, 1993). Thus a lot more of our respondents had moved without leaving

[1] At T1, 1917 (32%) of the original 6000 respondents responded to the survey. Unfortunately, 138 of these surveys were subsequently lost in transit by UPS, leaving us with a sample of 1779. Of the original 6000 respondents 386 (6%) were wrong addresses, 315(5%) indicated that they did not fit the criteria of the study (they had not moved in the 1-8 months prior to the survey) and 345(5.8%) explicitly indicated they did not want to participate in the study. The response rate was calculated using 5299 respondents who fit the criteria and potentially would have received the survey. At T2, we contacted 1779 respondents from T1. 1156 (65%) responded to the survey for the second time, 105 (6%) were wrong addresses, 61 (3.5%) explicitly declined to participate. At T3, we contacted 1613 respondents from T1 (excluding 166 that were wrong addresses or who explicitly declined to participate at T2). 910 (56%) responded to the survey, 350 (20%) were wrong addresses, 45 (2.5%) explicitly declined to participate.

forwarding addresses at T3 (20% at 18 months after the first survey) than at T2 (6% at 9 months after the first survey).

3.2 Logic of survey construction

The movers' survey consisted of three questionnaires. The first questionnaire was administered in January of 2004, 2-6 months after the move. The second questionnaire was conducted nine months later, in September of 2004, approximately one year after the initial move. The third questionnaire was conducted in July of 2005, approximately two years after the initial move. Due to the nature of the USPS NCOA database, we were not able to contact respondents before their initial move. In order to attain baseline measures of routine behavior before the move, we asked a set of questions where respondents reported on their behavior during the six months prior to the move (see survey summary in Appendix 1). Although self-report of behavior is fraught with recall errors, use of major events and life transitions as cues can aid in recall of event occurrence and estimation of their frequency (Menon & Yorkston, 2000).

A residential move tends to be a very specific stressful event and can be used as a natural marker for comparison of behavior "before" the move in the old location to behavior "after" the move in the new location (Tourangeau, 2000). Thus in the first questionnaire, at T1, we asked about respondents' informal and formal social involvement behaviors in the old location and the number of close friends they knew in the new location prior to the move. We also asked respondents to report levels of their adjustment at the time of the questionnaire administration (2-6 months after the move).In the second questionnaire, at T2, we asked about respondents' informal and formal social involvement behaviors after the move and adjustment and perceived social support at the time of questionnaire administration, which was one year after the move (see Appendix 1 for T2 survey additions). The third questionnaire, at T3 was similar to questionnaire at T2, asking respondents about their adjustment and perceived social support at the time of questionnaire administration, which was two years after the move (see Appendix 1 for T3 survey additions). Figure 3-1 illustrates this approach.

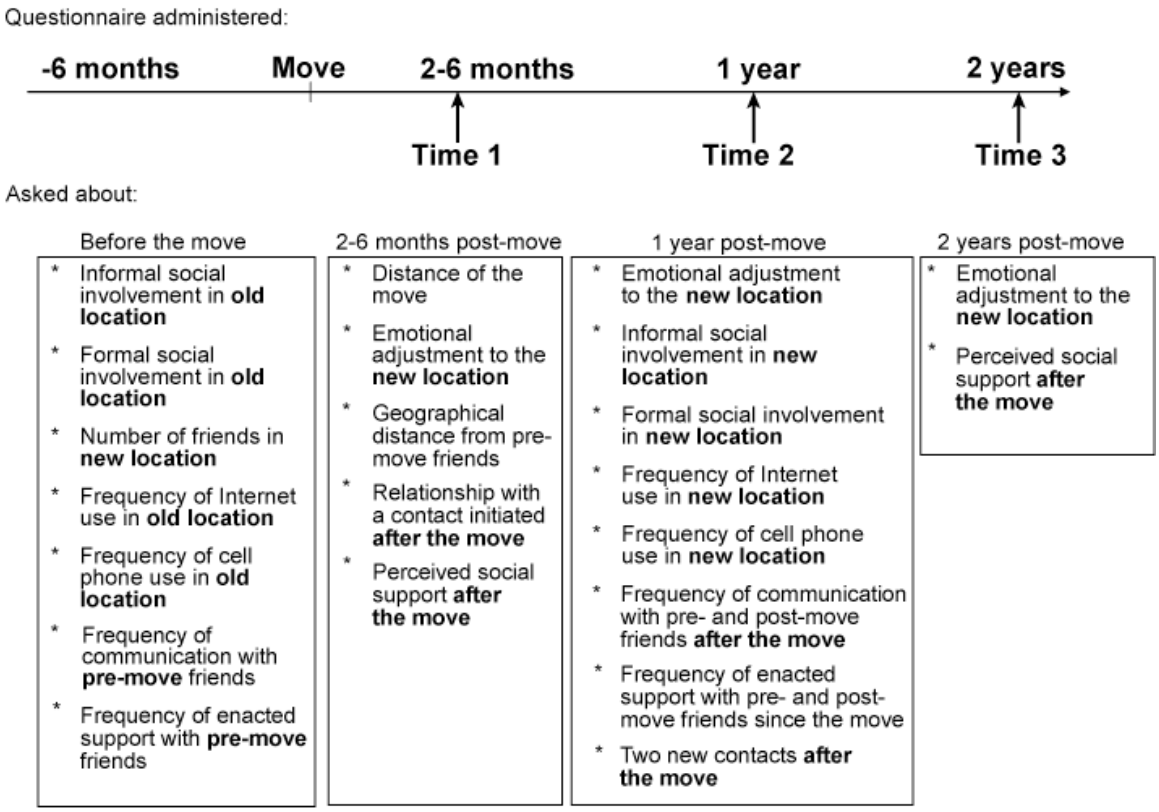

Figure 3-1: Logic of survey construction

We used a 7-point self-report scale on which respondents reported the frequency with which they performed various behaviors. Responses were marked in logarithm-like intervals, with the end-points of the scale ranging from "several times a day" to "never," and a frequency of 1-2 days a week as scale mid-point. These response alternatives were designed to provide contextual clues to help respondents recall and estimate frequencies of irregular as well as regular behaviors (Menon & Yorkston, 2000). Thus, we expected respondents to be able to report frequency of common behaviors, such as how often they engaged in social activities or participated in organizations prior to the move.

Correlational analyses provide some support for these assumptions (see Table 3-1). We tested the stability over time of our behavioral measures, correlating pre-move measures obtained at T1 with post-move measures obtained at T2, and T1 with post-move measures obtained at T3. We also tested the stability of the same behavior after the move by correlating two post-move measures obtained at T2 and T3. Stability correlations were much higher for comparisons of measures obtained post-move than of measures obtained pre- and post-move. For example, we measured informal social involvement prior to the move at T1 but after the move at T2 and T3.

Pearson correlations between the measures of informal social involvement at T1 and T2, and T1 and T3 were .48 and .46 respectively. The correlation between the same measures but measured after the move at T2 and T3, however, was substantially larger at .72 (see Table 3-1). This suggests that respondents reported different patterns of behavior pre-move vs. post-move, which was expected since a residential move often causes changes in behavior patterns.

		Frequency of cell phone use			**Frequency of Internet use**			**Informal social involvement**			**Formal social involvement**			**Adjustment to new location**	
		T1	T2	T3	T1	T2	T3	T1	T2	T3	T1	T2	T3	T1	T2
Frequency of cell phone use	T2	**0.45**													
	T3	**0.38**	**0.66**												
Frequency of Internet use	T1	0.16	0.08	0.14											
	T2	0.13	0.11	0.08	**0.61**										
	T3	0.15	0.11	0.16	**0.64**	**0.72**									
Informal social involvement	T1	0.20	0.14	0.16	0.18	0.12	0.11								
	T2	0.15	0.10	0.13	0.09	0.19	0.20	**0.50**							
	T3	0.14	0.13	0.17	0.06	0.14	0.23	**0.46**	**0.72**						
Formal social involvement	T1	0.07	-0.01	0.02	0.01	-0.02	-0.01	0.38	0.17	0.13					
	T2	0.00	-0.04	0.07	0.01	0.06	0.06	0.18	0.43	0.33	**0.51**				
	T3	0.03	-0.04	0.06	-0.02	0.04	0.04	0.15	0.33	0.40	**0.49**	**0.74**			
Adjustment to new location	T1	-0.07	-0.10	-0.02	-0.01	0.07	0.05	-0.07	0.19	0.16	-0.02	0.13	0.15		
	T2	-0.10	-0.13	-0.07	0.03	0.04	0.01	-0.02	0.22	0.15	-0.04	0.14	0.13	**0.55**	
	T3	-0.03	-0.09	0.00	0.03	0.02	0.04	-0.04	0.15	0.24	-0.05	0.14	0.15	**0.41**	**0.52**

Table 3-1: Stability correlations for select variables for three data collections.

Although common behaviors are relatively easy to recall accurately for a specific time period, especially if these are punctuated by a memorable event, memories of emotional states such as adjustment to the new location after the move are far less likely to be accurately recalled from an earlier time. As a result, we did not ask respondents to report retrospectively on their psychological states before the move. Instead, at each questionnaire administration, we asked respondents to report their emotional states at the time of responding, approximately 4 months and 1 and two years after the move respectively (Tourangeau, 2000). Thus we were able to assess change in outcome variables over time from T1 to T2, from T1 to T3 and from T2 to T3.

3.3 Social Network Elicitation Component

3.3.1 Data collection method

The movers' survey used name generators to sample the respondents' social relationships. The purpose of the name generators was to elicit a wide variety of social ties from which we selected ties that were closest to the respondent in age to follow over time. This procedure allowed us to broaden the range of nominated ties in order to broaden the variance on outcomes of interest (i.e. psychological closeness). When asked to nominate relational partners, people tend to select people who are psychologically close or cognitively salient at the time (Burt, 1986) while we wanted to sample a broader range of relationships.

At T1, we sampled five relationships that were present prior to the move. These name generators were phrased as follows:

(1) "Please list people with whom you socialized before your move. For example, these are people you went out with, discussed hobbies, movies or other spare-time activities, chatted online, or went out to lunch"

(2) "Please list people with whom you discussed important issues before your move. For example, these are people with whom you discussed your career, child rearing, school, health, or personal relationships"

(3) "Please list people who helped you with useful information or referrals before your move. For example, these are people who gave you advice about important purchases, helped you find a doctor or realtor, or referred you to people or organizations at your new location"

(4) "Please list people whom you first met online before your move. For example, these may be people whom you met on a news site, through a distribution list, in a chat room or online game or through an online dating service"

(5) "Please list the person in your household before your move who was closest to you in age?"

Following the general pattern of the movers' survey (illustrated in Figure 3-1), in an attempt to obtain baseline measures, we asked respondents to think of these "old" ties and to describe frequency of interaction and exchanges of support that happened in these relationships six months prior to the move. Respondents indicated their prior and current geographical distance from each tie, how they met and how long they've known each other. Respondents also indicated how often

they interacted with each relationship partner in person, by phone and via email and how often they engaged in supportive activities during the six months prior to the move.

At T1 we also sampled relationships that had been initiated in the new location after the move, using the following generator:

(1) "Please list people whom you met at your new location, whom you did not know six months before your move"

Respondents described one of these relationships reporting current frequency of communication and interaction. Respondents indicated their current geographical distance from each tie, how they met and how long they've known each other. Respondents also indicated how close they felt to each relationship partner and often they interacted with each tie in person, by phone and via email and how often they engaged in supportive activities since the move.

At T2 we revisited relationships sampled at T1 and asked about two more relationships that were initiated in the new location after the move. In order to obtain a range of relationships, we sampled one strong tie (intimate relationships) and one weak tie (neighbors). The generators were phrased as follows:

(1) Please list people whom you met in the last six months, with whom you discuss important personal matters.
(2) Please list people who are your current neighbors.

Respondents completed the name generators either on a paper or web-based survey providing a maximum of three names for each generator. On a paper survey, after nominating three people they were asked to select a person closest to them in age from each generator and then to describe their relationship with that person in depth. On a web-based survey, the program selected a person closest to the respondent in age automatically. Since respondent age and relational partner age were confounded by design, we included only respondent age into all models using the social relationship data.

3.3.2 Self-selection analysis

At T1, approximately 879 (49%) respondents skipped the social network elicitation component entirely either because the task was too onerous or because of privacy concerns (judging by ad hoc notes on the surveys themselves). The majority of those that had provided social network data

did not provide complete data on all generators. At T2, 445 (25%) respondents of those who had skipped the social network elicitation component at T1 filled out additional name generators.

3.3.3 Sub-sample selection for analyses presented here

	Old relationships			New relationships		
Relationship type	**Time 1**	**Time 2**	**Time 3**	**Time 1**	**Time 2**	**Time 3**
Significant Other	621	133[2]	79	7	34	18
Best Friend	934	654	428	27	141	78
Friend	718	492	332	201	558	326
Acquaintance	155	93	55	177	423	258
Relative	253	127	66	2	9	0
Other	158	99	57	111	245	133
Total	2839	1598	1017	525	1410	813

Table 3-2 Relationship type by old vs. new relationships – attrition over time

Respondents indicated their relationship to each social relation by distinguishing between romantic partners, close friends, friends, relatives, acquaintances and other. The category "other" often included landlords, bosses, clergy and business acquaintances that tended to get reclassified as friends or acquaintances at later data collections. In the analyses reported in this thesis, only acquaintances (including the "other" category), friends and close friends were included to avoid potential idiosyncrasies associated with relatives or romantic partners. We also excluded relationships that were initiated online to avoid potential confounding with geographical distance from partner.

Of the 900 respondents at T1 that responded to the network elicitation component, 881 (98%) respondents nominated pre-move friends, and 536 (58%) respondents named one new friend in the new location. Respondents reported an average of 2.2 pre-move friends, ranging from none to five friends and resulting in a total of 1872 dyads. At T2, 709 respondents answered questions about the same friends that they had nominated at T1. 625 (62%) responded about pre-move friends and 491 (48%) responded about the new friend they had nominated at T1. At T2 we also asked respondents to nominate friends they had met in the new location and 1020 respondents nominated friends. Respondents reported on average 1.9 post-move friends, ranging from none to three friends and resulting in a total of 1574 dyads. At T3, 493 respondents answered questions

[2] The Time 1 questionnaire included a generator for sampling family ties. However, due to a design flaw, respondents tended to skip the field that asked the name of the person they described. Thus we could not follow up in regards to most ties that were sampled by this generator. This design flaw accounts for a large drop in collecting data for the "significant other" relationship type at T2 and T3.

about the same post-move friends, resulting in 746 dyads for which there were data for at least two time-periods.

3.4 Mortality Analyses

In order to assess the impact of dropouts between three data collections, we conducted mortality analyses. Due to the nature of the dataset, we conducted two types of mortality analyses. The individual level analysis assesses the differences between responders and non-responders, comparing T1, T2 and T3. The dyadic level analysis assesses the differential drop-out of relationships as opposed to individuals, comparing presents and absent dyads at T1, T2 and T3.

3.4.1 Individual level analysis

For the individual level analysis we compared people who did and did not respond at T2 and T3 on data obtained at T1. Results indicate that people who responded at T2 and/or T3 were significantly older than non-respondents, less likely to own their residence, more educated, and less likely to use cell phones prior to the move. Respondents did not differ on other variables of interest.

3.4.2 Dyadic level analysis

For the dyadic level analysis we compared dyads that disappeared from analysis even though the same people had answered at T2 and/or T3. This meant that respondents had either skipped the social network elicitation component completely, skipped specific dyads deliberately or were unable to identify the person from the identifying information they had previously provided in the generators. For example, some respondents would indicate that they could not recognize the friend in question when the identifying information was a set of initials or a very common first name without a last initial. Unfortunately, unlike computer-based surveys, pencil and paper-based data collection allowed poor data-integrity control when respondents filled out their surveys. We compared these dyads on data obtained at T1 for old friendships and T2 for new friendships. In both cases, the friends that were dropped were weaker relationships. These were people that were known for a shorter period of time. They also tended to be less close, exchanged less enacted support and interacted less frequently in-person (for new friends) or by phone and email (for old friends). Thus the friends that remained in the sample were the stronger, more salient or important friendships.

We identified a total of 2031 old friendships at T1 and 410 (20%) of these dyads were dropped by T3. We identified a total of 1595 new friendships at T1 and T2 and 225 (14%) of these dyads were dropped by T3. This suggests potential problems with generalization of findings from analyses based on dyadic data because of the selection bias for relationships that were more likely to endure.

Chapter 4

Maintaining the old and building the new: Personal relationships after a residential move

Social relationships are important because they imbue life with meaning (Thoits, 1983), foster feelings of belonging (Baumeister & Leary, 1995) and provide a sense of being secure and supported (Albrecht & Adelman, 1987). Social relationships take a range of different forms, from family and relatives to friendships, co-workers and mere acquaintanceships. Friendships are voluntary relationships, largely free of structural constraints and based on equality (Graham Allan, 1989; Nussbaum, 1994). While significant others and relatives are often a great source of support (Ben-Shlomo, Smith, Shipley, & Marmot, 1993; Quarantelli, 1960), friends are crucial for psychological well being and feelings of belonging (Lin & Westcott, 1991; Rook, 1987).

Relationships and especially friendships are enacted through communication. Research on relationships demonstrates that maintaining friendships requires significant investment in time and resources (Dainton, 2000; Duck, 1994) and most are exchanged through communication episodes (Canary & Stafford, 1994). Advances in communication technologies have introduced a variety of ways people can communicate with their social relations. Information and communication technologies such as cell phones, email and instant messenger are integrated into daily life and have become virtually indispensable. People call, email and IM friends and family in other cities or states, or when they are next door or on the other side of town (Hampton &

Wellman, 2001; Licoppe & Smoreda, 2006; Smoreda & Thomas, 2001). Many researchers have explored the role of mediated communication in human relationships (Haythornthwaite, 2002; Shklovski et al., 2006; Smoreda & Licoppe, 2000), yet the precise role of communication technologies in the development and maintenance of friendships has been difficult to isolate.

Friendships are difficult to study because they need time to develop and, once developed, they tend to remain stable. Part of relational stability is that communication patterns become routine and disruptions are rare (Canary & Stafford, 1994). This stability poses a problem for studying the impact that additional communication modalities might have on relationship initiation or maintenance. Residential mobility represents a natural experiment, because it puts people in a situation where some of their previous face-to-face interactions must stop or decline, leaving mediated communication, such as phone or email as a way to retain contact. Recent movers, who relocate to unfamiliar locations, also face the challenge of meeting new people and building new friendships. This paper explores the role of communication technology use in maintenance of established friendships and initiation of new friendships after a residential move.

4.1 Background

Though there is no all-inclusive definition of friendship, scholars agree that friendships tend to be peer relationships with non-kin, free of cultural expectations of exclusivity and relatively forgiving of failures to meet relationship expectations (Winstead & Derlega, 1986). Friendships also provide a context for exchanges of support and provision of companionship (Rook, 1987; Wellman & Wortley, 1990). Friends do not appear out of nowhere. These are relationships that take time and effort and develop through interaction and enactments of supportive activities.

4.1.1 Social penetration theory

In their social penetration theory, Altman and Taylor (1983) outlined four stages of relationship development based on the idea that communication is critical in developing and maintaining interpersonal relationships (Canary & Stafford, 1994). This process is a function of both immediate and forecast outcomes, where the forecasts are based on current events and relational history (Altman & Taylor, 1983; Taylor & Altman, 1987). The stages described in the theory are *orientation, exploratory affective exchange, affective exchange* and *stable exchange*. *Orientation* is an initial "appraisal" and acquaintance stage. *Exploratory affective exchange* is a springboard for movement towards intimacy when relationships are friendly and relaxed though without much intimate communication. *Affective exchange* is where the relationships grow closer and more

intimate through extensive exchange of personal information. This is a process of relationship maturation as interactions become more unstructured and casual as well as more intimate, achieving greater mutual understanding. Once this "getting to know" process is complete (or at least slows down in intensity), friends reach the stage of *stable exchange. Stable exchange* is a state of continuous openness and reliability, where friends know each other well enough to be able to predict each others' behavior and to discuss intimate details of daily life. Altman & Taylor theorize that at this stage friends also can confidently expect to receive support in the time of need.

One of the implications of this theory is that communication and behavioral strategies involved in developing and maintaining friendships may differ depending on the stage of development. For example, Taylor & Altman (1987) suggest that the degree of reciprocity in self-disclosure and relational behavior is lower later in the relationship, especially at the *stable exchange* stage, where intimate relationships can tolerate more imbalances and may even become "self-sustaining" (Wright, 1984). This is because relationship satisfaction is conceptualized as a combination of past experiences, based on the accumulation of rewards and costs experienced throughout the history of a dyadic interactions and communication, and future expectations, based on forecasts of future behavior (Perlman & Fehr, 1986; Taylor & Altman, 1987; Thibaut & Kelley, 1986). It is possible that friendships that had reached the *stable exchange* stage should be less affected by changes or declines in frequency of contact and to increases in geographical distance, because changes in current frequency of communication and relational behavior can be compensated for by expectations of future rewarding interactions.

4.1.2 Incremental exchange theory

The concept of *stable exchange* in relationships is complimentary to Levinger and Huesmann's (1980) model of "incremental exchange" where stronger relationships lead to expectations of greater social rewards for each partner. Levinger & Huesmann (1980) make a distinction between "behavioral rewards" which are based on specific instances of interaction that result in relational partners deriving value from that interaction and "relational rewards" which are based on the fact that the relationship exists.

Behavioral rewards are immediate rewards that result directly from the behavior choices of each actor. These are rewards from interaction, interpersonal engagement, exchanges of support, experiences of companionship or any other type of pleasurable communication. In short,

behavioral rewards require action and are theorized to be essentially a form of immediate gratification from interactions with friends which can often be understood as enacted support (Goldsmith, 2004). Communication scholars argue that social relationships are enacted through communication (Canary & Stafford, 1994; Duck, Rutt, Hurst, & Strejc, 1991) and that enacted support is communicated through social interactions (Goldsmith, 2004, p. 31). Thus communication between friends can be conceptualized as a setting for behavioral rewards. The higher the frequency of communication, the more behavioral rewards friends derive from their relationship, building it towards the stage of *stable exchange.* This is supported by empirical research that suggests that more communication leads to stronger and more intimate relationships (Duck, 1994; Milardo, Johnson, & Huston, 1983).

In contrast, relational rewards do not depend on specific behaviors but are derived from the state of the relationship itself. Relational rewards are related to the dyad's level of relational involvement. According to Levinger and Huesmann (1980), such rewards are received continuously (rather than discreetly, like behavioral rewards), as long as the level of relationship remains unchanged. That is, if there is a strong belief in the integrity of a particular relationship, the very existence of this relationship is a relational reward. In Altman & Taylor's terms, if the cumulative ratio of rewards to costs is high in a relationship that has attained a level of stable exchange, then the very existence of this relationship is a pleasurable and rewarding thing, regardless of the actual, active enactment of it. The shared relational history of prior interactions and instances of support can give rise to expectations of future experience of behavioral rewards. For developed, close relationships, these kinds of expectations can translate into perceptions of availability of support in the event that it is needed. Thus deriving a sense of security and support from the mere existence of close relationships based on prior experience within these relationships is a form of relational rewards.

Does this mean that when a friendship has reached the *stable exchange* stage and a level of intimacy that produces relational rewards, then it is essentially immune to stress and changes in proximity or declines in frequency of interaction? In a study of types of friendships, Rose & Serafica (1986) show that best friendships were indeed less affected by changes in proximity than casual friendships. Yet, while people tended to relegate best friendships to "self-maintaining" in hypothetical scenarios, their descriptions of actual best friendships suggested that interactions in the form of letters, phone calls, visits or exchange of gifts were still necessary to maintain them.

Though established relationships can produce relational rewards just because they exist, these relationships still need some form of maintenance to persist.

To summarize, when relationships are nascent, they are fragile and dependant on frequent interactions – infusions of behavioral rewards to sustain their continuity. Thus when a relationship is developing it requires substantial investments of time, energy and resources in the form of communication and relational behaviors. Yet when relationships reach what Altman & Taylor have termed the stage of *stable exchange*, the amount of energy and effort required to maintain them should be less, because the dyadic history of interactions is built up enough to give this relationship momentum even in the absence of infusions from instances of support and interaction. Thus Levinger and Huesmann's relational rewards can be thought of as deriving from relational momentum of the relationship – the property of the relationship itself, while behavioral rewards are derived from the infusions into the relationship designed to achieve and then maintain this momentum. Though these infusions need to be less frequent when the relationship is maintained in a desired state rather than when it is developing, they, nevertheless, are crucial for relationship maintenance.

4.1.3 Theory of relational continuity

In his theory of "relational continuity" Sigman (1991) posited that in order for a relationship to exist, relational partners must put effort into sustaining the fabric of the relationship over the course of time through instances of co-presence and non-co-presence. In fact, according to Sigman, a relationship is said to exist only when there is some expectation of further interaction at some point in the future. Though relational scholars agree that communication is integral to social relationships, Sigman argued that relationships do not have to cease existence just because relational partners are not able to interact. Instead, Sigman proposed that relational partners have mechanisms they employ to reassure each other that the "conversational void" is temporary. These mechanisms are what Sigman called the "relationship continuity construction units" or 'pieces of behavior that precede, occur during, and succeed moments of relationship members' interactional nonengagement and serve to define the relationship as a continuous one despite the absence of face-to-face engagement' (Sigman, 1991, p. 109). These relational maintenance behaviors can take on the form of cards, letters, gifts or even phone calls and email and can function as behavioral infusions into an established relationship in order to maintain it in a desired state. These actions are not substitutions for other forms of contact, such as in-person interaction, but additions to it or compensations for its rarity (Licoppe & Smoreda, 2006).

Though most relationship scholars have taken in-person interaction as the gold standard of relationship maintenance, evidence suggests that both phone calls and text-based communication, such as email or instant messaging, can be used for relational maintenance and exchanges of support (Braithwaite, Waldron, & Finn, 1999; Rice & Love, 1987; Smoreda & Licoppe, 2000). Not all communication is necessarily a form exchange of support or intimate disclosure. Much of communication between friends is largely devoid of explicit emotional content and serves simply to reaffirm that a relationship exists, rather than to obtain particular rewards form the interaction (Duck et al., 1991). Thus communication via any modality can be a simple affirmation of relationship importance or an explicit instance of exchange that translates into behavioral rewards.

4.1.4 Maintaining existing friendships

Geographic mobility is one of the most common reasons for friendship disintegration (Rose, 1984). However, there is evidence that friendships, that survived the initial shock of changes in physical proximity, can endure the effects of distance for many years (Finchum, 2005; Johnson, 2001; Rohlfing, 1995). Strong relationships that have an extensive history of interactions are able to maintain a sense of intimacy despite changes in geographical proximity and frequency of interaction. One of the major assumptions in theorizing effects of residential mobility on relationships hinges on the idea that long distance moves inevitably reduce the amount of both planned and chance face-to-face social interaction necessary for relational maintenance (Berscheid & Lopes, 1997; Latane, Liu, Nowak, Bonevento, & et al., 1995; Olson & Olson, 2000; Rose, 1984). Yet people have communicated over distances since they discovered smoke signals, and recent advances in communication technologies have made long distance mediated communication affordable to the majority of the population (Hoffman et al., 2004). Easy availability of mediated communication can make long distance relationships easily accessible in the time of need. Thus the potential for future interaction remains regardless of the physical distance between friends. We hypothesize that established close relationships that have experienced changes in proximity would be likely to remain important to the mover by virtue of relational rewards they provides through their mere existence and forecasts of future rewarding interactions.

Relational rewards attained from close friendships may be unaffected by a move, but behavioral rewards are likely to change in response to changes in proximity. Whereas some forms of companionship and exchanges of support, such as getting advice or discussing emotional issues

may be immune to distance, others, such as going out to see a movie or sharing a meal, are dependant on physical proximity. Moreover, changes in physical proximity may motivate changes in frequency of communication as movers would have to rely on mediated communication to accomplish interactions that were relegated to in-person meetings prior to the move. For example, in the small qualitative study of recent movers described in Chapter 2 , we found that as face-to-face communication became rare due to the distance between the mover and close friends in the old location, movers tended to move much of the interaction and exchanges of support from face-to-face communication to other modalities, such as phone, e-mail or IM. Communication episodes via phone also became less frequent but much lengthier, changing in content. This happened mainly because the purpose of phone calls had changed from co-ordination and planning to sharing details of daily life and exchanging emotional support. Thus, we hypothesize:

Hypothesis 1: Frequent communication before the move will lead to stronger friendships that would be more likely to endure the move

Hypothesis 2: Moving away from close friends will decrease the frequency of exchanging behavioral rewards but not the relational rewards derived from the sense of intimacy in the relationship

Hypothesis 3: Changes in frequency of in-person interaction will be associated with changes in exchanging behavioral rewards but not related to changes of intimacy in the relationship

Hypothesis 4: Changes in frequency of phone calls or email will be associated with changes in intimacy of the relationship and exchanges of behavioral rewards

4.1.5 Developing new friendships

Not all relationships, and even friendships, are strong close relationships. Some relationships are weak, although both weak and strong relationships are important (Granovetter, 1983). Unlike kin relationships, close friendships do not start out as close or even as friendships. They usually start out as basic acquaintances and go through a developmental process towards an intimate level of a close friendship (Altman & Taylor, 1983). Unfortunately, research on friendships has primarily focused on close friendships, ignoring relational maintenance processes that might happen in nascent and weak relationships (Fox, Gibbs, & Auerbach, 1985; Hess, Fannin, & Pollom, 2007).

People who are well socially integrated in a location do not seek out new friendships very often, though they may enter new relationships passively through others in their social network (Adams & Allan, 1998). One of the reasons for this is that when existing relationships provide all the necessary aspects of life, there is no need to seek out more relationships (Weiss, 1974). Thus a change in relational context is often needed to motivate people to actively seek out new friendships. A useful aspect of a long distance residential move is that it forces movers to initiate new friendships in order to obtain provisions they may have lost when they moved away from their established friendships.

Altman & Taylor's theory provides us with a useful basis for understanding what might be happening in new relationships and how they might react to changes in proximity and communication frequency. New friendships, established in the new location are likely to be less close, than friendships that were established in the old location prior to the move. These developing relationships may take time to reach the stage of *stable exchange*, lingering at earlier stages, that require more energy and resource investments and more equitable exchanges of information and support (Hays, 1985; Taylor & Altman, 1987). These relationships would be in the process of building a relational history, and thus would be more sensitive to the value of behavioral rewards obtained from interaction episodes (Levinger & Huesmann, 1980). These relationships are also likely to be more fragile and sensitive to changes in proximity or changes in frequency of communication than more established pre-move friendships. Therefore:

Hypothesis 5: New friendships will be sensitive to changes in in-person, phone and email interactions, especially when predicting enacted support.

Hypothesis 6: New friendships are less likely to survive an additional move away from these relationships than pre-move friendships.

Prior research on personal relationships and friendships strongly suggests that there are substantial differences in how men and women maintain personal relationships and the value they derive from them (Bell, 1981; Caldwell & Peplau, 1982; Elkins & Peterson, 1993; Rose, 1985; Wright & Scanlon, 1991). We expected that the specific mechanisms that we explored in this paper did not differ for men and women. However, we included the sex of the respondent and the sex of their relational partner into our models as controls.

4.2 Methodology

See Chapter 3.1 for details.

4.3 Variables of interest

4.3.1 Dependant variables

Psychological closeness: Respondents indicated how close they felt to each friend on a 5-pt scale in response to the following question: "How close to you feel to [name of partner]" selecting a value from "Very" to "Not at all".

Enacted support: We were interested in frequency with which respondents engaged in exchanging instances of support and companionship as forms of behavioral rewards with their friends. The questions were based on the dimensions of support identified by Cohen, Mermelstein, Karmark and Hoberman (1984). Respondents indicated how frequently they engaged in a series of supportive activities and active companionship with their friends on a 5-pt scale. These questions were: "How frequently do you do the following with <friend's name>: Receive practical favors or help; Engage in hobbies or spare time interests; Participate in leisure activities together; Discuss important personal matters; Receive emotional support; Receive useful advice or information;" The questions were designed to tap activities that did not necessarily rely on physical proximity. Exploratory factor analysis at each time period indicated that all questions loaded well on one factor, with only one eigenvalue greater than 1 (T1=4.29, T2=4.41, T3=4.59) explaining 73% of variance. The questions were combined to create an enacted support scale with high internal consistency (Cronbach alpha T1=.92; T2=.92; T3=.93)

4.3.2 Independent variables

Network size: This measure was calculated from the number of friends sampled for each respondent. In our analyses we used *pre-move network size,* which included only the number of friendships that had existed prior to the move (range 0-5), and *post-move network size,* which included only the number of friendships that had been initiated prior to the move (range 0-3).

Geographical distance from friend: At each time period, respondents reported how far away they had lived from each friend before the move on a logarithm-like scale (1=within 5 min drive, 2=within 15 min drive, 3=within 30 min drive, 4=within 1-2 hr drive, 5=within 3-4 hr drive, 6=further away). Respondents also indicated how far away they had lived from each friend after

the move on the same scale. These response options used "effort distance" rather than objective geographical distance from friend. This allowed us to assess individual perceptions of how far each friend was from the respondent in order to avoid local differences in perceptions of distance (Falk & Abler, 1980).

Moved away from friend: We used pre- and post-move geographical distance from each friend, reported at T1, in order to calculate whether the respondents had moved away, moved closer or didn't change the relative distance from their friends. We created a dummy variable indicating whether respondents had moved away from each friend. This dummy variable had a value of "1" when pre-move geographical distance was 30 minute drive away or less, and post-move geographical distance was 1-2 hr drive or more, and 0 otherwise.

Frequency of communication: Frequency of communication with friends. Respondents reported the frequency with which they communicated with each friend (a) *in-person*, (b) *by phone*, (c) *by email* and (d) *by instant messaging*. Their answers were on a 7-point scale, ranging from "Never" to "Multiple times per day." Unfortunately, over 70% of our respondents indicated that they had never used instant messaging to communicate with their friends. Therefore, we used only in-person, phone and email communication modalities in subsequent analyses.

Change in frequency of communication: We were interested in whether changes in communication were associated with changes in outcomes. We created dummy variables indicating whether respondents had increased, decreased or didn't change the frequency of communication with their friend via in-person, phone or email before and after the move. For each measure we subtracted pre-move frequency of communication from post-move frequency of communication. A shift of at least 2 points on a 7-point scale in either direction was considered a change.

Length of acquaintance: Respondents indicated how long they have known each friend at the time of the initial questionnaire on a 7-point logarithm-like scale ranging from "less than 3 months" to "more than three years."

4.3.3 Control variables

Distance of the move (in miles) was calculated from zip codes of the respondents' old and new location of residence and log-transformed to normalize the distribution of scores.

Moved again. Residential mobility research indicates that recent movers are the most likely population to move again within the next year (DaVanzo, 1983). Additional moves are likely to affect the process of adjustment to the new location and perceived social support. We created a dummy variables indicating whether respondents had moved again between data collections, using a change in zip codes reported at each data collection as an indicator of a move.

Prior research into residential mobility has identified a number of demographic variables that predict how, where and when people move (DaVanzo, 1983; Fischer, 2002; Ritchey, 1976). We used questions from the Census Bureau national population survey to assess movers' *sex*, *age*, *level of education*, *employment status* and *marital status* and *sex of the friend*.

4.4 Analysis

In order to test changes in pre-move and post-move relationships, we created two datasets, one for all friendships developed prior to the move and one for all friendships initiated after the move that were sampled throughout the data collection. The pre-move friendships dataset included data collected at T1 about pre-move frequency of interactions, enactments of support and psychological closeness, and the average of scores obtained at T2 and T3 (one and two years after the move) about post-move frequency of interactions, enactments of support and psychological closeness with pre-move friends (see Table 4-1 for summary). The post-move friendship dataset included data collected at T2 (one year after the move) and T3 (two years after the move) about post-move frequency of interactions, enactments of support and psychological closeness with post-move friends (see Table 4-2 for summary). For the overview of data, please see correlation tables Table 4-3 and Table 4-4.

Variable (range)	Time 1 (pre-move)			Average of T2 and T3 measures		
	N	Mean	Std Dev	N	Mean	Std Dev
Psychological closeness (0-4)	1872	2.77	1.09	1022	2.44	1.24
Enacted support (frequency 0-4)	1878	2.07	1.04	1025	1.43	1.06
In-person communication (0-6)	1866	3.43	1.81	1007	1.76	1.51
Phone communication (0-6)	1852	3.26	1.64	1007	2.24	1.49
Email communication (0-6)	1839	1.71	1.91	1110	1.39	1.57
Length of acquaintance (0-4)	1850	5.25	1.26			
Distance before move (0-5)	1649	1.82	1.64			
Distance after move (0-5)	1722	3.00	1.77	1022	3.18	1.69
Moved away (yes=1)	1645	0.35	0.48			
Friend sex (male=1)	1765	0.46	0.50			
Friend in new location (yes=1)	1895	0.60	0.49			
Distance of the move in miles (log)	1855	3.79	3.64			
Age (yrs)	1873	40.91	15.32			
Sex (male=1)	1895	0.49	0.50			
Employed (yes=1)	1794	0.64	0.48			
Married (yes=1)	1254	0.49	0.50			
Education (1-12)	1851	7.90	1.93			

Table 4-1 Simple statistics for pre-move friendships

Variable	Time 2 (1 yr after the move)			Time 3 (2 yrs after the move)		
	N	Mean	Std Dev	N	Mean	Std Dev
Psychological closeness (0-4)	1574	1.60	1.15	746	1.55	1.25
Enacted support (frequency 0-4)	1579	1.28	1.09	753	1.12	1.09
In-person communication (0-6)	1564	3.58	1.54	735	2.82	1.78
Phone communication (0-6)	1532	1.91	1.85	733	1.68	1.69
Email communication (0-6)	1522	0.87	1.61	714	0.96	1.58
Length of acquaintance (0-6)	1374	2.01	0.92			
Distance after move (0-5)	1554	0.76	1.18	740	1.28	1.65
Moved away (yes=1)				732	0.10	0.30
Friend sex (male=1)	1595	0.51	0.50			
Size of pre-move network (0-5)	1595	1.43	1.24			
Distance of the move in miles (log)	1582	3.74	3.71			
Age (yrs)	1587	42.58	16.06			
Sex (male=1)	1595	0.51	0.50			
Employed (yes=1)	1505	0.25	0.43			
Married (yes=1)	1438	0.55	0.50			
Education (1-12)	1562	7.96	1.85			

Table 4-2 Simple statistics for post-move friendships

4.4.1 Model selection

Due to the nature of the USPS NCOA database, we were not able to contact our respondents before their initial move. However, a residential move tends to be a very specific stressful event that can have dramatic effects on routine behaviors. In order to attain some base-line measures of the state of pre-move relationships, at the time of the first questionnaire we asked a set of questions where respondents reported on their frequency of interaction and enactments of support with their pre-move friends during the 6 months prior to the move. See Chapter 3.1 for an in-depth explanation of this approach. The Time2 (T2) and Time3 (T3) questionnaires asked about routine behaviors, relationships with old and new friends and perceived social support at the time of the questionnaire, one year and two years after the move respectively.

The longitudinal nature of this data set allowed us to test whether levels of the independent predictors at T1 could predict changes in levels of perceived social support at the subsequent time period. A residential move can be a significant disruption within a friendship thus we selected this model for our analyses because it allowed us to investigate whether pre-move relationship factors predicted differential post-move outcomes. These analyses followed the lagged regression model described in Cohen et al. (2003) and summarized here. The movers' dataset is a three-time-point dataset, which was analyzed across two time periods in each analysis T1 → T2 and T2 → T3. When assessing change in variable Y between T1 and T2, we regress Y2 on a set of predictors measured at T1 and include Y1 into the equation as another predictor. This procedure removes the potential influence of Y1 on the relationship between the predictors and Y2. This method insures that estimated effects of other predictors on Y2 are independent of Y1 and the correlations of the predictors and Y1. Because the lagged dependent variable is included in the model, the results can be interpreted as showing the effects of the predictors measured at T1 on the change in Y between T1 and T2. We added control variables to all models to ensure results were not artifacts of other pre-existing differences.

Each respondent had nominated at least one and, often, more than one friend. Thus data on each dyadic relationship was not necessarily independent from other dyads. We used Hierarchical Linear Modeling to control for non-independence of observations, nesting dyads within respondent (Bryk & Raudenbush, 1992).

4.5 Results

Table 4-3 Pre-move friendships: correlation table

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Psychological closeness (post-move)	1															
2	Enacted support (post-move)	0.48															
3	Psychological closeness (pre-move)	-0.21	0.00														
4	Enacted support (pre-move)	-0.07	-0.46	0.58													
5	Inc. in-person comm.	0.10	0.29	0.02	-0.07												
6	Dec. in-person comm.	-0.12	-0.41	-0.06	0.20	-0.28											
7	Inc. phone comm.	0.13	0.25	-0.03	-0.10	0.49	-0.18										
8	Dec. phone comm.	-0.25	-0.43	-0.03	0.19	-0.18	0.44	-0.20									
9	Inc. e-mail comm.	0.07	0.07	0.07	0.03	0.12	0.01	0.10	-0.02								
10	Dec. e-mail comm.	-0.18	-0.18	-0.03	0.07	-0.06	0.13	-0.08	0.22	-0.15							
11	In-person communication	0.02	-0.23	0.02	0.34	-0.33	0.65	-0.15	0.31	0.08	0.09						
12	Phone communication	-0.02	-0.15	0.39	0.51	-0.13	0.26	-0.31	0.48	0.09	0.13	0.45					
13	Email communication	-0.05	0.01	0.15	0.17	-0.03	-0.01	-0.05	0.06	-0.21	0.57	0.05	0.20				
14	Length of acquaintance	0.05	0.04	0.34	0.15	-0.01	-0.09	-0.06	-0.09	0.07	-0.12	-0.05	0.06	-0.04			
15	Distance before move	0.04	0.28	0.02	-0.26	0.33	-0.47	0.24	-0.25	-0.03	0.03	-0.58	-0.25	0.11	-0.01		
16	Moved away (yes=1)	-0.07	-0.36	-0.02	0.16	-0.22	0.51	-0.15	0.30	0.04	0.03	0.33	0.13	-0.05	0.02	-0.56	
17	Friend gender (male=1)	0.07	0.01	-0.17	-0.14	-0.03	-0.02	-0.04	0.00	-0.03	0.00	0.03	-0.04	-0.06	0.02	-0.05	0.04

Table 4-4 Pre-move friendships: correlation table

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Psychological closeness (2yrs)	1.00															
2	Enacted support (2yrs)	0.65															
3	Psychological closeness (1yr)	-0.36	-0.29														
4	Enacted support (1yr)	-0.20	-0.43	0.81													
5	Inc. in-person comm.	0.17	0.15	-0.12	-0.06												
6	Dec. in-person comm.	-0.30	-0.44	0.09	0.11	-0.14											
7	Inc. phone comm.	0.20	0.19	-0.03	0.01	0.08	-0.10										
8	Dec. phone comm.	-0.31	-0.39	0.24	0.25	-0.07	0.36	-0.12									
9	inc. e-mail comm.	0.10	0.11	0.12	0.15	0.03	-0.02	0.23	-0.04								
10	Dec. e-mail comm.	-0.17	-0.24	0.12	0.18	-0.03	0.17	-0.05	0.32	-0.08							
11	In-person communication	-0.04	-0.10	0.48	0.45	-0.26	0.25	0.06	0.15	0.17	0.07						
12	Phone communication	-0.10	-0.18	0.64	0.67	-0.08	0.10	-0.18	0.44	0.14	0.23	0.41					
13	Email communication	-0.07	-0.13	0.35	0.40	-0.07	0.06	-0.01	0.18	-0.08	0.52	0.20	0.44				
14	Length of acquaintance	0.03	0.04	0.03	-0.01	0.02	-0.03	-0.07	0.06	0.02	-0.10	0.06	0.02	-0.06			
15	Distance after move	-0.09	-0.03	0.14	0.07	-0.01	-0.07	-0.03	0.04	0.01	0.22	-0.19	0.12	0.34	-0.18		
16	Moved away (yes=1)	-0.12	-0.31	0.02	0.06	-0.08	0.42	-0.04	0.29	0.00	0.02	0.05	0.08	-0.03	-0.02	0.00	
17	Friend sex (male=1)	0.00	-0.01	-0.09	-0.11	0.11	-0.04	-0.05	-0.10	-0.03	-0.09	-0.03	-0.17	-0.11	0.03	-0.03	0.02

4.5.1 Sample statistics

Of the 1779 respondents at T1, 865 respondents (49%) nominated pre-move friends. Respondents who tended to fill out this section were somewhat older and slightly less likely to have moved further than 50 miles. However, neither difference was significant. It appears that half of the respondents simply skipped the social relations elicitation section due to the length of the questionnaire. Respondents reported an average of 2.2 pre-move friends, ranging from 0 to 5 friends and resulting in a total of 1872 dyads. On average, pre-move friends were between 15-minute and 30-minute drive away prior to the move and about 1-2 hr drive away after the move. At T2, 519 respondents answered questions about the same pre-move friends, resulting in 1022 dyads for which there were data for at least two time-periods. At T2 we also asked respondents to nominate friends they had met in the new location and 1020 respondents nominated friends. Respondents reported on average 1.9 post-move friends, ranging from 0 to 3 friends and resulting in a total of 1574 dyads. On average, post-move friends were less than 15-minute drive away from the respondent. At T3, 493 respondents answered questions about the same post-move friends, resulting in 746 dyads for which there were data for two time-periods.

As expected, the post-move friend tended to be more geographically proximal than pre-move friends (μ=.76 vs. μ=3.0). Post-move friends were also much less psychologically close (μ=1.59 vs. μ=2.77) than pre-move friends. However, pre-move and post-move friends were not significantly different in exchanges of support after the move (μ=1.27 vs. μ=1.42). At T2, after the move, respondents reported more frequent in-person interaction with post-move friends than with pre-move friends, but they called and emailed their pre-move friends more frequently (see Table 4-1 and Table 4-2). Figure 4-1 illustrates changes over time for pre- and post-move friendships for psychological closeness, enacted support and frequency communication. While there are few changes in closeness and support for post-move friendships, pre-move friendships exhibit strong declines in enacted support and smaller, but significant declines in psychological closeness after the move. We also see declines in face-to-face interaction for both pre- and post-move relationships. However, frequency of interaction via phone declined only for pre-move friendships and there was no significant decline for email interaction for either type of relationship.

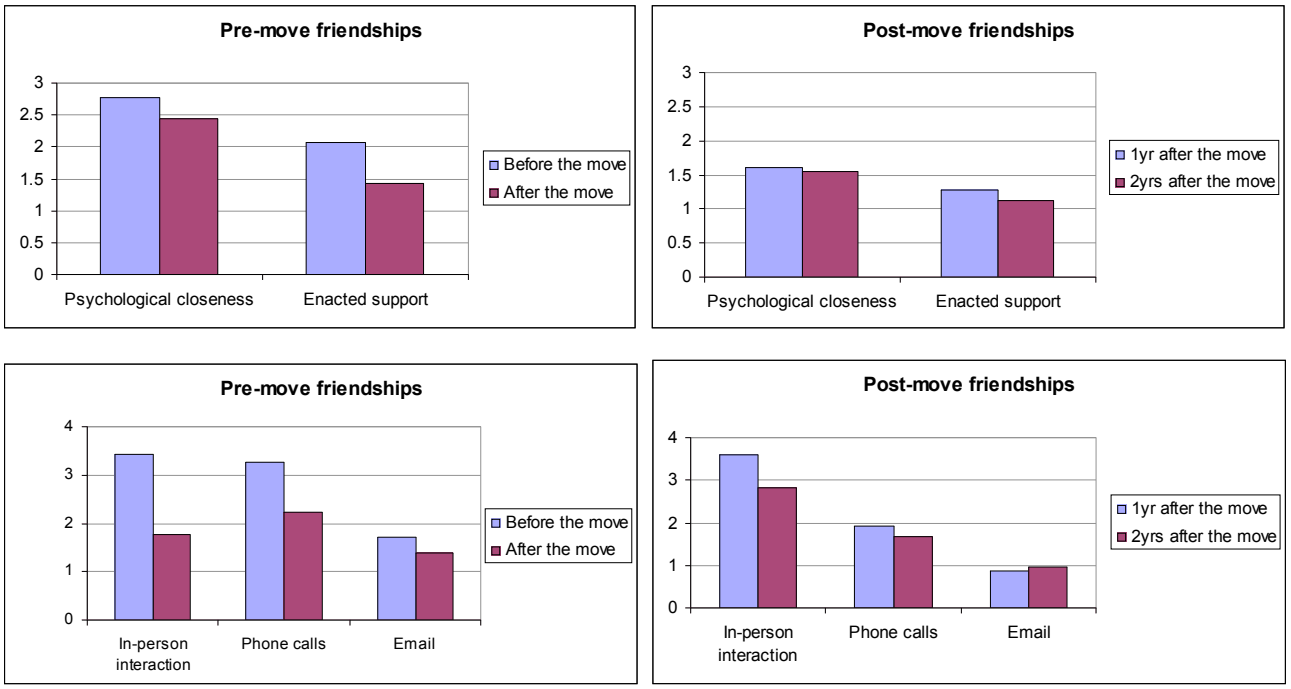

Figure 4-1: Changes over time for pre- and post-move friendships

4.5.2 Pre-move friendships

4.5.2.1 Predicting changes in closeness to pre-move friends

Analysis of simple statistics presented above, in Figure 4-1, suggested that there are larger decreases in enacted support than in psychological closeness over time. However, multivariate hierarchical linear model regressions presented in Table 4-5 suggest the opposite pattern. The intercept is significantly different from zero for psychological closeness, indicating that pre-move friendships decrease in closeness over time, all else being equal. However, an increase in geographical distance is not associated with changes in psychological closeness, supporting Hypothesis 2, which posited that changes in proximity would not affect relational rewards derived from a sense of intimacy in a developed relationship. This means that in general, respondents tended to report lower psychological closeness to their friends over time regardless of distance.

Hypothesis 3 posited that changes in frequency of in-person communication would not be associated with changes in relational rewards derived from a sense of intimacy in developed relationships. Indeed, Table 4-6 indicates that changes in the frequency of in-person interactions with pre-move friends were not associated with changes in psychological closeness. In other

words, when friendships are developed, in-person interaction may not be so important to their maintenance (Nussbaum, 1994).

	Psychological Closeness (after the move)						Enacted Support (after the move)					
	Model 1			Model 2			Model 1			Model 2		
Predictors (pre-move)	Std. β	Std Err.		Std. β	Std Err.		Std. β	Std Err.		Std. β	Std Err.	
Psychological closeness	-0.386	0.037	**	-0.388	0.037	**						
Enacted support							-0.646	0.032	**	-0.646	0.033	**
Increase in in-person comm	0.113	0.1339		0.037	0.1408		0.579	0.116	**	0.542	0.123	**
Decrease in in-person comm	-0.133	0.086		-0.191	0.103	t	-0.403	0.075	**	-0.410	0.090	**
Increase in phone calls	0.540	0.140	**	0.606	0.152	**	0.613	0.122	**	0.640	0.132	**
Decreases in phone calls	-0.642	0.076	**	-0.712	0.104	**	-0.730	0.065	**	-0.757	0.090	**
Increase in email	0.092	0.103		0.134	0.142		0.081	0.090		0.188	0.124	
Decrease in email	-0.394	0.089	**	-0.253	0.110	*	-0.386	0.077	**	-0.348	0.095	**
In-person comm pre-move	0.105	0.049	*	0.101	0.049	*	0.146	0.043	**	0.143	0.043	**
Phone comm pre-move	0.328	0.046	**	0.320	0.046	**	0.383	0.039	**	0.382	0.039	**
Email comm pre-move	0.070	0.038	t	0.080	0.039	*	0.155	0.033	**	0.156	0.034	**
Length of acquaintance	0.098	0.033	**	0.093	0.033	**	0.067	0.028	*	0.066	0.028	*
Distance pre-move	0.051	0.043		0.037	0.044		-0.013	0.038		-0.019	0.039	
Moved away (yes=1)	0.072	0.086		-0.037	0.133		-0.196	0.075	**	-0.214	0.115	t
Friend sex (male=1)	0.018	0.067		0.028	0.067		-0.039	0.058		-0.038	0.058	
Friend in new location (yes=1)	-0.021	0.033		-0.019	0.033		0.010	0.029		0.010	0.029	
Distance of the move (log)	-0.035	0.037		-0.032	0.037		-0.065	0.033	*	-0.062	0.033	t
Sex (male=1)	-0.030	0.072		-0.037	0.072		-0.110	0.064	t	-0.109	0.064	t
Age	0.150	0.041	**	0.160	0.041	**	0.033	0.036		0.037	0.037	
Employed (yes=1)	0.239	0.109	*	0.253	0.111	*	0.005	0.097		0.011	0.099	
Married (yes=1)	0.043	0.062		0.036	0.063		0.021	0.055		0.018	0.056	
Education	0.080	0.034	*	0.081	0.034	*	0.055	0.030	t	0.056	0.031	t
Moved away * inc in-person				0.764	0.639					0.062	0.563	
Moved away * dec in-person				0.178	0.147					0.043	0.127	
Moved away * inc phone				-0.281	0.349					-0.114	0.304	
Moved away * dec phone				0.122	0.133					0.043	0.116	
Moved away * inc email				-0.068	0.204					-0.212	0.178	
Moved away * dec email				-0.311	0.150	*				-0.081	0.131	
Intercept	-0.263	0.119	*	-0.261	0.123	*	-0.051	0.105		-0.058	0.108	

Table 4-5 Predicting changes in perceived social support and enacted support for pre-move friendships
Predicting change in psychological closeness: R-sq [modell1] = 0.25; R-sq [model 2] = 0.26
Predicting change in enacted support: R-sq [modell1] = 0.56; R-sq [model 2] = 0.56
t p<0.1
* p<.05
** p<.01

Changes in frequency of phone calls and decreases in frequency of email, however, were associated with changes in closeness (see Figure 4-2). In fact, increases in frequency of phone calls with pre-move friends were associated with increases in psychological closeness, suggesting that these relationships continued to develop and grow despite the move. This result supports

Hypothesis 4, which posited that changes in frequency of phone calls and email would be associated with changes in psychological closeness. For established relationships, the history of their interactions may serve as a basis for maintaining feelings of closeness in the absence of in-person communication, especially if other modalities are available and frequently used.

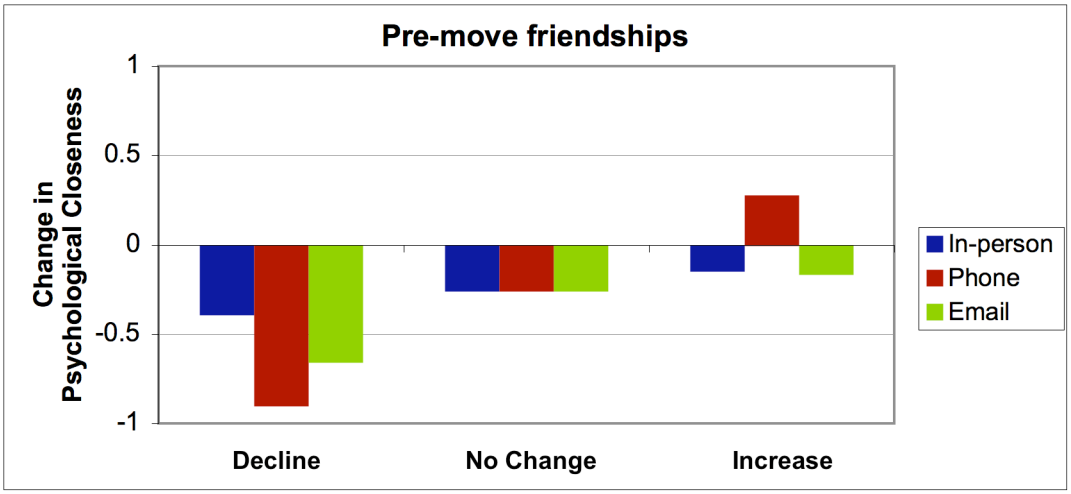

Figure 4-2: Predicting psychological closeness to pre-move friends after the move from changes in frequency of communication.

Hypothesis 1 posited that frequent communication prior to the move would lead to stronger friendships that would be more likely to endure changes in proximity due to the move. Our results provide support for this hypothesis. Results in Table 4-5 indicated that developed friendships tended to decrease in closeness over time regardless of the distance of the move. However, frequent interactions via in-person or by email prior to the move were associated with smaller decreases in psychological closeness, while frequent interactions by phone prior to the move were associated with no changes in psychological closeness over time, essentially preventing any declines that could happen. The phone then appears to be the major vehicle for both relational maintenance and relational development and growth, an observation that is supported by numerous prior studies (e.g. Cummings et al., 2006; Smoreda & Licoppe, 2000).

Length of acquaintance, the tenure of the friendship was associated with smaller decreases in closeness – these were, in fact, established relationships that seemed to have been self-selected for preservation. It is likely that length of acquaintance was synonymous with accumulated rewards that drove efforts to preserve the relationship. Older, more educated and employed people also reported slower decreases in closeness over time. Prior research suggests that older

people tend to put more effort into maintaining existing relationships rather than initiating new ones, which could account for this result (Nussbaum, 1994).

Not all relationships experienced changes in distance. In some cases, movers had nominated friendships that were long distant prior to the move. In other cases movers did not move very far away or even moved closer to their friend. We added interactions between the *moving away* dummy variable and changes in frequency of communication, testing whether these changes meant different things for relationships that experienced a change in distance versus those that did not. Results suggest that there is value to frequency of interaction via email for relationship maintenance. Figure 4-3 illustrates that while declines in frequency of email predicted larger decreases in psychological closeness, this associated was almost twice as large for people who had moved away from their friend. It is likely that in long distance relationships, declines in mediated communication are more noticeable because of the lack of other types of incidental interactions.

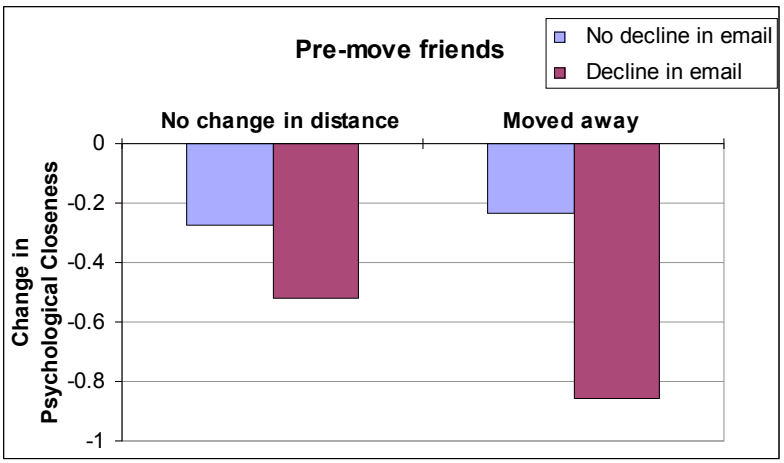

Figure 4-3: Predicting change in psychological closeness from change in proximity and decreases in email frequency

4.5.2.2 Predicting changes in enacted support with pre-move friends

Unlike psychological closeness to friends, frequency of exchanging enacted support with friends does not decline over time all other things being equal (see Table 4-5). However, moving away from a friend is associated with significant declines in enacted support, supporting Hypothesis 2.

Figure 4-4 illustrates that changes in frequency of in-person interactions and phone calls and decreases in frequency of email were associated with changes in enactments of support,

supporting both Hypothesis 3 and Hypothesis 4. However, these associations are not uniform. Increases in frequency of phone calls and in-person interactions have associations of similar magnitude with increase in enacted support. In contrast, the effect size for declines in phone calls is nearly twice as large as the effect sizes of declines in frequency of in-person interaction and email. Unlike assessments of psychological closeness, assessments of frequency of enacted support are connected to frequency of communication that could enable such exchanges. Thus seeing friends more often can translate into more enacted support, supporting Hypothesis 3. Yet seeing friends less is not quite as negative as long as frequency of phone calls does not change. It appears that frequency of enacted support is sensitive to changes in frequency of phone calls regardless of other modalities.

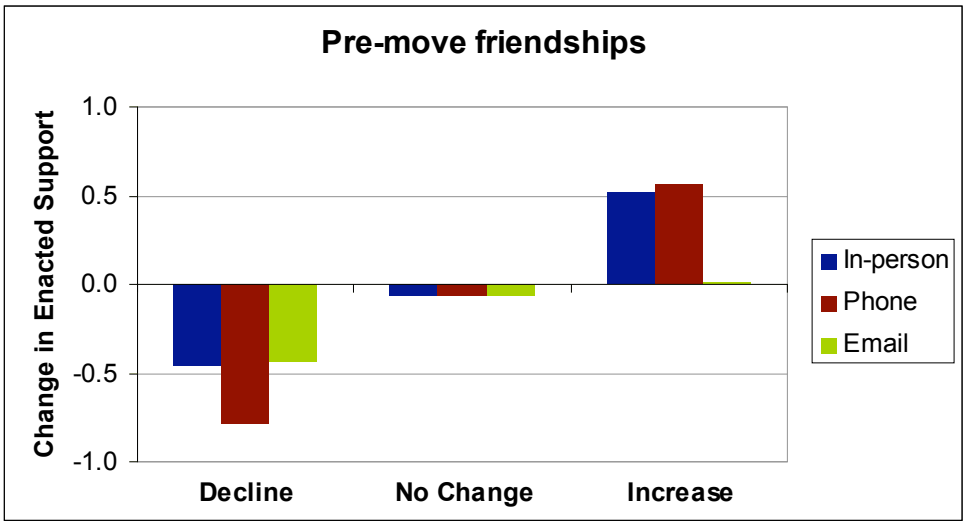

Figure 4-4: Predicting enacted support after the move from changes in frequency of communication

Length of acquaintance was also associated with slight increases in enacted support, suggesting that the well-established pre-move relationships remain a source of support and exchange of behavioral rewards despite the move. Women, people who were more educated and those that had experienced shorter moves also reported increases in enacted support. None of the interactions between *moving away* and changes in frequency of communication were significant.

4.5.3 Post-move friendships

4.5.3.1 Predicting changes in psychological closeness

Figure 4-1 indicated that friendships initiated after the move did not reach the level of closeness of pre-move friendships over the course of a year. Though psychological closeness to new friends

did not decline over time, it also did not increase, suggesting that, on average, new friendships did not tend to grow closer and more intimate. Psychological closeness to new friends was also not sensitive to moving away from them.

	Psychological Closeness (T3)			Psychological Closeness (T3)			Enacted Support (T3)			Enacted Support (T3)		
	Model 1			Model 2			Model 1			Model 2		
Predictors (T2)	Std. β	Std Err.		Std. β	Std Err.		Std. β	Std Err.		Std. β	Std Err.	
Psychological closeness	-0.674	0.055	**	-0.672	0.054	**						
Enacted support							-0.633	0.043	**	-0.635	0.043	**
Increase in in-person comm	0.566	0.183	**	0.574	0.183	**	0.480	0.144	**	0.488	0.143	**
Decrease in in-person comm	-0.495	0.102	**	-0.484	0.105	**	-0.521	0.080	**	-0.513	0.083	**
Increase in phone calls	0.747	0.164	**	0.750	0.167	**	0.565	0.129	**	0.600	0.131	**
Decreases in phone calls	-0.747	0.131	**	-0.679	0.145	**	-0.649	0.103	**	-0.597	0.114	**
Increase in email	0.067	0.158		0.040	0.165		0.280	0.124	*	0.295	0.129	*
Decrease in email	-0.405	0.175	*	-0.311	0.182	t	-0.458	0.138	**	-0.363	0.143	*
In-person communication	0.207	0.052	**	0.213	0.051	**	0.139	0.039	**	0.149	0.039	**
Phone communication	0.404	0.061	**	0.410	0.061	**	0.341	0.049	**	0.351	0.049	**
Email communication	0.087	0.052	t	0.089	0.052	t	0.079	0.041	*	0.077	0.041	*
Length of acquaintance	0.034	0.042		0.030	0.042		0.010	0.033		0.012	0.033	
Distance from friend	0.014	0.044		0.010	0.044		0.004	0.034		0.009	0.034	
Moved away (yes=1)	0.230	0.152		0.530	0.314		-0.366	0.117	**	-0.056	0.232	
Friend sex (male=1)	-0.099	0.088		-0.084	0.088		-0.093	0.068		-0.080	0.069	
Friends in old location	0.021	0.044		0.004	0.044		0.055	0.034		0.044	0.034	
Distance of the move (log)	0.021	0.043		0.018	0.043		-0.020	0.033		-0.021	0.033	
Sex (male=1)	0.062	0.097		0.047	0.097		-0.072	0.074		-0.077	0.075	
Age	0.117	0.060	*	0.107	0.060	t	0.046	0.047		0.039	0.047	
Employed (yes=1)	-0.032	0.136		0.027	0.135		0.059	0.105		-0.071	0.106	
Married (yes=1)	0.067	0.090		0.080	0.089		0.098	0.069		0.096	0.069	
Education	-0.005	0.044		-0.016	0.044		0.001	0.034		-0.010	0.034	
Moved away * dec in-person				-0.233	0.369					-0.154	0.278	
Moved away * inc phone				-0.492	0.917					-0.613	0.720	
Moved away * dec phone				-0.273	0.304					-0.176	0.237	
Moved away * inc email				0.552	0.660					-0.030	0.518	
Moved away * dec email				-1.002	0.465	*				-0.767	0.364	*
Intercept	0.056	0.088		0.013	0.136		0.034	0.068		0.087	0.106	

Table 4-6 Predicting changes in psychological well-being and enacted support for post-move friendships

Predicting change in psychological closeness: R-sq [modell1] = 0.38; R-sq [model 2] = 0.40

Predicting change in enacted support: R-sq [modell1] = 0.52; R-sq [model 2] = 0.53

t $p<0.10$

* $p<0.05$

** $p<0.01$

Hypothesis 5 posited that new friendship should be sensitive to change in frequency of communication and Table 4-6 presents results that support this assertion. Both increases and decreases in frequency of in-person interaction and phone calls were associated with changes in psychological closeness. However, only decreases in frequency of email were associated with

decreases in closeness (Figure 4-6). Similar to relationships with pre-move friends, relationships with post-move friends appear to be most sensitive to changes in frequency of phone calls again suggesting that phone calls have an important role in both development and maintenance of friendships.

Based on Altman & Taylor's theory, we expected frequency of communication in all modalities to be associated with increases in psychological closeness for these nascent relationships. Table 4-6 confirms this, illustrating that frequencies of in-person interactions, phone calls and email at one year after the move were associated with increases in psychological closeness over the course of a year.

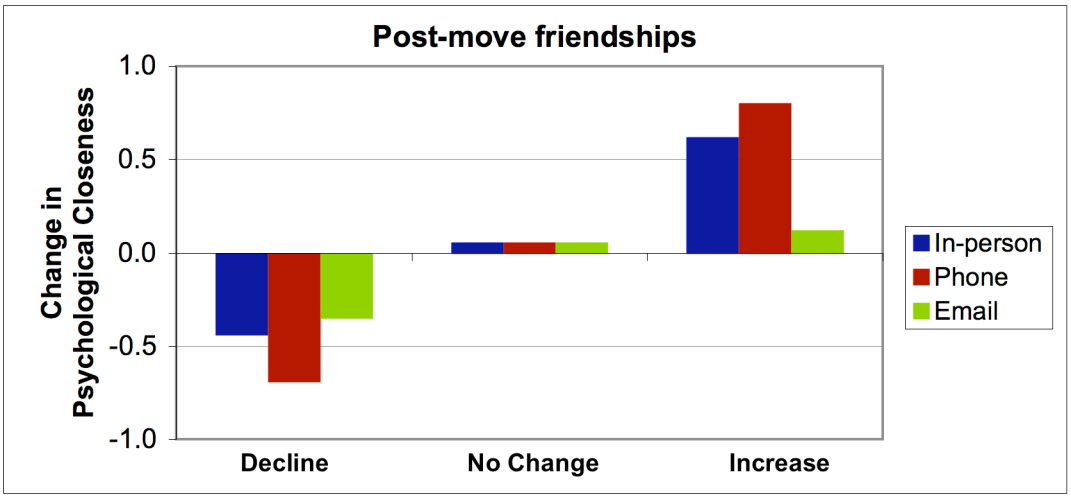

Figure 4-5 Predicting changes in psychological closeness to post-move friends two years after the move from changes in communication

Recent movers are among the most likely to move again with a year after the move (DaVanzo, 1983). Though most such moves are usually local and function as attempts to attain a better fit with the environment at the new location, some moves are long distance (Ritchey, 1976; Stokols, Shumaker, & Martinez, 1983). Hypothesis 5 posited that new friendships would be more fragile and sensitive to changes in proximity than developed friendships. However, results discussed above illustrate that email and phone calls are just as important as face-to-face interaction for changes in psychological closeness to new friends. Phone calls and email can be relatively immune to distance and may allow relationship maintenance despite the additional move and the fragility of the new friendship. In order to test this we added interactions between having moved again and changes in frequency of communication. Results indicate that there is value to frequency of interaction via email for relationship maintenance. Figure 4-6 illustrates that

although declines in frequency of email are associated with declines in psychological closeness both for those that had and had not moved away from their new friends, the new movers experienced declines that were nearly three times as large. Moreover, keeping up email with friends was associated with increases in psychological closeness for people who had moved away from their friends. While the previous results clearly indicate that email is useful for relational maintenance, this last result points to the possibility, that email can also facilitate growth in new friendships when in-person interaction is onerous because of the geographical distance between friends.

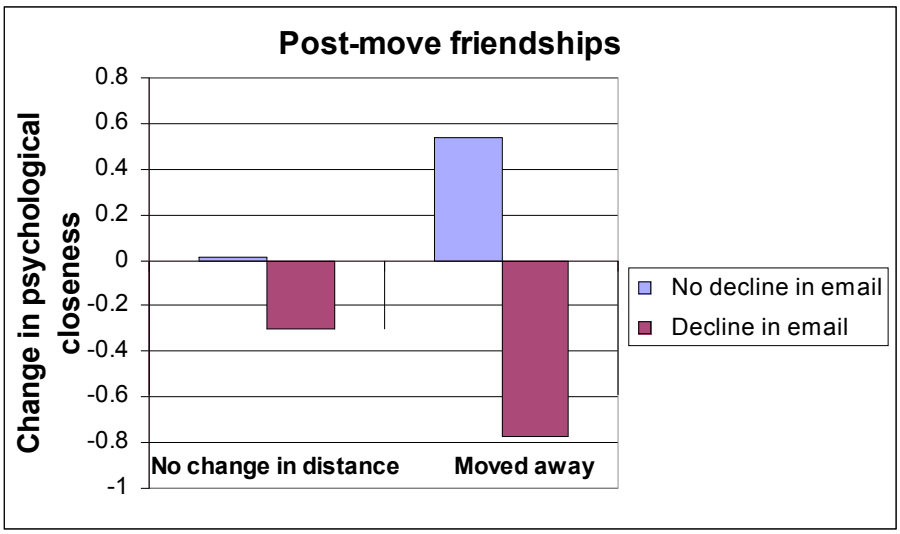

Figure 4-6: Predicting changes in psychological closeness from having moved away and changes in frequency of email

4.5.3.2 Predicting changes in enacted support

Figure 4-1 illustrates that on average, new friendships that were initiated after the move had engaged in similar amounts of enacted support as old friendships that were developed prior to the move. As expected, moving away from a friend was associated with significant declines in enacted support, supporting Hypothesis 7. Since the average levels of enacted support with new friends were comparatively low, a change of nearly half a standard deviation in response to a move indicated substantial losses of enacted support form these friends. In other words, these relationships declined at a more rapid rate in the event of a move than friendships that were developed prior to the move.

Figure 4-7 illustrates that changes in frequency of in-person interactions and communication by phone and email were associated with changes in enacted support over time, supporting

Hypothesis 6. In fact, all of the modalities were associated with changes in enacted support about equally, negating the singular importance of in-person interactions for exchange of behavioral rewards. Communication is crucial for relationship development and these results suggest that all types of communication are about equally important. Frequency of in-person interaction and phone calls at one year after the move is associated with increases in enacted support over the course of the next year. The more we interact with our friends the more likely we are to express a need for help or attain companionship.

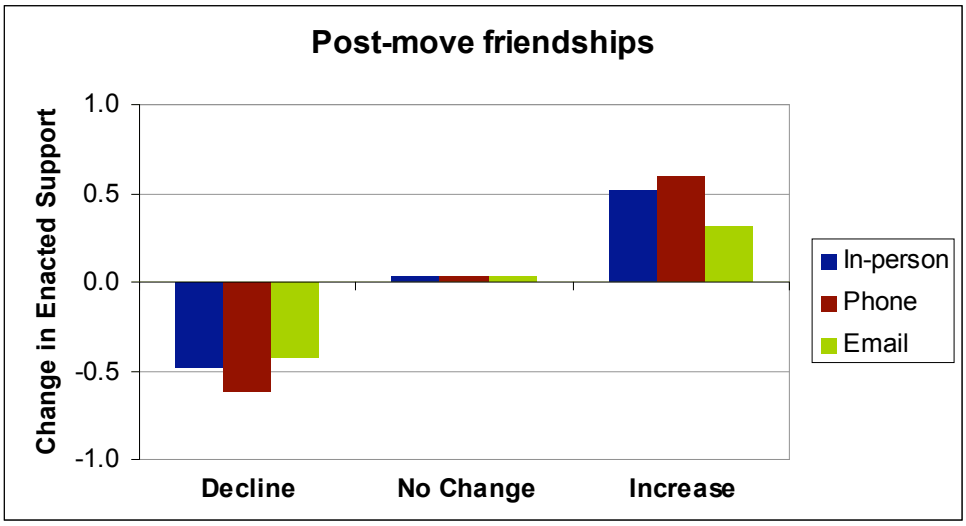

Figure 4-7: Predicting changes in enacted support from changes in frequency of communication

Yet when people move away from new friends, communication via email especially matters. We tested interactions between moving away and changes in frequency of communication. Figure 4-8 illustrates that while declines in frequency of email are associated with declines in enacted support for both people who moved away and those who did not, these declines are nearly four times as large for people that moved away.

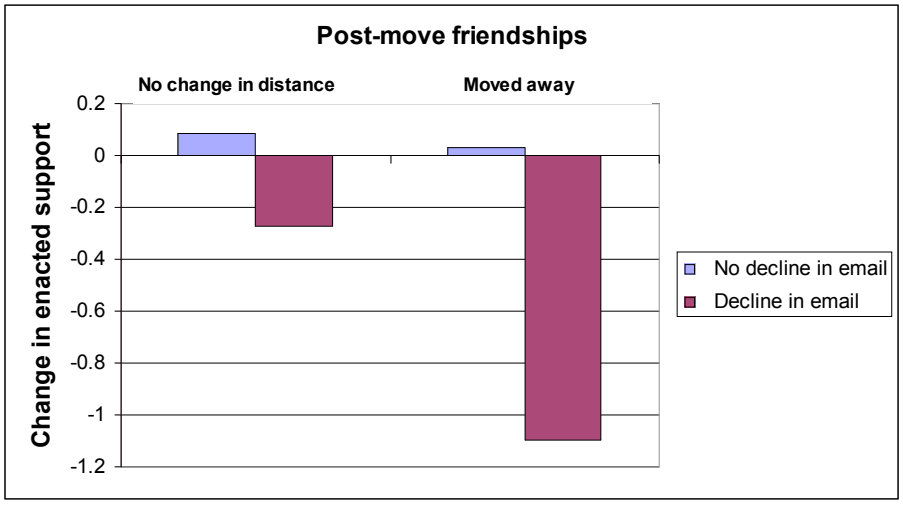

Figure 4-8: Predicting changes in enacted support from moving away and changes in frequency of email

4.6 Discussion

We began this study with the goal of exploring the role of communication in both mature and nascent friendships in the event of a residential move. In our sample, people felt much closer to friends in the old location even when these friends were far away. We observed similar patterns even while movers were developing friends in the new location. Overall when people moved away from their friends, they experienced declines in enacted support but not in psychological closeness, supporting the assertion that while behavioral rewards of a relationship depend on frequency of interaction and, to some extent, physical proximity, the relational rewards of a relationship do not. Moreover, this appeared to hold for both developed and nascent friendships. However, new friendships did not reach the same levels of closeness as developed friendships even two years after the move. New friendships, initiated after the move, also experienced larger declines in enacted support when friends moved away, than did friendships established prior to the move. New friendships may lack enough dyadic history to sustain them through changes in proximity. These results support prior research (Starker, 1990) and suggest that friendships take a substantial time to develop regardless of circumstance.

Though pre-move friendships were more robust to the move than post-move friendships, they were still sensitive to changes in frequency of communication, especially mediated communication such as phone and email. In agreement with Altman and Taylor's assertions, our data illustrate that psychological closeness of developed relationships was less reliant on in-

person interaction than on mediated interaction via phone or email in these relationships. In contrast, behavioral rewards derived from instances of enacted support were dependant on all forms of interaction. In fact, phone communication appeared to be most important for relational maintenance both in terms of psychological closeness and enacted support. Changes in frequency of phone communication had the largest effect sizes associated with changes in psychological closeness and enacted support. Prior research on communication in relationships had suggested that when relationships are mature, much of relational maintenance tends to move from in-person interaction to phone calls, especially when friends are far away from each other (Licoppe & Smoreda, 2006; Nussbaum, 1994). Phone is a powerful technology in friendships, responsible both for relational maintenance and relational growth regardless of distance.

Surprisingly, increases in frequency of email communication were not associated either with changes in psychological closeness or enacted support while decreases were associated with decreases in both. Of the three communication modalities investigated in this study, email is closest to being both a form of communication and an artifact, albeit digital. Like postcards, email can persist in digital form, continually reminding of the sender long after the communication has been received, interpreted and responded to. In a study of use of postcards for relational maintenance, Dindia and colleagues (2004) had found that while sending postcards did not have a positive effect on relational maintenance, stopping sending them had had a strong negative effect. They theorized that postcards had functioned as a 'hygienic factor' in friendships where the absence and not the explicit presence of these routines could affect relational maintenance. That is, since holiday greetings were routine and were a part of cultural norms of relationship maintenance in Western cultures, the act of sending them was expected and, therefore, went virtually unnoticed. Yet not sending holiday greetings may have been perceived as failing to conduct basic relational maintenance behaviors and took on substantial relational meaning.

Though email is far less culturally embedded into behavioral norms than postcards, the fact that it is comparatively cheap and easy to send could have relegated it to "the least one can do" in regards to relational maintenance. Thus if friends had established a routine of occasionally emailing each other prior to the move, a disruption in email may have been seen as less excusable than more expected declines in in-person interaction and phone calls, especially after a move. Occasional email could be a relational maintenance behavior designed to perpetuate relational continuity in absence of other modes of communication (Sigman, 1991). The decline in frequency of email after a move may be interpreted as a strong signal by either or both relational partners

that this relationship lacks importance and my not result in future communication, thus warranting lower ratings of feelings of closeness after the move. It appears that email communication can be used to maintain relationships developed prior to the move, but not to help them grow closer.

In contrast to developed relationships, changes in frequency of in-person communication were associated with changes in both psychological closeness and enacted support for new relationships. These relationships were nascent and less psychologically close but exchanged similar amounts of enacted support as did relationships developed prior to the move. However, a subsequent long distance move is associated with declines in enacted support, large enough to reduce these types of behavioral rewards to naught. This supports the assertion that new relationships are fragile and require consistent behavioral rewards to survive and to grow. Both psychological closeness and enacted support in these friendships relies on all forms of communication. This suggests that when relationships are developing, it is the fact that communication happens that is important, not how it is conducted. However, changes in phone calls have the largest effect sizes associated with changes in psychological closeness over time. Effect sizes for changes in all three modalities are approximately the same when predicting changes in enacted support. Thus while psychological closeness with friends is most sensitive to changes in phone calls, enacted support is sensitive to changes in in-person, phone and email interaction about equally. In other words, behavioral rewards can be obtained via any communication modality, while phone seems best suited for intimacy.

4.7 Limitations

Although this is a longitudinal dataset, due to the length of the questionnaire we were not able to ask about frequency of communication and psychological closeness to pre-move friends at 4-6 months after the move, along with similar measures from prior to the move. Thus we were not able to observe whether movers had adjusted their relational behaviors immediately after the move. The majority of new relationships were sampled one year after the move. Our data confirmed to previous research, showing that new friendships were much less psychologically close than developed friendships (Fischer, 1982; Starker, 1990). However, prior research indicates that movers' social networks go through a period of turbulence as they settle into the new location over the course of the first 3-4 months after the move (Starker, 1990; Starker, Morgan, & March, 1993). We were not able to observe this process.

4.8 Conclusions

The major goal of this paper was to investigate the role of communication technology use in maintenance of developed friendships and initiation of new friendships. We used a residential move as a natural experiment that forced changes in proximity for established friendships and created conditions under which people were more likely to establish new friendships. Our findings suggest that despite the availability of modern communication technologies, such as email, developed friendships continue to benefit primarily from traditional forms of communication. In fact, frequency of phone calls plays a very big role in maintenance and growth of developed friendships, suggesting that future research on use of mobile phones and mobile communication needs to focus on their role in relational maintenance. However, when people move away from their friends, email emerges as the lean medium important for maintenance of both developed and nascent friendships. While increases in frequency of email were not associated with relational growth, decreases in email were associated with substantial declines in both psychological closeness and enacted support.

Chapter 5

Sense of well-being in the new location: The importance of new ties

Social relationships are important for health and psychological well-being (S. Cohen et al., 2000; House, Umberson, & Landis, 1988; Sarason, Shearin, Pierce, & Sarason, 1987; Thoits, 1983) because people rely on their relationships both for support with daily living and in times of great need (Badr, Acitelli, Duck, & Carl, 2001; Cutrona & Russell, 1987). Social relationships can often be a source of support and a basis for developing a sense of security (Sarason, Sarason, & Gurung, 2001). Advances in transportation and communication technologies of the previous century have expanded the range of relationships people can maintain in their lifetime (Kok, 2004; Mok, Wellman, & Basu, 2007). Many have argued that these technological advances have also helped to reduce, if not nullify, effects of distance on people's ability to draw on their social relationships for support (Braithwaite et al., 1999; Cook & Weigel, 1983; Litwak & Kulis, 1987).

People tend to maintain diverse networks with different relationships capable of providing different kinds of support (Weiss, 1974; Wellman & Wortley, 1990). It is likely that close-by and distant relations, while important to people's perceived social support, provide different kinds of support dependant on geographical distance and the strength of the relationship (Mok et al., 2007). Prior research has focused on the role of both close-by and distant relationships in people's lives when their social networks were largely stable (Litwak & Kulis, 1987). We investigate the role geographical distance of social ties and communication modalities used to maintain them play in people's perceived social support when their social networks are in a state of transition after a residential move. The major goal of this paper is to extend research in this area and to answer the following questions: (1) Do old relationships, developed before the move, and new relationships, developed after the move, differ in their relative contribution to movers' sense of security and

support? (2) Does geographical distance of social relationships make a difference in their eventual contribution to movers' sense of security and support after the move? (3) Do social relationships influence perceived support through the use of communication technologies, such as phone and email, to maintain old and new relationships?

5.1 Background

In the US, residential mobility, the process of moving to a new home, is a common event, with nearly 6% of the population (16 million people) moving long distance (further than 50 miles) annually (Schachter, 2004). Residential mobility often involves changes not only in a physical environment, but also in a social environment. In fact, long distance movers report that coping with the changes in the social context can be the hardest aspect of adjustment to a new location (Shklovski & Mainwaring, 2005). Though relationships can deteriorate for many reasons, research suggests that residential mobility is one of the most common causes of relationship loss (Rose, 1984).

Decades of research have linked involvement in social relationships with health and psychological well-being (S. Cohen et al., 2000). Social relationships are important because they imbue life with meaning (Thoits, 1983), foster feelings of belonging (Baumeister & Leary, 1995) and provide a sense of enhanced well-being through companionship (Rook, 1987). Involvement in a network of relationships can intensify commitment to community (Kasarda & Janowitz, 1974; Mesch & Manor, 1998), enhance civic and social participation (Putnam, 1995), provide a source of control and regulation for maintaining healthy behaviors (Umberson, 1987) and reduce mortality (Orth-Gomer & Johnson, 1987; Seeman, Kaplan, Knudsen, Cohen, & Guralnik, 1987). Social isolation, on the other hand, is associated with loneliness, cardiovascular disease and greater cancer incidence and mortality (Reynolds & Kaplan, 1990; Sorkin, Rook, & Lu, 2002). Though the fact that social relationships are beneficial to health and well-being has been well established, how social relationships actually promote well being has remained a question of interest (Goldsmith, 2004, p. 13).

Social support is a process through which social relationships can moderate effects of stressful events on health and psychological well-being (S. Cohen & Wills, 1985; House et al., 1988). Perceived social support refers to people's beliefs and expectations of the ability of their social relationships to provide resources necessary to deal with emergent contingencies (S. Cohen et al., 1984; Reis & Collins, 2000). Regardless of whether these contingencies come in a form major

stressful incidents or minor daily hassles, we often rely on our social relationships to provide some form of practical, emotional or informational assistance. While actually receiving support may not always be beneficial to psychological well-being (Väänänen, Buunk, Kivimäki, Pentti, & Vahtera, 2005), simply knowing support would be available in the time of need is associated with greater ability to cope with stressful events (Bolger, Zuckerman, & Kessler, 2000; S. Cohen & Wills, 1985). In an extensive review of social support literature Cohen & Wills (1985) argue that involvement in social relationships and perceived social support promote health and psychological well-being through different pathways because the two measures are often minimally correlated (also see Brissette, Cohen, & Seeman, 2000). Yet perceptions of support have to be formed and maintained on the basis of some kind of evidence that help would be available if needed. Some researchers suggest that formation of such perceptions is a social process, based on one's social context and the history of interactions and exchanges of support with network members (Badr et al., 2001; Reis & Collins, 2000; Sarason et al., 2001). Residential mobility often forces a change of social context as movers put distance between themselves and their social relationships, and develop new relationships to compensate for such changes. The major goal of this paper is to investigate how changes in the social context of the movers relate to changes in their perceptions of social support after the move.

Social support is fundamentally a social process that happens through social interaction with one's social relations (Badr et al., 2001). Yet different kinds of relationships are capable of providing different kinds of provisions of support (Jacobson, 1986; Weiss, 1974). Weiss (1974) theorized that different relationships are capable of different provisions of support because they rely on different relational assumptions. Thus some provisions of social support are available in kin relationships while others are more likely to be available in non-kin relationships (Cutrona & Russell, 1987). For example Cook & Weigel (1983) had found that in times of need people tended to rely on their relatives for substantial practical and financial crisis assistance, but they relied on their friends for emotional support and day-to-day practical assistance. Research suggests that while significant others and relatives are often a great source of support (Ben-Shlomo et al., 1993; Quarantelli, 1960), friends are crucial for psychological well being and feelings of belonging (Lin & Westcott, 1991; Rook, 1987).

Allen (1979, p. 50) posits that "friendship is a resource we use to get through everyday contingencies of living." Friendship ties are voluntary associations among non-kin (G. Allan, 1979) that rely on investments of time and resources from both parties in order to survive (Duck,

1994). Unlike kin ties, friendships can not rely on strong normative obligations to persist and are often sensitive to changes in social context and frequency of contact (Canary & Stafford, 1994). Thus friendships can be more easily disrupted by a residential move than kin relationships (Stafford, 2004). However, voluntary relationships, such as friendships, are also easier to initiate in a new location where relatives may be absent or unavailable for some reason. In this chapter we focus on the role friendships play in perceived social support.

As movers adjust to a new location, they often go through a process of negotiating changes in existing relationships due to distance as well as developing new close-by social relationships to augment the loss of proximal contacts due to the move (Fischer, 1982). Prior research suggests that in the age of digital communication and easy travel arrangements, people who move to new places can bring their relationships along through phone and email contact (Boneva, Kraut, & Frohlich, 2001; Cummings et al., 2006). People move to a new place having already established relationships in other places they lived. In fact, for many people a substantial portion of their personal relationships tends to be long distance (Fischer, 1982; Mok et al., 2007; Wellman, 1996). In many cases, people who move often maintain a range of long distance relationships over the course of lifetime (Rohlfing, 1995). These relationships are important in that they can provide a sense of being supported and a sense of security in a new location even when there are no proximal ties (Finchum, 2005; Shklovski & Mainwaring, 2005).

Social support and relationship research suggests that social relationships can contribute to the global perception of support in two ways: through their mere presence and through actual exchanges (S. Cohen & Wills, 1985; Pierce, Sarason, & Sarason, 1991; Rook, 1987). Reis & Collins (2000, p. 139) argue that the perception of support availability can be traced at least in part to actual interpersonal events: “Relationships involve synthesis of the details of past, present, and imagined future interactions into generalized expectations, attributions, identities and patterns of communication.” Thus every instance of exchange of support is valuable both in its independent contribution to health and well-being and in its function as part of the stock of past interactions that in aggregate mark the specific relationship as potentially supportive in the future.

Based on the social exchange theory, Levinger & Huesmann (1980) propose a model of “incremental exchange” where stronger relationships lead to expectations of greater social rewards for each partner. Levinger & Huesmann (1980) make a distinction between “relational rewards” which are based purely on the state of the relationship and the fact that it exists and “behavioral rewards” which are based on specific instances of interaction that result in relational

partners deriving value from that interaction. After a residential move, especially one that is long distant, relationships that were close-by before the move are likely to become geographically distant. Distance can change the ability of these relationships to provide forms of tangible support and to engage in interactions that result in behavioral rewards that require physical proximity. However, these pre-move friendships are more likely to have an established history of interactions, providing a basis for perceived social support regardless of geographical distance. Use of communication technologies, such as phones or email, may allow movers to retain the perception that these relationships are accessible in times of need and enable these relationships to provide forms of support, such as emotional support, that do not require physical presence (Shklovski & Mainwaring, 2005). Thus movers could reap both the relational rewards from the fact that these relationships continue to exist and behavioral rewards from occasional interaction with their pre-move friends.

Hypothesis 1: Pre-move relationships that are retained after the move will contribute to perceived social support after the move through the relational rewards associated with their existence

Hypothesis 2: Communication with pre-move relationships via phone or email will contribute to perceived social support after the move

Despite the presence of distant pre-move friendships, post-move friends or acquaintances met at the new location are important for liking the new location and for developing feelings of attachment and a sense of belonging to the neighborhood (Bach & Smith, 1977; Ringel & Finkelstein, 1991; Stokols & Shumaker, 1982). Some researchers have suggested that these local ties are useful only to the extent that they provide services that distance can render impossible or too expensive to obtain from far away ties (Fischer, 1982; Mok et al., 2007; Wellman & Wortley, 1990). However, these studies were based on people whose networks were settled at the time of data collection and both proximal and distant friends were present. While distant friends may represent stronger, psychologically close relationships, close-by friends provide that specific physical day-to-day kind of interaction that allows people to feel supported and to rely on distant ties only for things that are potentially more demanding of resources or emotionally taxing. This kind of support indeed relies on physical proximity, but its contributions to perceived social support are likely to be distinct from that of distant ties and complimentary.

Close-by friends then are special precisely because they are geographically local. Sharing the same physical context allows incidental interactions to lead to instances of exchanges of support and to a general feeling of belonging to a place where there exist people who would provide such support. Nascent relationships, initiated after the move, may lack the interpersonal history to be a basis for perceived social support (Reis & Collins, 2000). Yet the very lack of established local relationships is likely to make new local relationships seem more supportive than they otherwise would have been in a shorter period of time. In order to be perceived as beneficial, however, local acquaintances would need to engage in frequent communication and other forms of relational development, such as involvement in joint activities or provision of companionship, in order to attain behavioral rewards that would allow the relationship to grow and that would add to the sense of security and support.

Hypothesis 3: Friendships initiated after the move will contribute to perceived social support after the move when pre-move friendships are geographically distant

Hypothesis 4: Frequency of communication with new friends via face-to-face, phone or email will be related to high levels of perceived social support after the move

5.2 Methodology

See Chapter 3 Sections 3.1 and 3.3 for details.

5.3 Variables of interest

5.3.1 Dependant variable

Perceived social support: Perceived social support was measured using the ISEL-12 (S. Cohen et al., 1984). This self-report scale measures participants' perceptions that they would receive or fail to receive various types of social support such as practical help ("If I had to go out of town for a few weeks, it would be difficult to find someone who would look after my house or apartment"), advice ("When I need suggestions on how to deal with a personal problem, I know someone I can turn to"), and companionship ("If I decide one afternoon that I would like to go to a movie that evening, I could easily find someone to go with me") if they were to experience a need for them. Although the scale is commonly divided into three sub-scales (Tangible, Belonging and Appraisal support), in this study we used the general measure. We were primarily interested in assessing the overall perceived social support of the movers as they adjusted to the new location, since all three

subscales are associated with psychological well-being. Another reason to use the general measure was the high inter-correlation between the sub-scales (ranging between *r*=.54 and *r*=.62). Prior research has suggested that the ISEL sub-scales may have low differential sensitivity in some settings (Sarason et al., 1987). All items were asked at each time period. (Cronbach alpha: T1 = .85, T2 = 86, T3 = 86)

5.3.2 Independent variables

Sample network size: This measure was calculated from the number of friends or acquaintances sampled for each respondent. In our analyses we differentiated between *old network size,* which included the number of relationships that had existed prior to the move (0-5 at T1, T2 and T3), and *new network size,* which included the number of relationships that had been initiated after to the move (0-1 at T1 and 0-3 at T2 and T3).

Average geographical distance – the average geographical distance of friends from the respondent. At each time period, respondents reported how far away they lived from each partner on a 6-point logarithm-like scale (0=within 5 min drive, 1=within 15 min drive, 2=within 30 min drive, 3=within 1-2 hr drive, 4=within 3-4 hr drive, 5=further away). These response options used "effort distance" rather than objective geographical distance from friend in order to avoid local differences in perceptions of distance (Falk & Abler, 1980). For pre-move friends we asked about the geographical distance from each friend before and after the move.

Psychological closeness – average level of psychological closeness to friends. We used a measure of psychological closeness to friends as an indicator of the level of intimacy of the relationship as an operationalization of a measure of exchange of relational rewards within a relationship. Respondents indicated how close they felt to each friend on a 5-pt scale in response to the following question: "How close to you feel to [name of partner]" selecting a value from "Not at all" to "Very."

Frequency of communication – Average amount of communication with social network members. Respondents reported the frequency with which they communicated with each friend (a) *in-person*, (b) *by phone*, (c) *by email* and (d) *by instant messaging*. Their answers were on a 7-point scale, ranging from "Never" to "Multiple times per day." Unfortunately, over 70% of the respondents indicated that they had never used instant messaging to communicate with their

friends. Thus we used only in-person, phone and email communication modalities in subsequent analyses.

5.3.3 Control variables

Distance of the move (in miles) was calculated from zip codes of the respondents' old and new location of residence and log-transformed to normalize the distribution of scores.

Moved again. Residential mobility research indicates that recent movers are the most likely population to move again within the next year (DaVanzo, 1983). Additional moves are likely to affect the process of adjustment to the new location and perceived social support. We created a dummy variable indicating whether respondents had moved again between data collections.

Prior research into residential mobility has identified a number of demographic variables that predict how, where and when people move (DaVanzo, 1983; Fischer, 2002; Ritchey, 1976). Demographic variables are also associated with measures of perceived social support (CITE). We used questions from the Census Bureau national population survey to assess movers' *gender*, *age*, *education*, *employment status* and *marital status*.

Social support is fundamentally a social process and ability to create new relationships as well as maintain old relationships is also related to personality variables such as extraversion. We assessed *extraversion* at T1, using 8 items (Cronbach $\alpha = .85$) from The Big Five Inventory (O. John, Donahue, & Kentle, 1991).

5.4 Analysis

In order to assess individual differences, we created an individual level dataset with aggregate measures of social network components. The dataset was formatted to include aggregate measures of the pre- and post-move social network sample. For example, for each individual, the aggregate measure of geographical distance from each pre-move friend was the mean of distances from all pre-move friends, resulting in a measure of average geographical distance from pre-move network ties. Thus the analyses included measures of number of friends, the average geographical distance from friends, the average frequency of communication with friends via face-to-face, phone or email and the average level of psychological closeness with friends for old and new ties separately. Table 5-1 presents the summary of all variables used in the analyses.

Variable		Wave1			Wave2			Wave 3		
		N	Mean	Std Dev	N	Mean	Std Dev	N	Mean	Std Dev
Perceived social support (0-4)		877	2.89	0.77	1001	2.85	0.75	680	2.92	0.72
Pre-move network	network size (1-5)	900	2.13	0.93	1013	1.23	1.21			
	avg. geographical distance pre-move (0-5)	847	1.79	1.33						
	avg. geographical distance post-move (0-5)	853	2.99	1.52	620	2.79	1.65			
	psychological closeness (0-4)	870	2.77	0.88	622	2.49	1.05			
	in-person communication (0-6)	878	3.41	1.43	619	2.07	1.46			
	phone communication (0-6)	878	3.25	1.34	619	2.47	1.40			
	email communication (0-6)	878	1.74	1.67	619	1.48	1.54			
Post-move network	network size (0-3)	900	0.58	0.49	1013	1.47	0.85			
	psychological closeness (0-4)				886	1.61	1.01			
	in-person communication (0-6)				885	3.52	1.37			
	phone communication (0-6)				885	1.83	1.61			
	email communication (0-6)				885	0.78	1.29			
Distance of the move (log)		882	3.72	3.72	1009	3.34	4.00			
Moved again (1=yes)					996	0.19	0.39	674	0.17	0.38
Extraversion (0-4)		869	2.30	0.78	988	2.33	0.78			
Age	(yrs)	887	40.86	15.54	1010	43.79	16.58			
Gender	(1=male)	900	0.51	0.50	1013	0.51	0.50			
Education	(1-12)	868	7.80	1.93	984	7.81	1.96			
Married	(1=yes)	586	0.51	0.50	1013	0.54	0.50			
Employed	(1=yes)	845	0.64	0.48	942	0.78	0.41			

Table 5-1 Descriptive statistics

5.4.1 Mortality analysis

See Chapter 3.4 for summary.

5.4.2 Model selection

Due to the nature of the USPS NCOA database, we were not able to contact our respondents before their initial move. However, a residential move tends to be a very specific stressful event that can have dramatic effects on routine behaviors. In order to attain some base-line measures of routine behavior, at the time of the first questionnaire we asked a set of questions where respondents reported on their frequency of communication with pre-move friends during the six months prior to the move. See Chapter 3.1 for an in-depth explanation of this approach. While

routine behaviors are relatively easy to recall accurately for a specific time period punctuated by a memorable event, memories of emotional states such as perceived social support are far less certain. Thus we did not ask our respondents to speculate on their psychological state prior to the move. Instead, we asked our respondents to report perceived social support at the time of filling out the survey. The T2 and T3 questionnaires asked about routine behaviors, relationships with old and new friends and perceived social support at the time of the questionnaire, one year and two years after the move respectively.

5.5 Results

Of the 1779 respondents at T1, 900 respondents (51%) nominated friends. Of the 900 respondents, 507 (56%) had nominated both types of ties: old ties (friends met before the move) and a new tie (a friend met after the move), 374 (41%) had nominated only old ties and 19 (2%) had nominated only a new tie. Respondents reported an average of 2.2 old friends, ranging from none to five and 58% nominated one new friend.

Preliminary analysis of Pearson correlations revealed an interesting picture (Table 2). As expected, the post-move friend tended to be more close-by than pre-move friends (μ=.91 vs. μ=3.28) and much less psychologically close than pre-move friends (μ=1.36 vs. μ=2.78). While average psychological closeness with old friends was associated with frequency of phoning prior to the move (r=.40), it was not associated with frequency of face-to-face interaction (r=.09) or emailing prior to the move (r=.05). Psychological closeness with the new friend at T1 was associated with frequency of calling them on the phone (r=.48), in-person interaction (r=.27) and emailing them (r=.30), presumably because higher frequency of communication was indicative of an actively developing relationship and allowed more instances for joint activities and exchanges of support. Frequencies of communicating with new friends via in-person, phone and email were highly inter-related, suggesting that communication with the post-move friend was more likely to be multi-modal (see Table 5-2) than communication with pre-move friends.

At T1 presence of a new post-move friendship tie was correlated with average geographical distance from the old ties after the move. It was also associated with distance of the move. That is, a longer distance move was more likely to result in a greater average geographical distance from the pre-move friends, potentially motivating the mover to initiate new ties after the move. When inspecting correlations between average frequency of communication with pre-move friends and frequency of communication with the post-move friend we note an interesting technology use

trend: people who frequently emailed old friends prior to the move, tended to email the new friend after the move (r= .35) as well. Perceived social support at T1 was marginally correlated with talking to pre-move friends via email before the move (a practice that was more likely to remain unchanged due to the move), providing some support for Hypothesis 2, and negatively correlated with average geographical distance of pre-move network ties (r=.11 and r=-.12 respectively).

Correlational analyses often fall short when assessing events that may be highly variable and dependant on demographics. Thus, we conducted a series of multivariate analyses to test our hypotheses. The longitudinal nature of this data set allowed us to test whether levels of the independent predictors at T1 could predict changes in levels of perceived social support at the subsequent time period. These analyses followed the lagged regression model described in Cohen et al. (2003) and summarized here. The movers' dataset is a three-time-point dataset, which was analyzed across two time periods in each analysis T1 → T2 and T2 → T3. When assessing change in variable Y between T1 and T2, we regress Y2 on a set of predictors measured at T1 and include Y1 into the equation as another predictor. This procedure removes the potential influence of Y1 on the relationship between the predictors and Y2. This method insures that estimated effects of other predictors on Y2 are independent of Y1 and the correlations of the predictors and Y1. Because the lagged dependent variable is included in the model, the results can be interpreted as showing the effects of the predictors measured at T1 on the change in Y between T1 and T2. We added control variables to all models to ensure results were not artifacts of other pre-existing differences.

5.5.1 Predicting changes in perceived social support over the course of the first year after the move

For the T1 questionnaire, the respondents reported their frequency of communication with the old contacts before the move and perceived social support at the new location after the move. The T2 questionnaire was conducted approximately 1 year after the move and asked the same set of questions about state of things after the move. Using measures from the T2 questionnaire as outcomes we conducted a prospective analysis of change in perceived social support between T1 and T2. Table 5-3 presents results from these analyses.

Table 5-2 Correlation table

				1			2		3		4		5		6		7		8		9	10	11
				T1	T2	T3	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T2	T2	T2
1	Perceived social support		T2	0.60																			
			T3	0.56	0.62																		
2	Pre-move network	network size	T1	0.02	0.04	0.01																	
			T2	-0.03	0.02	0.01	0.71																
3		network dispersion	T1	-0.12	-0.07	0.01	-0.02	-0.07															
			T2	-0.12	-0.11	-0.07	0.03	0.12	0.77														
4		psychological closeness	T1	0.13	0.11	0.12	-0.01	-0.06	0.02	0.07													
			T2	0.12	0.18	0.21	0.06	-0.02	-0.04	-0.03	0.56												
5		in-person communication	T1	0.07	0.03	-0.05	0.01	-0.08	-0.08	-0.05	0.08	0.03											
			T2	0.15	0.13	0.10	0.06	-0.05	-0.52	-0.68	0.08	0.26	0.16										
6		phone communication	T1	0.08	0.08	0.02	-0.01	-0.05	-0.07	-0.05	0.37	0.27	0.39	0.12									
			T2	0.11	0.11	0.16	0.04	-0.06	-0.22	-0.24	0.36	0.57	0.13	0.51	0.40								
7		email communication	T1	0.12	0.13	0.19	-0.02	0.02	0.02	0.06	0.06	0.05	-0.01	0.02	0.18	0.07							
			T2	0.16	0.13	0.22	0.03	0.05	0.00	0.08	0.14	0.21	0.01	0.14	0.11	0.29	0.66						
8	Post-move network	network size	T1	0.04	0.06	0.11	0.05	0.04	0.21	0.21	0.00	-0.02	-0.01	-0.13	0.00	-0.10	0.04	0.08					
			T2	0.05	0.09	0.16	0.15	0.13	0.20	0.31	0.03	-0.02	-0.01	-0.23	-0.01	-0.10	0.16	0.17	0.52				
9		psychological closeness	T2	0.02	0.12	0.12	0.07	0.03	-0.04	-0.02	0.21	0.23	0.04	0.05	0.18	0.16	0.00	-0.02	-0.01	0.12			
10		in-person communication	T2	0.01	0.04	0.11	0.01	0.00	-0.05	-0.05	0.02	0.11	0.00	0.18	0.04	0.20	-0.04	0.08	-0.13	0.05	0.39		
11		phone communication	T2	-0.03	0.06	0.05	0.04	0.02	0.01	0.06	0.15	0.14	-0.01	0.01	0.18	0.21	0.09	0.09	0.00	0.11	0.58	0.31	
12		email communication	T2	0.00	0.05	0.05	0.07	0.11	0.02	0.10	0.02	0.01	-0.09	-0.01	0.03	0.07	0.34	0.32	0.11	0.21	0.26	0.11	0.37

Predictors T1		Perceived social support T2					
		Std. β	Std Err.		Std. β	Std Err.	
Perceived social support T1		0.443	0.033	**	0.577	0.037	**
Pre-move network	network size	0.030	0.026		0.034	0.030	
	avg. geographical distance	-0.001	0.033		-0.005	0.022	
	psychological closeness	0.004	0.031		0.006	0.036	
	in-person communication	-0.002	0.035		0.002	0.027	
	phone communication	0.035	0.030		0.026	0.022	
	email communication	0.027	0.031		0.020	0.017	
post-move network size (0/1)		-0.013	0.058		-0.005	0.056	
post-move avg. geog. dist. * post-move net. size					0.077	0.038	*
post-move avg. geog. dist. * in-person comm					-0.009	0.016	
post-move avg. geog. dist. * phone comm					0.014	0.015	
post-move avg. geog. dist. * email comm					0.022	0.011	*
Distance of the move (log)		0.006	0.033		0.001	0.014	
Moved again (1=yes)		-0.140	0.062	*	-0.161	0.067	*
Extraversion		0.070	0.026	*	0.087	0.035	*
Age		-0.066	0.037	t	-0.004	0.002	
Gender	(1=male)	-0.039	0.055		-0.036	0.056	
Education		0.022	0.034		0.013	0.015	
Married	(1=yes)	-0.003	0.054		-0.011	0.054	
Employed	(1=yes)	-0.059	0.103		-0.061	0.096	
Intercept		2.915	0.065	**	2.903	0.053	**

Table 5-3 Predicting perceived social support at T2

R-squared=0.43

** p<0.01

* p<0.05

t p<0.1

Overall, extraverts reported increases in perceived social support over time and movers that had moved again between T1 and T2 reported decreases in perceived social support over time. Hypothesis 2 posited that via phone and email prior to the move would contribute to movers' perceived social support after the move because use of such mediated communication technologies would be less sensitive to changes in distance than face-to-face interaction. However, frequency of communication behaviors, such as calling on the phone, seeing people in-person or emailing old friends prior to the move was not associated with perceived social support after the move. We did not expect frequency of face-to-face interaction prior to the move to be associated with perceived support after the move since it is the most likely to change depending on the distance of the move. Though this runs counter to Hypothesis 2, it is possible that communication patterns via all modalities depend on the context of relationships in the old location, thus frequency of face-to-face interaction, phone calls or email can not predict the changes experienced due to increases in geographical distance.

Yet not all movers had moved away from their pre-move networks. Some didn't move very far in the first place, while others moved closer to friends instead of moving away. We added interactions of frequency of communication via phone, in-person and email with the average geographical distance from pre-move network ties after the move. Results show that frequency of emailing friends pre-move is associated with increases in perceived social support over time if the network is on average geographically distant (see Figure 5-1) but not when these friends are close-by, providing partial support for Hypothesis 2. However, we did not see the same pattern for phone calls. This suggests that relationships that were at least partially maintained via email before the move may be better positioned to cope with changes in geographical distance because email is comparatively immune to distance and communication via email can continue unchanged. Thus these relationships may have been better able to provide the kinds of behavioral as well as relational rewards that would have been beneficial to movers' perceived social support after the move.

When people move to a completely new place, they are likely to put effort into meeting new people especially when their old contacts are not available for simply companionship such as going out to lunch or getting a drink after work. However, these new ties are likely to be less close than pre-move ties and may not contribute to perceived social support after the move. Our results show that having a new tie in the new location after a move was associated with increases in perceived social support over the course of the year but only if the old friends were far away, suggesting that this tie then was able to fill an available niche (Figure 5-2). This provides some support for Hypothesis 3, which posits that ties in the new location will be associated with perceived social support after the move especially when pre-move ties are geographically distant.

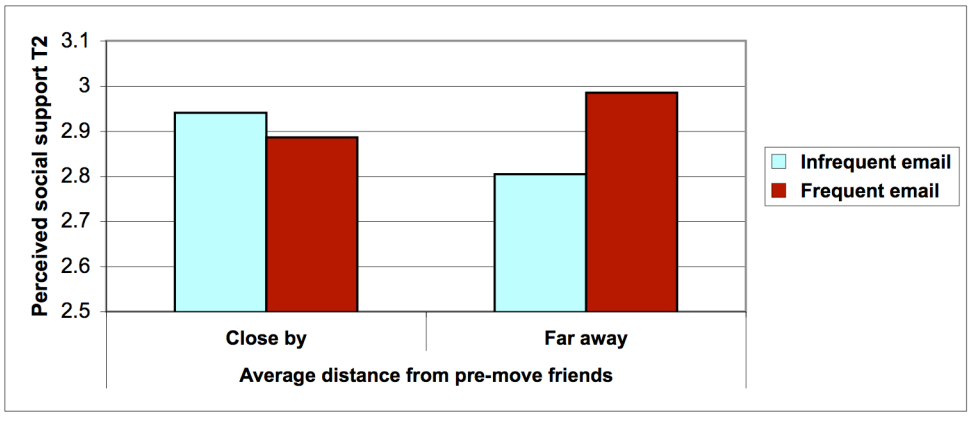

Figure 5-1: Frequency of emailing pre-move friends and the average geographical distance from pre-move friends

Predicting perceived social support at T2, controlling for perceived social support at T1

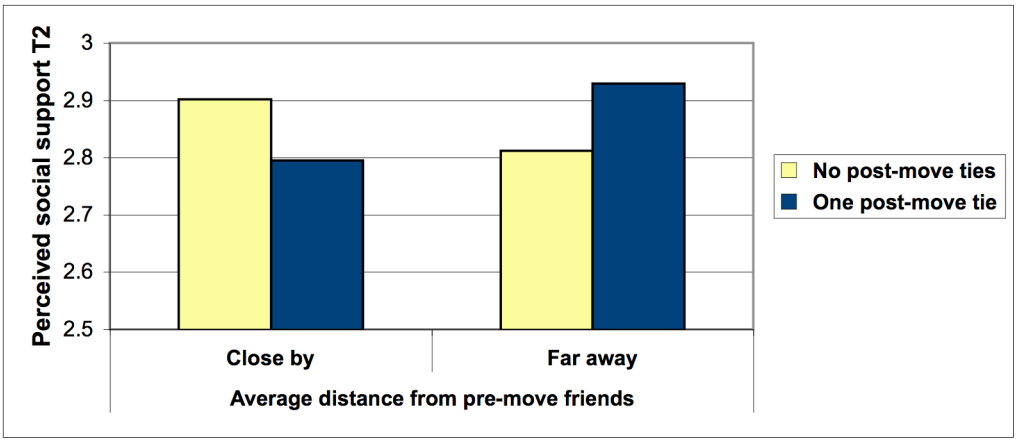

Figure 5-2: Having a friend in the new location and the average geographical distance from pre-move friends

5.5.2 Predicting changes in perceived social support over the course of the second year after the move

One of the problems with the above analyses is that at T1 frequency of interaction with the old network was measured pre-move and not post-move. Also, at T1, we had sampled only one new post-move tie. Cohen & Wills (1985) argue that measuring the existence of only one relationship does not provide a reliable measure of social integration in the new location. Thus tapping just one new tie would not have been enough to assess potential significance of having new ties for perceived social support. At T2 we asked our respondents to add up to two more new ties and assessed frequency of communication and psychological closeness with them. We also asked questions about frequency of communication and closeness with pre-move ties after the move.

The T2 questionnaire was conducted approximately one year after the move. Of the 1779 respondents from T1, 1154 had responded at T2. Of these 1011 provided data on their relations. Among all of the respondents that provided relational data, 501 (50%) reported on both pre-move and post-move friends, 386 (38%) reported only on post-move friends and 124 (12%) reported only on pre-move friends. Respondents reported an average of 2.01 pre-move friends (ranging from none to five) and 1.7 post-move friends (ranging form none to three). The T3 questionnaire was conducted approximately two years after the move. At T3 we again asked movers to report levels of perceived social support. Of the 910 respondents that filled out the questionnaire at T3, 644 (71%) provided data on their relations. Among all of the respondents that provided relational data, 339 (53%) reported on both pre-move and post-move friends, 239 (37%) reported only on

post-move friends and 66 (10%) reported only on pre-move friends. The following analyses assess associations between psychological closeness and communication frequency with old and new ties at T2 and perceived social support at T3.

Hypothesis 1 posited that pre-move relationships that are retained after the move will contribute to perceived social support after the move through the relational rewards associated with their existence. We conceptualized a measure of relational rewards within a relationship as a measure of intimacy and feelings of closeness. Table 5-4 shows that the average psychological closeness to pre-move ties and is associated with increases in perceived social support over time, offering support for Hypotheses 1. Though pre-move relationships tended to be geographically further away from movers' than post-move relationships, Hypothesis 2 stated that frequency of mediated communication via phone and email with pre-move friends would be associated with more perceived social support after the move. In fact, frequency of communication with pre-move friends via email was associated with increases in perceived social support over time.

Predicting perceived social support at T3, controlling for perceived social support at T2

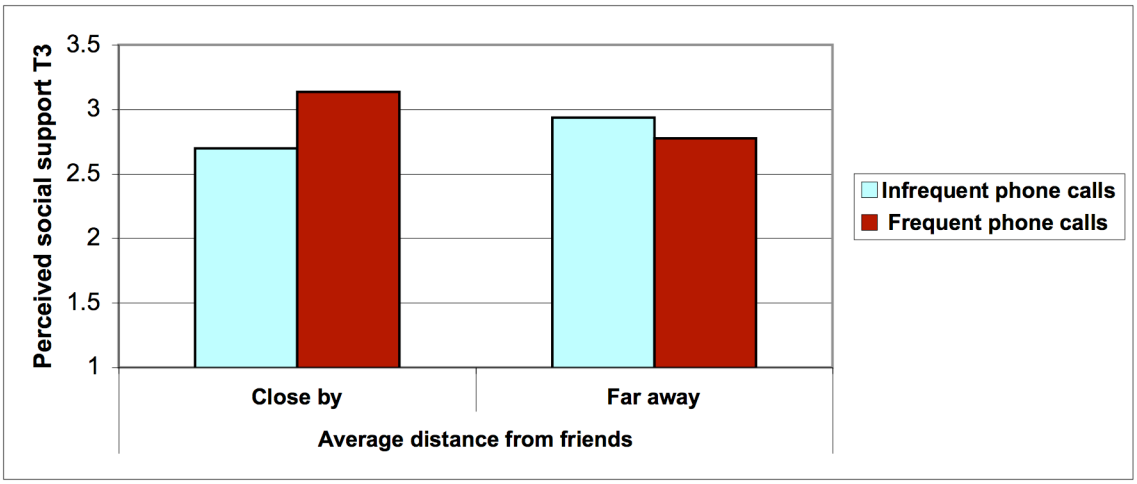

Figure 5-3: Frequency of phone calls with pre-move friends and average geographical distance from the pre-move network ties

Not all movers had experienced a long distance move and but some may have moved sufficiently far away to warrant higher dependence on mediated communication via phone calls and email for perceived social support. We added an interaction of frequency of communicating with pre-move friends with the average geographical distance from them. Figure 5-3 illustrates a significant interaction of the average geographical distance from the pre-move friends and frequency of phoning them. This interaction suggests that when old friends were close-by frequent phone calls

were associated with increases in perceived social support while when friends were geographically distant frequency of phone calls with them did not make a difference.

Movers that relocate to new or unfamiliar locations would be more likely to invest time and effort into meeting new people when their pre-move contacts are far away. We hypothesized that having more friends in the new location would be associated with more perceived social support. Table 5-4 shows that the size of the new network (post-move friends) is strongly associated with changes in perceived social support over time from T2 to T3, supporting Hypothesis 3. Yet friendships initiated after the move are likely to be fragile and Hypothesis 4 posited that such friendships would depend on infusions of frequent interaction in order to be deemed beneficial. However, frequency of communication with new friends via any of the modalities was not associated with changes in perceived social support, providing no support for Hypothesis 4.

		Perceived social support T3					
Predictors T2		**Std. β**	**Std Err.**		**Std. β**	**Std Err.**	
Perceived social support		0.393	0.043	**	0.520	0.051	**
Pre-move network	network size	-0.005	0.046		-0.011	0.043	
	avg. geographical distance	-0.018	0.058		-0.010	0.038	
	psychological closeness	0.064	0.046		0.080	0.046	t
	in-person communication	0.095	0.050	t	0.040	0.040	
	phone communication	-0.014	0.062		-0.013	0.044	
	email communication	0.083	0.043	*	0.056	0.027	*
Post-move network	network size	0.103	0.048	*	0.099	0.049	*
	psychological closeness	-0.020	0.051		0.006	0.050	
	in-person communication	-0.020	0.055		-0.006	0.032	
	phone communication	0.045	0.044		0.018	0.030	
	email communication	-0.018	0.045		-0.023	0.030	
post-move avg. geog. dist. * post-move net. size					-0.033	0.031	
post-move avg. geog. dist. * in-person comm					0.014	0.023	
post-move avg. geog. dist. * phone comm					-0.039	0.021	t
post-move avg. geog. dist. * email comm					0.009	0.016	
Distance of the move (log)		0.021	0.043		0.001	0.020	
Moved again (1=yes)		0.143	0.101		0.075	0.094	
Extraversion		0.012	0.040		0.022	0.045	
Age		-0.004	0.052		-0.002	0.003	
Gender	(1=male)	0.024	0.080		0.006	0.075	
Education		0.050	0.044		0.021	0.021	
Married	(1=yes)	0.024	0.072		0.013	0.073	
Employed	(1=yes)	-0.056	0.125		-0.056	0.118	
Intercept		2.895	0.127	**	2.930	0.126	**

Table 5-4 Predicting perceived social support at T3
R-squared=0.38
** p<0.01
* p<0.05
t p<0.1

5.6 Discussion

The major goal of this chapter was to investigate what role pre-move and post-move friendships play in formation and maintenance of perceived social support after a residential move. The longitudinal nature of this dataset allowed us to test whether communication frequency and psychological closeness to pre-move relationships would be associated with changes in movers' perceived social support over the course of two years after they had moved.

The question of whether geographical distance of social ties matters for feeling secure and supported has interested many researchers (Litwak & Kulis, 1987; Mok et al., 2007). Our results suggest that though distance does matter, this relationship is not straightforward. The average geographical distance from pre-move network ties was not associated with changes in perceived social support over the course of the next two years after the move. Even if changes in distance from contacts had affected movers' perceived social support initially, this effect was not persistent. However, use of mediated communication modalities, such as email, that are comparatively immune to distance, was beneficial to those movers' whose pre-move social ties were far away.

Results support Hypothesis 1 that psychological closeness to pre-move friends is a powerful beneficiary of perceived social support when predicting change in perceived social support two years after the move. High levels of average psychological closeness to pre-move ties one year after the move indicate the presence of a strong network of friends that continued to provide relational rewards to the movers regardless of geographical distance. Although these friends may not have been available for help with day-to-day hassles, the strength of the relationship is an indicator that movers expect these friends to be available in the event of big needs (Fischer, 1982). Thus movers had derived relational rewards from their pre-move friendships despite changes in proximity and frequency of interaction with them due to the move.

Surprisingly, psychological closeness to pre-move friends measured at T1 was not associated with changes in perceived social support over the course of the first year after the move (Table 4). However, at T1 we measured psychological closeness to old ties at 6 months prior to the move. This measure did not account for potential changes in attitudes towards pre-move friends due to the move. It is possible that enough close relationships were impacted by the move that this same measure was not a good predictor of change in perceived social support after the move from T1 to T2. An alternative explanation for this result could be that perceptions of support immediately

after the move may be based on pre-move social context that gets adjusted over time as movers adjust to the new location and re-evaluate their social relationships (Pierce et al., 1991; Sarason, Pierce, Shearin, & Sarason, 1991). Thus the measure of perceived social support immediately after the move was artificially inflated due to perceptions that have not yet been adjusted to the new circumstances. At T2 we measured psychological closeness to old ties at the time of data collection, one year after the move. Thus this measure should have reflected the level psychological closeness to the pre-move network after the movers adjusted to the new location over the course of the first year after the move.

Hypothesis 2 posited that if pre-move friendships were maintained at least in part via phone calls or email they would be less vulnerable to the move and resulting geographical distance. This hypothesis was partially supported. Over the course of the first year after the move, frequency of email with geographically distant old friends prior to the move was associated with increases in perceived social support. This suggests that relationships maintained at least in part via email before the move were the ones most likely to remain supportive after a residential move. In fact, we find that frequency of emailing old friends one year after the move, regardless of their geographical distance, is associated with increases in perceived social support over the course of the second year after the move. Though geographical distance did not play a role in the final analysis, pre-move friendships were on average 2-3 hours away from the movers' current location, which is far enough to reduce frequency of incidental face-to-face interactions, making email an important and affordable way to keep in touch.

However, frequency of phone calls was not associated with changes in perceived social support at either time. In fact when testing changes in perceived social support over the course of the second year after the move (between T2 and T3), we found that when old friends were close-by frequent phone calls predicted increases in perceived social support while when friends were geographically dispersed frequency of phone calls with them did not make a difference. Shklovski & Mainwaring (2005) had reported that when people move away from their friends, frequency of phone calls seems to drop, though the calls that do happen become longer, changing in content. The movers survey assessed frequency of communication because respondents can not accurately report the average length of phone calls, while frequency of communication is more accessible (Menon & Yorkston, 2000; Tourangeau, 2000). Thus high frequency of phone calls with close-by friends may be indicative of a relationship that is active and can involve both micro-coordination of meetings and other kinds of interactions via phone as well as exchanges of

support, producing both behavioral and relational rewards from such interactions. Higher frequency of phone calls to far away friends may not necessarily be useful since their distance precludes their participation in day-to-day activities. Yet strong established friendships can generate relational rewards simply because knowing such friendships exist and, thus, can make movers happier. In other words, the knowledge that friends are a mere phone call away, reinforced by occasional phone conversations, can contribute to perceived social support regardless of frequency of actual interactions.

As movers adjust to a new location, they often go through a process of developing new close-by social relationships to augment the loss of proximal contacts due to the move (Fischer, 1982). Hypothesis 3 proposed that having new relationships are important for perceived social support in the new location after the move especially if old ties are geographically distant. Our results support this hypothesis. When predicting changes in perceived social support over the course of the first year after the move, we find that when pre-move ties are on average geographically distant, the presence of a new tie is associated with increases in perceived social support. As Allen (1989, p. 53) argues, "friends are part of the means by which most of us manage our day-to-day affairs." If old friends tend are far away, they wouldn't be available for the day-to-day routines of living, making new friends an important source of this kind of support. Estimates of potential supportiveness of a particular tie are often based on prior interaction (Reis & Collins, 2000), yet when new ties are the only ones available on a daily basis, it is likely that movers would have plenty of opportunity to build a history of prior interaction with them shortly after the move. Thus, merely having a new tie to nominate at T1, for movers that had moved away from their existing friendships, is associated with increases in perceived support over the next year.

When predicting change in perceived social support over the course of the second year, we found that having more new ties was again associated with increases in perceived social support. However, frequency of communication with new ties was not. Thus Hypothesis 4 was not supported. New ties tended to be more close-by than old ties and this proximity may have lent itself to a more informal and less intentional mode of interaction. Proximal ties may depend on a variety of communication methods, some translating into instances of companionship or motivating exchanges of support while others producing few, if any, relational rewards. It is likely that assessing frequency of communication via face-to-face, phone and email is too insensitive a measure to fully reflect the range of interactions with new proximal ties and to distinguish rewarding interactions from the rest.

Yet a number of respondents who nominated new ties at T2 had not nominated any old ties at T1 and, thus, were not included as part of this analysis. We completed a post-hoc analysis looking at all respondents that had nominated new ties at T1 and T2. Results indicate that higher frequency of communicating in-person with new ties was associated with increases in perceived social support over the course of the second year after the move. Respondents who did not nominate old ties were ones that had moved further away, and were younger and more extraverted than those that did. At T1 these respondents had skipped over the long social network elicitation component of the survey at T1 but responded to a similar one at T2. Nevertheless, this result provides some support for our intuition that the very flexibility of face-to-face interaction could make measures of frequency of communication less predictive of changes in perceived social support over time.

5.7 Limitations

Although the current data set is of a longitudinal design, we were not able to obtain information about movers' perceived social support prior to the move. Thus we were not able to assess change in perceived social support due to the move and to isolate the impact produced by the stress of the move. Due to the length of the questionnaire, we were not able to ask about frequency of communication and psychological closeness to pre-move friends at 4-6 months after the move along with similar measures from before the move. Also, we sampled only one new relationship at T1, which provided an indication of whether a new tie was present in the new location but did not provide reliable measures of frequency of involvement with new ties at the new location. Though we attempted to remedy this problem at T2, the second data collection happened a year after the move, no doubt affecting changes in the importance of new ties and patterns of communication with them.

5.8 Conclusions

The major goal of this paper was to investigate how friendships formed before and after the move differ in their contribution to perceived social support after the move. We found that while pre-move friendships do contribute to perceived social support after the move through relational rewards simply by existing, when these relationships are distant, they may require some maintenance in the form of mediated communication via email. Close friendships can provide assistance in the event of big problems or needs regardless of distance. As Fischer (1982, p. 175) argued: "when the need is very great, distance is no object, because people will come from far away." In cases where proximity is not required, close long distant friends can be relied on for

dispensing advice, connecting movers to people in other places, or providing the kind of support and companionship available over the phone or email. In terms of support with day-to-day living, however, these ties are likely to be more of a pleasant theoretical concept than something more practically useful. Thus ties in the new location are important when the pre-move network is geographically distant and their value becomes more evident with time. Even though new ties had not achieved the level of intimacy that comes with time and investment of effort, their easy availability at a moments notice made them invaluable to movers' perceived social support. Despite developments in communication and transportation technologies over the course of the last century, physical proximity still matters for feeling secure and supported in daily life.

Chapter 6

Effects of social integration on adjustment to a new location after a long distance move

The majority of Americans have experienced residential mobility, if not by moving themselves, then by experiencing the moves of people close to them. Any move is a hassle, and a long distance move is also a commitment to a significant change of place and, in some cases, life style (Fischer, 1982). Adjusting to a new location after a residential move can be a prolonged and difficult process because it may require extensive changes in many areas of life, such as getting to know a new neighborhood or settling into a new job (Magdol, 2002; Stokols & Shumaker, 1982). A substantial proportion of residential mobility research has focused on understanding who is likely to move and what factors motivate mobility (Bach & Smith, 1977; Deane, 1990; Landale & Guest, 1985; Rossi, 1955; Speare, 1974). These studies suggested that low residential satisfaction and demographic and structural factors, such as unemployment or changes in economic opportunities, are major predictors of residential mobility.

Attempts to understand how people adjust to a new location after a move, have been sparse and largely focused on the factors specific to a new location (Bolan, 1997; Butler, McAllister, & Kaiser, 1973; Magdol, 2000; Stokols & Shumaker, 1982). These studies suggested that a sense of well being and satisfaction with the new location were among major predictors of adjustment. Few researchers have investigated how social involvement in the prior location influences

adjustment to the new location. Because a sense of well being is closely tied to people's social relationships, we argue that there is good reason to study the impact of movers' social involvement in the old location on their adjustment to the new location. The major goal of this paper is to understand how levels of social involvement in the prior location affect subsequent adjustment to the new location. We also attempt to extend prior research suggesting that having social ties in the new location prior to the move aids adjustment to the new location. Finally, we test whether social involvement in the new location affects eventual adjustment to the new location.

6.1 Background

Although rates of residential mobility in the US have declined over the past 50 years (Fischer, 2002), according to the US Census, 14% (over 40 million people) of the country's population moved in the year 2002-2003 (Schachter, 2004). While more than half (60%) of the annual moves are local, made for various housing reasons, nearly 20% are long distance moves across state lines, while the rest are made long distance but within state lines (Schachter, 2004). Although residential mobility can be a stressful process, it is not a wholly negative experience (Stokols & Shumaker, 1982). People often move due to a change in life circumstances, such as marriage or a new child, or because of opportunities such as going away to college or finding a new job. A large proportion of the annual moves are initiated as people move to a better living situation (Deane, 1990; Schachter, 2004). For many people, moving is a solution to problems and not just a cause of them.

6.1.1 Residential satisfaction model

The residential satisfaction model was originally suggested by sociologists Rossi (1955) and Wolpert (cf. Speare, 1974) and then elaborated further by Speare (1974) as a theory of what motivates people to move. The residential satisfaction model is based on the idea that individuals are bonded to their location through social relationships, group and organization memberships, community involvement and economic capital. Adverse changes in some or all of these aspects of attachment can make people dissatisfied with their living arrangements. This in turn can motivate a residential move to a new location (Bach & Smith, 1977; Deane, 1990; Landale & Guest, 1985). Researchers have identified changes in housing, changes in work situations and changes in family structure or demands from family members as the three major motivators for moving. Research also suggests that satisfaction with the new location is likely to reduce the probability of repeat moves (DaVanzo, 1983), and to ease adjustment to the new location for the movers (Bolan, 1997;

C. Fisher & Shaw, 1994). It is, however, unclear whether aspects of satisfaction with the old location are associated with adjusting to a new location.

Despite many positive reasons for moving, residential mobility can be a stressful physical and emotional undertaking, and is classified as a major life event (Williams et al., 1981). Everything from packing and transporting belongings to parting with good friends and neighbors can cause considerable distress. At times of stress, people rely on their social contacts for emotional and instrumental social support (S. Cohen et al., 2000; Williams et al., 1981). Some researchers argue that residential mobility endangers movers' social relationships with individuals and communities (Bolan, 1997; Larner, 1990; Weiss, 1990), the very social bonds that may be required to provide help in times of need. Although local moves have been shown to have little effect on strong, intimate ties, such as family and close friends (Larner, 1990), long distant moves can damage many of the movers' geographically proximal social contacts (Shklovski & Mainwaring, 2005; Stafford, 2004). In fact, when people move far away, they can experience not only loss of individual relationships but also loss of community, which can cause considerable distress and feelings of grief (Weiss, 1990). Thus a long distance move should have a stronger impact on both the social context of the movers and their eventual adjustment to the new location. We hypothesize that:

H1: Long distance movers are likely to report lower levels of adjustment to the new location soon after the move as well as slower rates of adjustment to the new location over time than local movers.

Research identifies people who have high social involvement as those who have a diverse range of personal relationships, are involved in various social activities and participate in community and organizations. We propose that levels of social involvement at the prior location will affect adjustment to the new location. Despite a wealth of research on both residential mobility and social involvement, it is unclear whether higher levels of social involvement prior to the move would be a boon or a barrier to adjustment to the new location. We investigate two alternative predictions of this effect. We also study whether the availability of social ties in the new location prior to the move and successful social involvement in the new location may play a positive role in adjusting to the new location.

6.1.2 Social involvement prior to the move

Social ties and communication with these ties are positively related to perceptions of social support, which enables people to better cope with stressful life events (S. Cohen et al., 2000; Williams et al., 1981). People who are more social tend to be healthier and happier (Diener et al., 1999). Social ties and communication intensify the sense of meaning in life and commitment to organizations and communities (Mirowsky & Ross, 1989; Thoits, 1992). Different kinds of social involvement tend to be correlated. For example, people who are involved in formal organizations also tend to have more informal social ties (Kasarda & Janowitz, 1974), which in turn can facilitate their sense of belonging (Baumeister & Leary, 1995). People who have strong social relationships are better capable of dealing with negative life events (Bolger et al., 2000; S. Cohen et al., 2000). Prior research has demonstrated that formal and informal social involvement may have different effects on residential satisfaction (Landale & Guest, 1983). Yet higher levels of involvement in both formal and informal social activities reflect higher levels of embeddedness in the community and provide access to more social resources (Putnam, 1995).

Two opposing arguments can be made regarding the association between social involvement in the prior location and adjustment to the new location after a residential move. The literature discussed above suggests that people who are more social and are more socially involved prior to a move should generally be happier and healthier. They also might have an easier time coping with the stress of a residential move and its aftermath than those who are less social. Movers who are more social are likely to have more perceived social support which buffers negative effects of stress on their health and psychological well-being (Bolger et al., 2000). Social people are also likely to meet people quickly and to get involved in social activities in the new location, which would facilitate adjustment. Similarly, people who were involved in many organizations prior to the move may be more likely to seek out and join organizations in the new location, thus increasing the pool of new social contacts available to them soon after the move (Butler et al., 1973).

H2a. Higher levels of social involvement prior to the move will be associated with lower levels of adjustment to the new location after the move.

Yet there is also reason to expect a negative relationship between social involvement in the prior location and adjustment to the new location after a residential move. Many researchers have been concerned that long distance residential mobility disrupts social relationships, which in turn could lead to feelings of depression and loneliness (Aroian et al., 2003; Magdol, 2002). Weiss (1990)

conceptualizes long distance residential mobility as a cause of loss of social bonds and a subsequent recovery from such loss through cognitive and emotional acceptance and identity change – forms of adjustment to the new location. He argues that this loss and the subsequent acceptance process is necessary in order for the movers to develop positive thoughts and feelings about the new location and to integrate the new location as part of the movers' identity. Otherwise, movers may remain in a state of disruption and mourn the past. For adjustment to be accomplished, movers must characterize the move as a positive change and make a commitment to the new location by initiating new relationships rather than focusing on maintaining relationships left behind in the old location (Weiss, 1990). This process can be more difficult if movers were forced to leave behind strong personal relationships and community bonds.

Residential mobility is often associated with reduced social involvement soon after the move (Magdol & Bessel, 2003; McAllister, Butler, & Kaiser, 1973). Loss of interaction opportunities with close contacts can lead to feelings of isolation, anxiety and nostalgia for the prior location (Baumeister & Leary, 1995; S. Fisher, 1990). Movers who were used to high levels of social integration and community involvement at the old location may be especially likely to experience feelings of profound loss in a new environment, especially if they have few social contacts after the move (Baumeister & Leary, 1995; Diener et al., 1999; Weiss, 1990). This literature suggests that movers who are more socially integrated prior to the move are likely to experience more negative feelings after the move, which could translate into problems with adjustment to the new location.

H2b. Higher levels of social involvement prior to the move will be associated with higher levels of adjustment to the new location after the move.

6.1.3 Communication technology as a remedy for damaged social ties

Prior to easy availability of the Internet and national cell phone plans, long distance communication was costly. A residential move often meant a dramatic reduction in communication with many existing friends and acquaintances and a gradual decline in these relationships (Fischer, 1994). Despite these difficulties, prior to the advent of the Internet many movers managed to retain close relationships after a move, maintaining them via phone or letters (Rohlfing, 1995; Stafford, 2004). Over the last decade, the financial costs of long distance

communication have decreased drastically, potentially allowing movers to better maintain long distance relationships. Advances in communication technologies such as cell phones and the Internet have not only made it easier to maintain relationships with distant contacts, but also to exchange emotional support with them (Braithwaite et al., 1999; Hampton & Wellman, 2001; Litwak & Kulis, 1987). We propose that movers, who used communication technologies prior to the move, will be more likely to use these after the move to sustain long distance relationships. These people are likely to be more familiar with the functioning and capabilities of these technologies and may already have established patterns of communication with both local and long distance contacts via these technologies. Those who have more experience using communication technologies would also have the skills required to obtain emotional support from their contacts via phone or the Internet, even when they are no longer geographically proximal. Knowing that support is only a phone call or an email away may increase movers' adjustment to the new location.

H3. Movers who extensively use information and communication technologies such as cell phones and the Internet prior to the move, will have an easier time adjusting to the move.

6.1.4 Pre-existing ties in the new location

Although some movers relocate to completely unfamiliar places, many move to locations where they already have relatives, friends or co-workers (Fischer, 1982; Magdol, 2000). Although knowing people in the new location prior to the move may provide a ready-made support network for the new arrivals, the benefits of such network have not been consistently proved. In a study of military moves, Fisher & Shaw (1994) found that having friends at the new location prior to the move was unrelated to adjustment difficulties at the new location. In contrast, in a study of young mothers with children who moved long distance, Magdol (2000) found that presence of social ties in the new location seemed to reduce the negative impact of residential mobility on psychological well-being. Local ties in the new location, such as family, friends, or acquaintances known prior to the move, can ease adjustment to the new location by substituting for lost or suddenly distant relationships from previous location (Hendrix, 1979; Jones, 1973; Magdol, 2002). Also, pre-existing ties in the new location can provide useful information and tangible support in helping the newcomer get acclimated to the new location quicker.

H4. Having ties in the new location prior to the move will be associated with quicker adjustment to the new location after a move.

6.1.5 Social involvement in the new location

Whether or not movers have pre-existing social ties in the new location, meeting new people becomes an important task after a move. Movers who are more successful at meeting new people may have an easier time getting socially involved in the new location. New ties could counteract a potentially negative pull of prior social attachments. Stokols & Shumaker (1982) propose that people's adjustment to a new location after a residential move depends on their perception of "person-environment congruence". They define person-environment congruence as "the belief that one's important goals and activities are accommodated by existing environmental conditions" (Stokols & Shumaker, 1982). Personal relationships are a necessary part of "environmental conditions," where relationships support the process of adjustment to the new location (Magdol, 2000). Research has shown that establishing new supportive relationships in the new location helps coping with the stress of the move (Carlisle-Frank & Frank, 2001; Kaniasty & Norris, 1993). For example, Jones (1973) reported that women who got to know more neighbors in the new location also reported better satisfaction with the new community.

Meeting new people is often a daunting task and people may employ a variety of techniques to ease this process. For example, participation in local organizations and informal social activities is a common way of meeting people and developing lasting personal relationships (Bradley, 1995; Kasarda & Janowitz, 1974). Meaningful contact with important ties is integral to developing a sense of belonging in the new location (Baumeister & Leary, 1995). Thus, successful involvement in social activities in the new location is integral to movers' development of a sense of congruence with the new location (Stokols & Shumaker, 1982).

H5. Social integration at the new location will be associated with increases in adjustment to the new location after a move.

Although any move is a hassle, long distance moves can require substantial changes in lifestyle and can cause a significant amount of stress. Based on prior research, we expect the distance of the move to make a difference in how quickly and how well movers adjust to the new location, with long distance movers experiencing more and longer lasting disruptions than local movers.

6.2 Methodology

See Chapter 3.1 for details.

6.3 Variables of interest

6.3.1 Dependant variable

Adjustment to the new location: adjustment to the new location after the move was measured at T1, T2 and T3. The survey asked movers about their satisfaction with the move and its consequences. The scale was developed for this study, drawing on prior residential and community satisfaction research (Putnam, 1995; Speare, 1974). Respondents indicated levels of agreement on a 5-point scale with the following statements: "Getting adjusted to living in a new environment has been a difficult process", "I have adapted very well to my new home", "I am sure that my decision to move was best for me and my family", "I am very satisfied with my decision to move to my new location" and "I am not sure if I picked the right place to live". All items loaded on a single factor during an exploratory factor analysis at each time period. The scale was internally consistent with Cronbach α: T1=.82, T2=.84, T3=.83. Due to the longitudinal nature of our survey we were able to conduct a series of prospective analyses of change in our dependent variable from T1 to T2, from T1 to T3 and from T2 to T3.

6.3.2 Independent variables

Informal social involvement at the old and new locations: We used measures of informal social capital adapted from validated scales previously used by other researchers (Kraut et al., 2002; Kraut et al., 1998; Putnam, 1995). The scale was comprised of 9 questions regarding informal social involvement such as going out with friends, attending dinner parties, inviting people to the home, etc., in the 6 months prior to the move at T1 and one year after the move at T2. Two of the questions were on a 5-point scale and 7 questions were on a 7-point scale. Responses were standardized and the questions were combined into a scale. (Cronbach α: T1 = .86, T2 = .88)

Organization membership at the old and new locations: We asked 8 questions about the mover's active participation in various formal organizations, including religious groups, community groups (i.e. Lions club, etc), leisure organizations (i.e. book clubs, soccer teams) and volunteer organizations, in the 6 months prior to the move at T1 and one year after the move at T2. The items were adapted from validated scales previously used by other researchers (Kavanaugh, Reese, Carroll, & Rosson, 2005). Four questions were on a 7-point scale and 4 questions were on

a 5-point scale. Responses were standardized and the questions were combined to form a scale. (Cronbach α: T1 = .79, T2 = .81)

Number of friends in the new location known prior to the move: We asked one question assessing the number of close friends that participants knew in the new location prior to the move using a 5-point logarithmic response choice scale, ranging from "none" to "more than ten" friends.

Frequency of Internet use: The frequency with which movers used the Internet for 28 different purposes, such as "communicating with friends", "getting the news online", "participating in online groups", or "playing games" was assessed using the Internet use scale developed by Kraut and colleagues (2002; 1998) and extended by Kraut, Kiesler, Boneva and Shklovski (2006). These questions asked respondents to report their behavior in the 6 months prior to the move at T1 and one year after the move at T2. Responses were on a 7-point logarithmic scale, with response categories ranging from "never" (1) to "several times a week" (4) to "several times a day" (7). (Cronbach α: T1 = .89, T2 = 91)

Frequency of cell phone use: We included one question asking movers how frequently they used their cell phones in the 6 months prior to the move at T1 and one year after the move at T2. Responses were on a 7-point, logarithmic scale with response categories ranging from "never" (1) to "several times a week" (4) to "several times a day" (7).

6.3.3 Control variables

Prior research suggests that reasons for moving are an important predictor of the process of adjustment. For example, people who move for family reasons are often less likely to make the effort to meet new people in the new location and to get involved in the community (Bolan, 1997; Landale & Guest, 1985). We created three dummy variables – *moving for household reasons, moving for family* and *moving for work. Moving for other reasons* was kept as the reference category.

Distance of the move was calculated from zip codes of the respondents' old and new location of residence and log-transformed to normalize the distribution of scores.

Tenure at new location described the amount of time respondents had spent at their new location. Due to the sampling process, it was not possible to reach all of respondents immediately after the

move. Prior research suggests that some effects of social involvement on adjustment to the new location may be time-sensitive, thus we controlled for this possibility (C. Fisher & Shaw, 1994). Recent movers also are the most likely group in the population to move again (DaVanzo, 1983). We included a dummy variable indicating whether another move had occurred between questionnaires.

Prior research into residential mobility has identified a number of demographic variables that predict how, where and when people move (DaVanzo, 1983; Ritchey, 1976). Fischer (2002) summarizes decades of Census Bureau data, showing that in general, unmarried people were more likely to move than married people, that migration was most prevalent for adults in their late teens, twenties or early thirties, that rates of migration decreased with age and that higher levels of education predicted longer distance moves. We used questions from the Census Bureau national population survey to assess movers' *gender*, *age*, *level of education*, *employment status* and *marital status*.

While much research addressed demographic differences, few studies measured the impact of personality variables on outcomes of migration. Some personality variables, like extraversion, also predict differences in social involvement. We assessed *extraversion* at T1, using 8 items (Cronbach $\alpha = .85$) from The Big Five Inventory (O. John et al., 1991). We also included a measure of the general satisfaction with life (Diener, Emmons, Larsen, & Griffin, 1985), measured at T1, T2 and T3. (Cronbach α: T1 = .89, T2 = .89, T3=.90).

6.4 Analysis

In order to assess the impact of the dropouts between the three data collections we conducted mortality analyses. The sample of 771 respondents who responded three times was significantly different from 1009 dropouts on several of the outcome and predictor variables. For our mortality analyses, we compared respondents who did and did not respond at T2 and at T3 along the measures of interest taken at T1. A series of t-tests indicated that respondents who responded at T2 and T3 were significantly older than non-respondents, less informally socially involved prior to the move, more formally socially involved prior to the move and less likely to use cell phones prior to the move. Mortality analyses suggested that people who generally have trouble integrating socially were more likely to respond, potentially inflating our effects.

We used multiple imputation in order to utilize all cases in our analyses (Fichman & Cummings, 2003; Honaker & King, in press) to ensure that our results were not artifacts of mortality. Multiple imputation is a statistical technique for analyzing datasets with missing data. It involves imputing *n* values for each missing item, given the available data, creating *n* complete datasets. Taken together these *n* values represent the imputed value of a data point and the uncertainty of the imputations for it. We then applied the theorized models to each of the *n* datasets and took an average of the resulting *n* coefficients for each predictor, adjusting the standard error to reflect both the estimation uncertainty and the uncertainty arising from the imputation process (for a description of the multiple imputation procedure please see King, Honaker, Joseph, & Scheve, 2001). We conducted multiple imputation on our dataset, by creating ten imputed complete datasets using the *Amelia* software (Honaker, King, & Blackwell, 2006). We then tested our models on the ten imputed datasets and combined the ten results for each model using the *Clarify* software for Stata (StataCorp, 2003; Tomz, Wittenberg, & King, 2001). We conducted all analyses with and without imputed data. Results were very similar though stronger with imputed data.

6.4.1 Model selection

In order to test our hypotheses we conducted a set of prospective multivariate analyses. The longitudinal nature of this data set allowed us to test whether levels of the independent predictors could predict levels of adjustment to the new location at the subsequent time period. These analyses followed the lagged regression model described in Cohen et al. (2003) and summarized here. The movers' dataset is a three-time-point dataset, which was analyzed across two time periods in each analysis T1 → T2, T1 → T3 and T2 → T3. When assessing change in variable Y between T1 and T2, we regress Y2 on a set of predictors measured at T1 and include Y1 into the equation as another predictor. This procedure removes the potential influence of Y1 on the relationship between the predictors and Y2. This method insures that estimated effects of other predictors on Y2 are independent of Y1 and the correlations of the predictors and Y1. Because the lagged dependent variable is included in the model, the results can be interpreted as showing the effects of the predictors measured at T1 on the change in Y between T1 and T2. We added control variables to all models to ensure results were not artifacts of other pre-existing differences.

6.5 Results

At T1 1779 individuals completed the questionnaire. After questionnaire administrations at T2 and T3, 1287 individuals had completed at least two surveys. Of 1287 respondents, 1179 had

provided enough data to be used in the imputation procedure. We used this sample, with imputed missing values, to assess the impact of pre-move conditions on adjustment to the move at T2 and T3, approximately one and two years after the move, and the impact of social involvement in the new location at T2, approximately one year after the move, on adjustment to the move at T3, approximately two years after the move.

6.5.1 Descriptive statistics

The average age of the respondents was 44 years old, ranging from 14 to 99. Fifty percent were men, 53% were married and 73% were employed either part-time or full-time. Education level ranged from 5-8th grade to doctoral degree, with the average education of Associate degree. The median distance of the move was 95.6 miles, ranging from 0 to over 5000 miles. At T1, movers had lived on average approximately 4.5 months in their new location. Table 6-1 presents the descriptive statistics of the dataset and Cronbach α for all of the scales.

Variable	Wave1			Wave2			Wave 3			Mean Cronbach α (T1-T3)
	N	Mean	Std Dev	N	Mean	Std Dev	N	Mean	Std Dev	
Adjustment to new location	1281	3.04	0.83	1146	3.03	0.84	901	3.11	0.84	0.83
Friends in the new location	1275	1.21	1.29							
Informal social involvement	1276	12.95	5.14	1151	11.33	4.58	896	11.44	4.70	0.87
Formal social involvement	1275	7.25	5.41	1150	6.71	4.93	898	6.70	5.10	0.80
Frequency of Internet use	1252	1.47	1.04	1129	1.46	1.00	879	1.41	0.94	0.91
Frequency of cell phone use	1072	4.61	1.95	931	5.02	1.47	890	4.22	2.26	
Distance of the move (log)	1270	4.19	2.41							
Owned housing old loc (yes=1)	1284	0.48	0.50	1150	0.44	0.50				
Owned housing new loc (yes=1)	1282	0.48	0.50	1147	0.54	0.50				
Tenure at new location	1271	4.52	2.82	1130	10.75	3.97				
Moved again (yes=1)				1131	0.20	0.40				
Moving for family (yes=1)	1278	0.16	0.37	1147	0.58	0.49				
Moving for work (yes=1)	1278	0.37	0.48	1147	0.60	0.49				
Moving for housing (yes=1)	1278	0.25	0.43	1147	0.53	0.50				
Extraversion	1234	2.32	0.78	1131	2.39	1.00				0.85
Satisfaction with life	1232	2.37	0.98							0.90
Gender (1=Male)	1287	0.50	0.50							
Age	1283	43.71	16.46							
Education	1235	7.76	1.99							
Married (yes=1)				1154	0.53	0.50				
Employed (yes=1)	1187	0.68	0.44							

Table 6-1: Descriptive statistics – only respondents that answered at least two surveys

6.5.2 Predicting adjustment to the new location one year after the move from social involvement before the move

The longitudinal nature of this data set allowed us to test whether levels of social integration prior to the move predicted changes in adjustment to the new location one year after the move. We conducted a series of prospective multivariate Ordinary Least Squares (OLS) analyses assessing the association between informal and formal social involvement at the prior location and changes in adjustment to the new location after the move T1 → T2. Table 6-2 presents these results.

	Emotional Adjustment T2										Emotional Adjustment T3	
Predictors T1	**Model 1**		**Model 2**		**Model 3**		**Model 4**		**Model 5**			
	Std. β	**Std Err.**	**Std. β**	**Std Err.**	**Std. β**	**Std Err.**	**Std. β**	**Std Err.**	**Std. β**	**Std Err.**
Adjustment to new location	0.38	0.03 **	0.38	0.03 **	0.38	0.03 **	0.38	0.03 **	0.26	0.03 **
Informal social involvement	-0.07	0.03 *			-0.05	0.03 t				
Formal social involvement			-0.06	0.03 *	-0.04	0.03				
Embeddedness							-0.07	0.03 **	-0.05	0.03 t
Distance of the move (log)	-0.04	0.02	-0.04	0.02 t	-0.04	0.02	-0.04	0.02	-0.02	0.03
Distance*InfSocInv.	0.02	0.02			0.02	0.03				
Distance*FormSocInv.			0.02	0.02	0.02	0.02				
Distance*Embed							0.03	0.02	0.01	0.03
Friends in the new location	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.06	0.03 *
Distance*FrNewLoc	0.01	0.02	0.01	0.02	0.01	0.02	0.01	0.02	0.01	0.02
Frequency of Internet use	0.02	0.03	0.02	0.03	0.02	0.03	0.02	0.03	-0.01	0.03
Frequency of cell phone use	0.02	0.03	0.02	0.03	0.02	0.03	0.02	0.03	0.01	0.03
Moved again (y/n) T1-T2	0.18	0.07 **	0.18	0.07 **	0.18	0.07 **	0.18	0.07 **	0.21	0.08 **
Owned housing old loc (y/n)	-0.07	0.05	-0.06	0.05	-0.06	0.05	-0.06	0.05	-0.01	0.05
Tenure at new location (mnths)	0.00	0.02	0.00	0.02	0.00	0.02	0.00	0.02	-0.04	0.03
Moving for family (y/n)	-0.20	0.07 **	-0.19	0.07 **	-0.19	0.07 **	-0.19	0.07 **	-0.05	0.09
Moving for work (y/n)	-0.16	0.06 **	-0.15	0.06 *	-0.15	0.06 *	-0.15	0.06 *	-0.05	0.07
Moving for housing (y/n)	-0.17	0.06 **	-0.16	0.06 *	-0.17	0.06 **	-0.16	0.06 **	-0.09	0.09
Extraversion	0.03	0.02	0.02	0.02	0.03	0.02	0.03	0.02	0.02	0.03
Satisfaction with life	0.14	0.03 **	0.14	0.03 **	0.14	0.03 **	0.14	0.03 **	0.14	0.03 **
Gender (1=Male)	0.10	0.05 *	0.11	0.05 *	0.10	0.05 *	0.10	0.05 *	0.11	0.05 *
Age	0.00	0.04	0.02	0.04	0.01	0.04	0.01	0.04	-0.02	0.04
Education	0.01	0.02	0.02	0.02	0.01	0.02	0.01	0.02	0.00	0.03
Married (y/n)	-0.04	0.05	-0.03	0.05	-0.03	0.05	-0.03	0.05	-0.10	0.06
Employed (y/n)	-0.03	0.07	-0.04	0.07	-0.03	0.07	-0.04	0.07	-0.02	0.07
Intercept	3.13	0.06 **	3.11	0.06 **	3.12	0.06 **	3.12	0.06 **	3.11	0.08 **

Table 6-2: Predicting change in adjustment to new location at T2 (one year after the move) and T3 (two years after the move) from pre-move social involvement

Model1 R^2=0.32; Model2 R^2=0.32; Model3 R^2=0.32; Model4 R^2=0.32, Model5 R^2=0.20

** p<0.01

* p<0.05

t p<0.1

Overall, men and people who reported higher levels of general satisfaction with life reported higher rates of adjustment to the new location both between T1 and T2 (Models 1-4) and T1 and T3 (Model 5). People who moved again between T1 and T2 also reported higher levels of adjustment. All of the analyses presented in the table include a measure of the distance of the move. Contrary to Hypothesis 1, the distance of the move is only marginally significant (Model 3: $p<.09$). This result suggests that although longer distance moves may be more disruptive, effects of distance are not evident when considering adjustment to a new location over the course of a year.

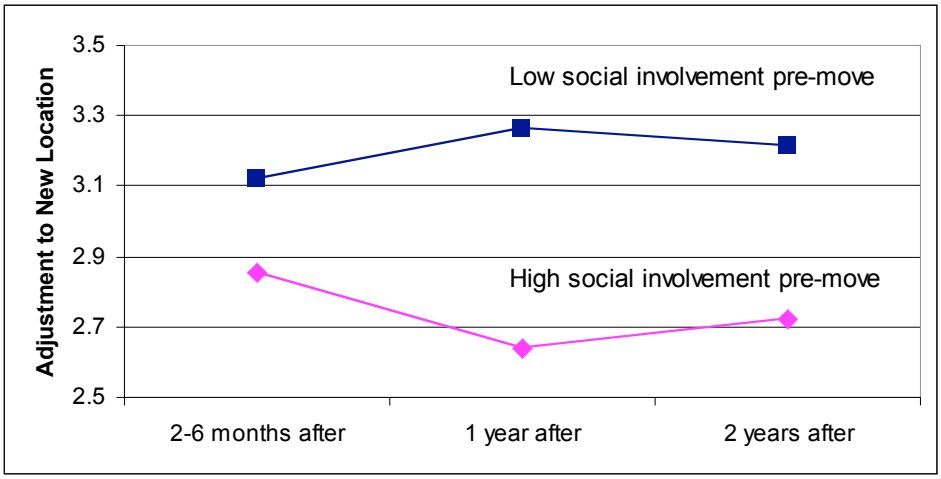

Figure 6-1: Change in adjustment to the new location after a move over the course of two years.

The first two models in Table 6-2 test whether there is an association between formal and informal social involvement at the prior location and change in adjustment to the new location over the course of a year after the move. We first tested formal and informal involvement separately. Consistent with Hypothesis 2a and contrary to Hypothesis 2b, there were significant negative associations between both formal and informal social involvement before the move and change in adjustment to the new location after the move. However, the two types of social involvement are not independent. At T1 informal and formal social involvement are correlated $r=.42$, $p<.01$. Social people tend to get involved in many social activities, both formal and informal. Model three tested the association between the two types of social involvement and adjustment to the move simultaneously. Although the signs for both types of social involvement

remain negative, only informal social involvement was marginally significantly negatively associated with adjustment to the move[3].

Prior research suggests that people who are involved in organizations also tend to be more social and have more informal social contacts (Kasarda & Janowitz, 1974). It is possible then, that both formal and informal social involvement measures are estimates of the overall social embeddedness of the movers. In order to test this assertion we created a social embeddedness variable, using the sum of formal and informal social involvement scores. Model 4 shows that this composite measure is, indeed, significantly associated with adjustment to the new location after a residential move. In fact, it appears that movers who reported low embeddedness at the prior location also reported a slight increase in adjustment to the new location over the course of the first year after the move, while those that reported high embeddedness at the prior location, reported a decrease in adjustment to the new location over the course of the first year after the move. Figure 6-1 illustrates this result[4]. These results provide support for Hypothesis 2a, suggesting that people who are highly socially involved in a residential location often find it harder to adjust to a new residential location after a move.

As movers adjust to the new location, the pull of attachment to prior location should lessen and, eventually, disappear with time. The longitudinal nature of this dataset allowed us to test shorter term and comparatively longer term effects of social involvement in the prior location on changes in adjustment to the new location after a long distance move. Models 1-4 in Table 6-2 tested these associations over the course of one year. Model 5 presents the same model but predicting change over the course of two years after the move. Results showed that the measure of social embeddedness prior to the move was still marginally significantly associated with adjustment at the new location up to two years after the move. In particular, people who engage in many informal social activities and who are heavily involved with formal organizations before the move report lower adjustment to the new location even as late as two years after the move. Figure 2 illustrates that although the differences in adjustment to the new location between people with

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[3] The two types of social involvement were correlated (r = .42). However, tests for tolerance and variance inflation (VIF) showed that multi-collinearity was not a problem.

[4] The values for social involvement and adjustment to the move in Figure 2 are obtained holding all other continuous predictors at mean values and all dummy variables at 0. See Table 2 for details.

high and low levels of social involvement in prior location lessen, they do not disappear completely.

Hypothesis 3 posited that movers who extensively use information and communication technologies prior the move would have an easier time adjusting to the move because they would have more skills to obtain emotional support when needed. All models in Table 6-2 included both frequency of Internet use and frequency of cell phone use prior to the move as covariates. Neither the frequency of Internet use nor the frequency of cell phone use prior to the move were associated with adjustment to the move. Thus we found no support for Hypothesis 3 that use of information and communication technologies prior to the move would indicate familiarity with these technologies and would be associated with quicker adjustment to the new location after a move. We also tested whether use of the Internet or cell phones moderated effects of high levels of social involvement using interactions. None of these interactions were significant and did not increase measures of model fit (results not shown).

Hypothesis 4 posited that having ties in the new location prior to the move would be associated with better adjustment to the new location after the move. All models in Table 6-2 include the number of friends movers knew in the new location prior to the move. Models 1-4 indicate that knowing people in the new location prior to the move was not associated with the rate of adjustment to the move one year later. Consistent with prior research (Fischer & Shaw, 2000; Johnston, 1998), these results suggest that having contacts in the new location prior to the move may not have much to do with how well movers adjust to the new location. However, Model 5 showed that having friends in the new location prior to the move was significantly associated with adjustment to the new location two years later. These results suggest that the benefits of having friends in the new location prior to the move manifest after a comparatively long period of time. Thus analyses that focused on shorter time periods were less likely to see these associations.

6.5.3 Predicting adjustment to the new location two years after the move from social involvement in the new location one year after the move

Hypothesis 5 proposed that social involvement at the new location would be beneficial to adjustment to the new location. It may also alleviate some negative effects of social involvement in the prior location through substitution of new ties for ones left behind (Baumeister & Leary,

1995; Fischer, 1982). We tested this hypothesis controlling for social involvement at the prior location and adding social involvement in the new location, one year after the move, as covariates. This analysis showed that social embeddedness in the new location one year following the move is positively associated with improvements in adjustment over the course of the second year after the move when social embeddedness in the prior location is taken into account. In contrast, social embeddedness in the prior location is not significantly associated with adjustment to the new location two years after the move once other behavior in the new location is taken into account. Table 6-3 presents these results.

We hypothesized that higher levels of social involvement at the new location may buffer the negative influence of social involvement at the old location prior to the move. However, an interaction between social involvement before and after the move was not significant and did not increase model fit. The two types of social involvement are correlated at .56. Thus pre-move levels of informal social involvement are good indicators for levels of social involvement after the move. Although very social people experience negative effects of high levels of social involvement in the prior location, they compensate by becoming more socially involved in the new location after the move.

Predictors T2 & T1	Model 1			Model 2			Model 3			Model 4			Model 5		
	Std. β	Std Err.		Std. β	Std Err.		Std. β	Std Err.		Std. β	Std Err.		Std. β	Std Err.	
Adjustment to new location T2	0.40	0.03	**	0.39	0.03	**	0.39	0.03	**	0.39	0.03	**	0.39	0.03	**
Informal social involvement T2				0.06	0.03					0.04	0.04				
Formal social involvement T2							0.06	0.03	t	0.05	0.04				
Embeddedness T2													0.08	0.03	*
Embeddedness T1	-0.01	0.03		-0.03	0.03		-0.04	0.03		-0.05	0.03		-0.05	0.03	
Distance of the move (log) T1	0.00	0.03		0.00	0.03		0.00	0.03		0.00	0.03		0.00	0.03	
Distance*InfSocInv T2				0.03	0.03					0.02	0.03				
Distance*FormSocInv T2							0.02	0.03		0.02	0.03				
Distance*Embed T2													-0.03	0.04	
Distance*Embed T1	-0.01	0.03		-0.03	0.03		-0.02	0.04		-0.03	0.04		0.03	0.03	
Frequency of Internet use T2	-0.03	0.03		-0.04	0.03		-0.03	0.03		-0.04	0.03		-0.04	0.03	
Frequency of cell phone use T2	0.00	0.03		0.00	0.03		0.00	0.03		0.00	0.03		0.00	0.03	
Moved again (y/n) T2-T3	0.29	0.07	**	0.29	0.07	**	0.28	0.07	**	0.28	0.07	**	0.28	0.07	**
Owns housing new loc (y/n) T2	0.14	0.06	*	0.14	0.06	*	0.13	0.06	*	0.13	0.06	*	0.13	0.06	*
Tenure at new location T2 (months)	-0.03	0.03		-0.03	0.03		-0.03	0.03		-0.03	0.03		-0.03	0.03	
Moving for family (y/n) T2	-0.06	0.05		-0.06	0.05		-0.06	0.05		-0.06	0.05		-0.06	0.05	
Moving for work (y/n) T2	-0.09	0.05	t	-0.09	0.05	t	-0.10	0.05	t	-0.10	0.05	t	-0.10	0.05	t
Moving for housing (y/n) T2	0.03	0.06		0.03	0.06		0.03	0.06		0.03	0.06		0.03	0.06	
Extraversion	0.02	0.03		0.01	0.03		0.02	0.03		0.01	0.03		0.01	0.03	
Satisfaction with life	0.10	0.03	*	0.09	0.03	*	0.09	0.03	*	0.08	0.03	*	0.08	0.03	*
Gender (1=Male)	0.08	0.06		0.08	0.06		0.08	0.06		0.08	0.06		0.08	0.06	
Age	-0.02	0.03		-0.01	0.03		-0.03	0.03		-0.02	0.03		-0.02	0.03	
Education	-0.01	0.03		-0.01	0.03		-0.01	0.03		-0.01	0.03		-0.01	0.03	
Married (y/n)	-0.12	0.06	*	-0.11	0.05	*	-0.11	0.06	*	-0.11	0.05	*	-0.11	0.05	*
Employed (y/n)	0.00	0.07		-0.01	0.07		0.00	0.07		-0.01	0.07		-0.01	0.07	
Intercept	3.07	0.09	**	3.07	0.09	**	3.08	0.09	**	3.08	0.09	**	3.08	0.09	**

Table 6-3: Predicting change in adjustment to new location at T3 (20-26 months after the move) from post-move social involvement (T2), controlling for pre-move social involvement (T1)

Model1 R^2=0.31; Model2 R^2=0.32; Model3 R^2=0.32; Model4 R^2=0.32; Model5 R^2=0.32

** p<0.01

* p<0.05

t p<0.1

6.5.4 Local vs. long-distance residential mobility

Contrary to Hypothesis 1, the measure of distance of the move was not significantly associated with adjustment to the new location. Nevertheless, distance of the move could moderate the relationship between social involvement and adjustment to the new location. To test this supposition we added interactions with distance for all independent variables of interest in Tables 3 and 4. Our results do not support this hypothesis. However, our sample consisted of primarily long distance movers, with very few local movers present. While US Census defines a local move

as less than 50 miles, a move of any magnitude could still cause stress and disruptions to the movers' social lives.

6.6 Discussion

High rates of residential mobility in the US have been of interest social scientists, yet much of the current research has focused either on antecedents to the move or on eventual effects of moving on people's health and psychological well-being. The major goal of this study was to examine emotional and behavioral process of adjusting to a new location after a residential move. We were particularly interested in understanding conditions under which social involvement in a geographic location can be valuable or damaging. The longitudinal nature of this dataset allowed us to test whether movers' social involvement at their old location would be associated with rates of adjustment to the new location one and two years after they had moved.

Based on prior residential mobility research we asked whether people, who were more socially involved at their old location prior to their move, would have a harder or easier time adjusting to the new location. Our results illustrate that there is a negative association between social involvement at the prior location and adjustment at the new location one year after a move. This result was especially evident for those who had been highly involved in informal social activities and participated in many organizations prior to the move. This association is not explained by differences in personality or levels of general satisfaction with life. High levels of social involvement at the prior location are markers of embeddeness in the community, which can lead to a greater sense of belonging and a stronger sense of loss after a residential move.

Similar results manifested up to two years after the move. Although in general people benefit from being socially involved with informal contacts and formal organizations, this kind of social embeddedness can have long-lasting, negative effects in the event of a residential move. Movers, who were forced to leave a well developed social and organizational network which supported a variety of both formal and informal social activities, may have found it more difficult to recreate such an environment at the new location. It is possible that a kind of comparison between social opportunities obtained and lost could facilitate a sense of nostalgia or homesickness for the prior location if the level of social involvement at the new location failed to measure up (S. Fisher, 1990). A sense of homesickness can often cause distress and deter movers from exploring their new environment, meeting new people and developing opportunities for adjustment (S. Fisher,

1990; Stokols et al., 1983). It is possible, that more social people also have a greater need for high levels of social involvement, but may be unable to achieve that over the course of a year.

Another explanation for this effect is that people who are highly embedded at their prior location may have invested most of their socializing into the community they left behind, which would become less available after a long distance move. A change of community may often result in social resource deficits (Magdol & Bessel, 2003) and this may be exacerbated for those that were most enmeshed in prior communities. Movers may concentrate their energy on attempts to maintain ties to their prior community and pay less attention to the process of social involvement at their new location.

Even though movers may have to cope with the pain of leaving behind well-developed social networks, having contacts in the new location prior to the move could make the move itself and adjustment to the new location less daunting. Prior research on the value of pre-existing ties in the new location has reported contradictory results. While some researchers found that having contacts in the new location prior to the move is not associated with adjustment difficulties (C. Fisher & Shaw, 1994), others reported such contacts to be beneficial (Magdol, 2002). Our results illustrate that this contradiction may stem from considering different amounts of time for adjustment to the new location. Evidently, it may take more than a year after a residential move for ties known in the new location prior to the move to prove beneficial. Although it may be useful to have a sort of a "guide" for the new location or an able body available for small favors, the positive aspects of such contacts take time to add up. For example, having contacts in the new location prior to the move may eventually lead to greater embeddedness in these contacts' social networks or another set of opportunities. Even though movers may not retain a great friendship with their original contacts in the new location, these relationships are likely to persist and be available in the time of need.

Easy availability of communication technologies could make contact with distant ties relatively simple, making the move itself, separation from existing social ties and adjustment to the new location less traumatic. In this paper, we considered two kinds of communication technologies commonly used to interact with both local and distant contacts: cell phones and the Internet. We hypothesized that frequency of communication technology use would be associated with quicker adjustment to the new location. Yet our results indicate that this may not be the case. Although communication technologies could be used for relational maintenance, they can not directly

recreate a sense of belonging and social embeddedness of the prior location. In the case of a residential move, the prior location continues to exist as a reminder of the absence not only of social contacts that were left behind, but also of routines and customs associated with these social ties (S. Fisher, 1990).

As movers adjust to the new location, they also meet new people and get involved in both formal and informal social activities in the new location, which is associated with improvements in adjustment to the new location after the move. Common social activities, such as going out to dinner or a movie, inviting guests over for an evening, visiting or organizing poker nights are crucial for development of meaningful close relationships which are the basis for happiness and feelings of belonging. However, these effects are only evident, when controlling for social embeddedness at the previous location as if the past cannot be ignored when considering the social reality of the present. In the end, life goes on and even if there is a sense of loss of the old community, social involvement with geographically proximal ties is an integral part of coming to terms with living in a new place. Despite availability of communication technologies for interaction with distant ties, the local context of social relationships is what seems to facilitate people feeling at home in the new location.

6.7 Limitations

Although the current data set is of a longitudinal design, we were not able to obtain information about movers' psychological well-being prior to the move. Thus we were not able to assess change in psychological states due to the move from a pre-move state and to isolate the impact produced by the stress of the move. We were only able to assess changes in adjustment to he move from about 2-6 months post-move to 2 years post-move. Differences in adjustment are likely to depend on psychological well-being of the movers prior to the move. In addition, some of the explanatory variables, such as social embeddedness prior to the move, were measured retrospectively, 2-6 months after the move. Although the shock of the move provided a convenient temporal marker for collecting self-report data on social involvement and uses of communication technologies prior to the move, self-report data itself is still an imprecise measure of the actual behavior.

6.8 Conclusions

Current research suggests that social involvement of any kind is beneficial and even necessary for health and happiness. Yet there are situations when high levels of attachment to a locale through social relationships can become a burden. One such situation is a long distance residential move. In this paper we provided ample evidence of intricate relationships between social involvement in the previous location, availability of social contacts in the new location, and the rate of adjustment to the new location. Although social involvement is beneficial for health and happiness in general, in the case of a move the investment of emotion and resources into social and organizational relationships at the previous location may cause distress to movers for a considerable period of time. These results suggest that interventions designed to help people who experience long distance relocation, must take into account the complex relationship of social investment at the prior location and adjustment to the new location after the move. One way to aid adjustment to the move is to facilitate forms of social involvement at the new location for recent movers.

Chapter 7

Conclusions and future research

The aim of this research was to investigate the connection between the changes in the social context of movers and their adjustment to the new location. Specifically, we were interested in how movers used communication technologies in their daily lives to both maintain existing relationships and to develop new ones. We were interested in whether relationships developed pre- and post-move made different contributions to movers' perceived social support and whether social involvement played a role in accepting the move as a positive life event. We were seeking to both describe the social process that surround residential mobility and to make theoretical contributions to theories about relational maintenance, the role of specific social relationships in movers' global perceived social support and the role of the local environment in people's happiness and well-being. The following pages will summarize the main findings and expand on their theoretical significance.

7.1 Social relationship maintenance

Social relationships are enacted through communication and long distance social relationships tend to rely more on mediated communication than on in-person interaction simply because geographical distance makes in-person interaction less likely. However, our results suggest that not all mediated communication is created equal. While phone calls are predictably important for relational maintenance, when friendships are strong email is also important for retaining the link with far-away friends. Decreases in frequency of emailing are associated with declines in psychological closeness and enacted support, especially for people that move away from their friends. So those movers who stop or reduce frequency of emailing friends when they move away, run the risk of declines in those relationships. For example, sometimes moves that are associated

with work changes often force a change in email address as well, suggesting the value of free independent email providers like Google or Yahoo!. Despite the importance of email established friendships respond most to changes in phone interaction. In fact, phone calls are responsible not only for maintenance of relationships but also for their continued growth. Theories of relationship development argue that mature friendships do not rely on frequent interactions quite as much as nascent developing friendships. In fact, while changes in frequency of in-person interaction are associated with changes in frequency of engaging in supportive activities, in-person interaction is not associated with changes in feelings of psychological closeness for developed relationships.

Relational theories such as Altman and Taylor's (1983) social penetration theory and Levinger & Huesmann's (1980) incremental exchange theory predict that developed relationships will be less vulnerable to changes in proximity and frequency of interaction because they depend on both future interaction opportunities and the dyadic history of prior interactions. Sigmans' theory of 'relational continuity' (1991) suggests that mature friendships can manage absences in a variety of ways that involve use of both mediated technologies as well as age-old practices of gifts, exchanges of written letters and post-cards and long-range plans for future meetings reinforced by time and financial investments into such meetings. Such tactics were not well summarized by our measures. However, our data does suggest that use of email can be an important tactic for maintaining psychological closeness with friends when friendships are long distant. In fact, email could be conceptualized as both a form of communication and form exchange of tangible goods, albeit electronically. Despite it's electronic nature, email can persist in the inbox, reminding of the relationship and the instance of communication simply through its existence. Just like post-cards or gifts, an old email can encapsulate memories associated with the relationship and keep the promise of future communication alive.

New friendships, on the other hand, are very sensitive to changes in frequency of communication. In fact, our data suggest that communication via any modality is important, the more the merrier. Once again, the phone had emerged as the major vehicle for relational growth and confirmation of intimacy. Yet when movers moved away from these new friends, email once again played a crucial role in staving off declines in both psychological closeness and enacted support. New friendships can take a substantial amount of time to develop and can remain sensitive to changes in proximity and frequency of interaction even two years after the move. Relationship maintenance requires time and effort and when people move they tend to select, which relationships they want to continue. Email can provide a cheap way to retain relationships that are

not very strong at the outset with minimal effort. Thus friendships that rely at least in part on email as a form of interaction are more likely to endure. While such relationships are less likely to continue growth, they may remain available through occasional exchange of pleasantries, information and communication via email. Occasional email with distant contacts is beneficial because this can keep a nascent or weak relationship easily accessible despite lack of other forms of interaction. Weak ties are valuable as sources of new information that is often unavailable through established close-relationship networks and email can help retain more such ties (Granovetter, 1983).

7.2 Social relationships and perceived social support

While Chapter 4 showed how movers maintain friendships that they developed before and after the move, what role these relationships play in movers' perceived social support after the move, is a separate issue. Typically, people tend to draw on a few strong relationships for most of their needs yet some of these needs may go unfulfilled when strong relationships are unavailable or far away (Fischer, 1982; Weiss, 1974). Thus while both close by and far away relationships are important, they are important in different ways and for different reasons. In our sample, far away friendships tended to be stronger, more intimate relationships that could be relied on for help with big problems. In fact, just having these friends, not necessarily actively interacting with them, was associated with greater perceived social support. The sheer existence of these relationships and the fact that strong relationships were easily accessible via phone or email even when far away in the time of need could make people feel valued and supported. The pre-move history of their interactions could also create a context that would allow people to forecast the kinds of benefits that these friends could and would provide if necessary. Yet when well-developed intimate friendships were far away, newer and weaker but geographically close-by friendships seemed important for perceived social support regardless of their level of intimacy. We theorized that these local friends were important precisely because of their proximity that allowed them to be available at a moment's notice. Did communication technology help? We argue that communication technologies were indeed helpful. Technologies that were less sensitive to changes in distance, such as phone and email made distant friends more accessible, yet they did not nullify the importance of proximity and face-to-face interactions.

Though prior research on social support suggests that friendships may play a different role depending on people's life-stage and age, our data did not provide such evidence. Tests of interactions of age with frequency of in-person, phone and email communication did not yield

significant results. It is likely that people who have recently moved tend to cope with the move and changes in their social context and perceived social support similarly regardless of age.

7.3 The role of social embeddedness in accepting the move as a positive life event

When people move they report that changes in their social context are among the hardest and more prolonged sources of stress. Movers use available communication technologies both to maintain their pre-move friendships and to obtain support from them, retaining some parts of their pre-move social circles despite changes in proximity and frequency of communication. Although relationships benefit from investments of time and effort into communication and other forms of interaction, too much focus on pre-move social ties isn't always beneficial to the movers themselves. When the locale left behind is marked by strong social relationships and high levels of social embeddedness, loss of such a rich social world may cause feelings of sadness and homesickness regardless of the conditions at the new location.

Our findings indicate that there are situations when high levels of attachment and social embeddedness to a pre-move locale can become a burden. Although social involvement is beneficial to health and happiness in general, in the case of a move the investment of emotion and resources into social and organizational relationships at the previous location may cause distress to movers for a considerable period of time. This distress is expressed in the slow process of adjusting to the idea of the move, lack of acceptance of the new location as a new home, and lack of acceptance of the move as a positive life event. While communication technologies allow us to keep up with specific people, residential mobility can force a change in the overall social context. It is the overall social context that plays a crucial role in our "feeling at home" in the new location. Adjusting to a new home requires being present in the new location and engaging locally. Ability to communicate with distant friends and relatives is not something that is likely to promote this. In fact, information and communication technologies may even permeate a nostalgic attachment to "there and then" rather than an active focus on "here and now."

People who move far away are most likely to experience dramatic changes in social context, yet our results did not show any difference between local and long distance movers and the negative association of pre-move social embeddedness on emotional adjustment to the new location. This suggests that distance may not be the right differentiator for residential mobility. People move for a variety of reasons and it is possible that the nature and reasons for the move differentiate how

people cope with its' outcomes. For example, people who move because of a new job or a job-relocation may be better positioned to cope with changes in their social context than those that move for family, housing or other reasons because a new job would provide a ready-made social context to replace the one left behind. To test this hypothesis we conducted a series of post-hoc analyses. We added interactions of reasons for moving with levels of social embeddedness pre- and post-move to the models predicting changes in emotional adjustment to the new location after the move. We expected that people who move for work-related reasons would have an easier time coping with changes in their social context because they would be moving to a ready-made social context at the new job.

Figure 7-1 illustrates a significant interaction between the moving for work reasons dummy variable and pre-move social embeddedness. This result runs counter to our hypothesis and indicates that people who move for work reasons have a harder time adjusting to the new location after a move than people who move for any other reason, regardless of their level of social embeddedness at the prior location. In fact, those who were less socially embedded at the prior location and have moved for reasons other than work are the ones that report adjusting to the new location at a greater rate than those that had moved for work reasons or those that moved for other reasons but were highly socially embedded at the prior location.

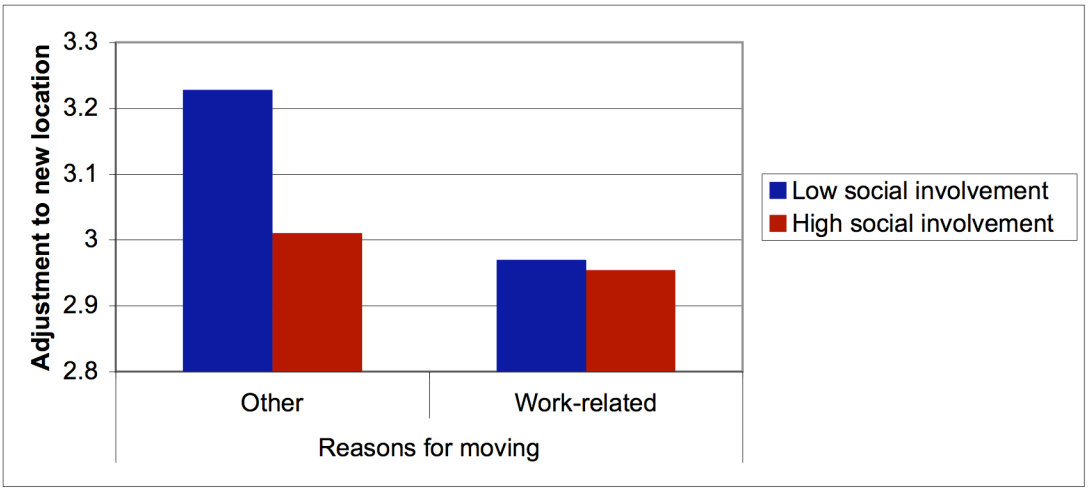

Figure 7-1 Predicting adjustment to the new location at T2 from reason for moving (work-related) and level of social involvement at the prior location, controlling for adjustment to the new location at T1

While moving for a job does provide a ready-made social context, this social context is not voluntary. Movers who have to move for work reasons are forced to cope with changes both in their local and in their work-related social context which may, in fact, add to the stress

surrounding the process of adjustment to the new location. The work social context is certainly readily available, but it could also be inescapable. Movers who had moved for work reasons would have to deal with new co-workers, new supervisors, and a new social hierarchy of their workplace regardless of other stressors and concerns surrounding their move. This means that employers that relocate their employees must pay more attention to the health and well-being of these employees and their families because the stress of a change in the work-context can add to the stress of the move itself, making the process more difficult to manage.

7.4 Results summary

In summary, though geographical distance can change the nature of our social relationships and how we rely on them, communication technology makes these relationships accessible despite distance and allows us to both maintain them and draw on them for support. Despite communication technologies and the ability to communicate with anyone anywhere, proximity is important because our daily routines involve physical spaces and physical activities and we rely on people who are close by to help us with day-to-day management. We also need them in order to accept the move as a positive life event. Communication technologies are important for both distant and proximal relationships. What is important is not whether we are far away or close by, but whether we have those far away and close by relationships, but how strong or how weak these relationships are (where they are in their developmental stages) and what is the context of our own needs. Finally, while communication technologies can help us sustain past relationships, this accessibility of our past may not always be beneficial. Moving to a new location requires focusing on the "here and now" of the local social context that is as important as specific relationships to our health, happiness and psychological well being and new designs for communication technologies may need to take this duality into account.

7.5 Future work

Though this thesis has touched on a number of important questions, a range of topics has remained unexplored. Social science researchers have accumulated a range of evidence that there are substantial gender differences in how social relationships are maintained and engaged. While the analyses presented above were not sensitive to gender differences, there are many other questions that can be explored with the present data. The next direction of inquiry for this work is to delve into understanding gender differences in adjustment to the new location, the role of personal relationships in perceived social support and differences in how social relationships are initiated and maintained. Another direction of inquire will touch upon questions of life-stage and

age differences in how people use technologies to maintain their relationships and the role these relationships play in perceived social support.

7.5.1 New directions for research

Both social relationships and community memberships are parts of daily life that tend to remain stable over time. This stability can be a problem for studying such phenomena as behaviors associated with them become routine and opaque. As a first research direction, I intend to continue studying human behavior under stress, disaster or emergency in order to uncover underlying behavioral patterns important to relationship maintenance and community membership and involvement. Furthermore, I hope to initiate collaborations with colleagues in computer science and technology design to explore possibilities for developing technologies that would be of service to people coping with disasters, emergencies and stressful major life events.

As a second research direction, I plan to pursue extensions of my work on the role of information and communication technologies in relationship maintenance. Although technology holds promise of perpetual connectedness, my own research suggests that some relationships tend to fade from personal social networks while others do not. The question remains whether those relationships that have some kind of electronic connection ever fade completely, or retain a weak connection, dormant yet available when needed. Immediate access to a large proportion of contacts via mediated communication may improve perceptions of perceived social support but it is unclear whether this perception holds up in the time of need. My current work provides data to begin exploring these questions, but it considers only cell phones and some types of Internet use, such as email. I plan to continue this line of research in the future, as information and communication technologies continue to develop further and a broader collection of uses and services becomes a part of people's everyday lives.

Bibliography

Adams, R. G., & Allan, G. (1998). Contextualising friendship. In R. G. Adams & G. Allan (Eds.), *Placing Friendship in Context* (pp. 1-17): Cambridge University Press.

Albrecht, T., & Adelman, M. (1987). Communication networks as structures of social support. In M. Adelman & T. Albrecht (Eds.), *Communicating social support* (pp. 40-63). Newbury Park: Sage.

Allan, G. (1979). *A sociology of friendship and kinship.* London: George Allen & Unwin.

Allan, G. (1989). *Friendship: developing a sociological perspective*. Boulder: Westview Press.

Altman, I., & Taylor, D. A. (1983). *Social penetration: the development of interpersonal relationships* (1st Irvington ed.). New York, N.Y.: Irvington Publishers.

Aroian, K. J., Norris, A. E., & Chaing, L. (2003). Gender differences in psychological distress among immigrants from the former Soviet Union. *Sex Roles, 48*(1/2), 39-51.

Bach, R., & Smith, J. (1977). Community satisfaction, expectations of moving and migration. *Demography, 14*(2), 147-167.

Badr, H., Acitelli, L., Duck, S., & Carl, W. J. (2001). Weaving social support and relationships together. In B. Sarason & S. Duck (Eds.), *Personal Relationships: Implications for clinical and community psychology* (pp. 1-14). West Sussex: John Wiley & Sons, Ltd.

Baumeister, R. F., & Leary, M. R. (1995). The Need to Belong: Desire for Interpersonal Attachments as a Fundamental Human Motivation. *Psychological Bulletin, 117*(3), 497-529.

Bell, R. R. (1981). Friendships of women and of men. *Psychology of Women Quarterly, 5*(3), 402-417.

Ben-Shlomo, Y., Smith, G. D., Shipley, M., & Marmot, M. G. (1993). Magnitude and causes of mortality differences between married and unmarried men. *Journal of Epidemiology and Community Health, 47*(3), 200-205.

Berscheid, E., & Lopes, J. (1997). A temporal model of relationship satisfaction and stability. In R. Sternberg & M. Hojjat (Eds.), *Satisfaction in close relationships* (pp. 129-159). New York: Guilford Press.

Bolan, M. (1997). The mobility experience and neighborhood attachment. *Demography, 34*(2), 225-237.

Bolger, N., Zuckerman, A., & Kessler, R. C. (2000). Invisible support and adjustment to stress. *Journal of Personality & Social Psychology, 79*, 953-961.

Boneva, B., Kraut, R., & Frohlich, D. (2001). Using e-mail for personal relationships: The difference gender makes. *American Behavioral Scientist, 45*(3), 530-549.

Bradley, E. (1995). Religious involvement and social resources: Evidence from the data set "Americans' Changing Lives". *Journal for the Scientific Study of Religion, 34*(2), 259-267.

Braithwaite, D. O., Waldron, V. R., & Finn, J. (1999). Communication of social support in computer-mediated groups for people with disabilities. *Health Communication, 11*(2), 123-151.

Brissette, I., Cohen, S., & Seeman, T. E. (2000). Measuring social integration and social networks. In S. Cohen, L. G. Underwood & B. Gottlieb (Eds.), *Social support measurement and interventions: A guide for health and social scientists* (pp. 53-85). New York: Oxford.

Bryk, A. S., & Raudenbush, S. W. (1992). *Hierarchical linear models: Applications and data analysis methods*. Thousand Oaks, CA, US: Sage Publications, Inc.

Burt, R. (1986). A note on sociometric order in the general social survey network data. *Social Networks, 8*, 149-174.

Butler, E. W., McAllister, R. J., & Kaiser, E. J. (1973). The effects of voluntary and involuntary residential mobility on females and males. *Journal of Marriage & Family, 35*(2), 219-227.

Caldwell, M. A., & Peplau, L. A. (1982). Sex differences in same-sex friendship. *Sex Roles, V8*(7), 721-732.

Canary, D. J., & Stafford, L. (1994). Maintaining relationships through strategic and routine interaction. In D. J. Canary & L. Stafford (Eds.), *Communication and relational maintenance* (pp. 3-22). San Diego, CA, US: Academic Press.

Carlisle-Frank, P., & Frank, J. (2001). *Psychological, social and environmental factors associated with adaptation to moving: A social-ecological study of relocation stress*. Unpublished manuscript.

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Mahwah, New Jersey: Lawrence Erlbaum Associates.

Cohen, S., Gottlieb, B., & Underwood, L. G. (2000). Social relationships and health. In S. Cohen, L. G. Underwood & B. Gottlieb (Eds.), *Social support measurement and interventions: A guide for health and social scientists* (pp. 3-28). New York: Oxford.

Cohen, S., Mermelstein, R., Kamarck, T., & Hoberman, H. (1984). Masuring the functional components of social support. In I. S. B. Sarason (Ed.), *Social support: Theory, research, and applications*. The Hague, Holland: Martines Niijhoff.

Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin, 98*(2), 310-357.

Cook, A. S., & Weigel, D. J. (1983). Relocation and crisis: perceived sources of support. *Family Relations, 32*(2), 267-273.

Crabtree, A., Rodden, T., Hemmings, T., & Benford, S. (2003). *Finding a place for UbiComp in the home.* Paper presented at the 5th Annual conference on ubiquitous computing, Seattle.

Cummings, J., Kraut, R., & Lee, J. (2006). Communication technology and friendship: The transition from high school to college. In R. Kraut, M. Brynin & S. Kiesler (Eds.), *Computers, Phones, and the Internet: The Social Impact of Information Technology*: Oxford University Press.

Cutrona, C., & Russell, D. (1987). The provisions of social relationships and adaptation to stress. In W. H. Jones & D. Perlman (Eds.), *Advances in personal relationships* (Vol. 1, pp. 37-57). Greeenwich, Conn.: JAI Press.

Dainton, M. (2000). Maintenance Behaviors, Expectations for Maintenance, and Satisfaction: Linking Comparison Levels to Relational Maintenance Strategies. *Journal of Social & Personal Relationships, 17*(6), 827-842.

DaVanzo, J. (1976). Differences between return and non-return migration: An economic analysis. *International Migration Review, 10*, 13-27.

DaVanzo, J. (1983). Repeat migration in the United States: Who moves back and who moves on? *The Review of Economics and Statistics, 65*(4), 552-559.

Deane, G. D. (1990). Mobility and adjustments: Paths to the resolution of residential stress. *Demography, 27*(1), 65-79.

Diener, E., Emmons, R., Larsen, J. D., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment, 49*(1), 71-75.

Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin, 125*(2), 276-302.

Dindia, K. (2004). The function of holiday greetings in maintaining relationships. *Journal of Social & Personal Relationships, 21*(5), 577-593.

Duck, S. (1994). Steady as (s)he goes: Relational maintenance as a shared meaning system. In D. J. Canary & L. Stafford (Eds.), *Communication and Relational Maintenance* (2nd ed., pp. 676-695). Thousand Oaks, CA: Sage.

Duck, S., Miell, D. E., & Miell, D. K. (1984). Social, cognitive and communicative aspects of relationship growth and decline. In H. E. Sypher & J. L. Applegate (Eds.), *Communication by children and adults: social cognitive and strategic processes*. Beverly Hills: Sage Publications.

Duck, S., Rutt, D., Hurst, M., & Strejc, H. (1991). Some evident truths about conversations in everyday relationships: All communications are not created equal. *Human Communication Research, 18*(2), 228-267.

Elkins, L. E., & Peterson, C. (1993). Gender differences in best friendships. *Sex Roles, 29*(7), 497-508.

Falk, T., & Abler, R. (1980). Intercommunications, Distance, and Geographical Theory. *Geografiska Annaler. Series B, Human Geography, 62*(2), 59-67.

Fichman, M., & Cummings, J. (2003). Multiple imputation for missing data: Making the most of what you know. *Organizational Research Methods, 6*, 139-164.

Finchum, T. (2005). Keeping the ball in the air; Contact in long-distance friendships. *Journal of Women and Aging, 17*(3), 91-106.

Fischer, C. S. (1982). *To dwell among friends: Personal networks in town and city*. Chicago: University of Chicago Press.

Fischer, C. S. (1994). *America calling: A social history of the telephone to 1940*. Berkeley: University of California Press.

Fischer, C. S. (2002). The ever-more rooted Americans. *City & Community, 1*.

Fisher, C., & Shaw, J. (1994). Relocation attitudes and adjustment: a longitudinal study. *Journal of Organizational Behavior, 15*(3), 209-224.

Fisher, S. (1990). The psychological effects of leaving home: Homesickness, health and obsessional thoughts. In S. Fisher & C. L. Cooper (Eds.), *On the move: the psychology of change and transition* (pp. 153-170). West Sussex: John Wiley & Sons Ltd.

Fox, M., Gibbs, M., & Auerbach, D. (1985). Age and gender dimensions of friendship. *Psychology of Women Quarterly, 9*(4), 489-502.

Gershuny, J. I. (2002). *Web-use and Net-nerds: A Neo-Functionalist Analysis of the Impact of Information Technology in the Home*. Unpublished manuscript, Colchester: University of Essex.

Golder, S. A. (2004). The keep-in-touch phone: a persuasive telephone for maintaining relationships. *In proceedings of CHI '04 extended abstracts on Human factors in computing systems*.

Goldsmith, D. J. (2004). *Communicating social support*. Cambridge, UK ; New York: Cambridge University Press.

Golledge, R. G., & Stison, R. J. (1997). *Spatial Behavior: A Geographic Perspective*. NY: Guilford Press.

Granovetter, M. (1983). The strength of weak ties: A network theory revisited. *Sociological Theory, 1*, 201-233.

Grinter, R., & Palen, L. (2002). *Instant messaging in teen life.* Paper presented at the Computer Supported Cooperative Work, New Orleans.

Guest, A., & Stamm, K. (1993). Paths of community integration. *The Sociological Quarterly, 34*(4), 581-595.

Hampton, K., & Wellman, B. (2001). Long distance community in the network society: Contact and support beyond Netville. *American Behavioral Scientist Special Issue: The Internet in everyday life, 45*(3), 476-495.

Hays, R. B. (1985). A longitudinal study of friendship development. *Journal of Personality and Social Psychology, 48*(4), 909-924.

Haythornthwaite, C. (2002). Strong, weak, and latent ties and the impact of new media. *The Information Society, 18*, 385-401.

Hendrix, L. (1979). Kinship, Social Class, and Migration. *Journal of Marriage & Family, 41*(2), 399-407.

Hess, J. A., Fannin, A. D., & Pollom, L. H. (2007). Creating closeness: Discerning and measuring strategies for fostering closer relationships. *Personal Relationships, 14*(1), 25-44.

Hoffman, D., Novak, T. P., & Venkatesh, A. (2004). Has the Internet become indispensable? *Communications of the ACM, 47*(7), 37-42.

Honaker, J., & King, G. (in press). What to do about missing values in time series cross-sectional data. *Forthcoming*.

Honaker, J., King, G., & Blackwell, M. (2006). Amelia II: A program for missing data. Retrieved July 12, 2006, from http://gking.harvard.edu/amelia/docs/amelia.pdf

House, J. S., Umberson, D., & Landis, K. R. (1988). Structures and processes of social support. *Annual Review of Sociology, 14*, 293-318.

Jacobson, D. (1986). Types and timing of social support. *Journal of Health & Social Behavior, 27*(3), 250-264.

Jasper, J. (2000). *Restless Nation. Starting over in America*. Chicago: University of Chicago Press.

John, O., Donahue, E., & Kentle, R. (1991). *The Big Five Inventory*. Berkeley, CA.

John, O., & Srivastava, S. (1999). The Big Five Trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. John (Eds.), *Handbook of personality: Theory and research (2nd ed.)* (pp. 102-138). New York, NY: Guilford Press.

Johnson, A. J. (2001). Examining the Maintenance of Friendships: Are There Differences Between Geographically Close and `Long-Distance Friends? *Communication Quarterly, 49*(4), 424-235.

Jones, S. B. (1973). Geographic Mobility as Seen by the Wife and Mother. *Journal of Marriage and the Family, 35*(2), 210-218.

Kaniasty, K., & Norris, F. H. (1993). A test of the social support deterioration model in the context of natural disaster. *Journal of Personality & Social Psychology, 64*(3), 395-408.

Kanner, A. D., Coyne, J. C., Schaefer, C., & Lazarus, R. S. (1981). Comparisons of two modes of stress measurement: Daily hassles and uplifts versus major life events. *Journal of Behavioral Medicine, 4*, 1-39.

Kasarda, J., & Janowitz, M. (1974). Community Attachment in Mass Society. *American Sociological Review, 39*(3), 328-339.

Katz, J. E., Rice, R. E., & Aspden, P. (2001). The Internet, 1995-2000: Access, civic involvement, and social interaction. *American Behavioral Scientist, 45*(3), 405-419.

Kavanaugh, A., Reese, D., Carroll, J., & Rosson, M. (2005). Weak ties in networked communities. *The Information Society, 21*(2), 119-131.

King, G., Honaker, J., Joseph, A., & Scheve, K. (2001). Analyzing incomplete political science data: An alternative algorithm for multiple imputation. *American Political Science Review, 95*(1), 49-69.

Kok, J. (2004). Choices and constraints in the migration of families: The central Netherlands, 1850-1940. *The History of the Family, 9*, 137-158.

Kraut, R., Kiesler, S., Boneva, B., Cummings, J., Helgeson, V., & Crawford, A. M. (2002). Internet paradox revisited. *Journal of Social Issues, 58*(1), 49-74.

Kraut, R., Kiesler, S., Boneva, B., & Shklovski, I. (2006). Examining the impact of Internet use on TV viewing: Details make a difference. In R. Kraut, M. Brynin & S. Kiesler (Eds.), *Computers, Phones, and the Internet: The Social Impact of Information Technology*: Oxford University Press.

Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukhopadhyay, T., & Scherlis, W. (1998). Internet paradox: A social technology that reduces social involvement and psychological well-being? *American Psychologist, 53*(9), 1017-1031.

Landale, N., & Guest, A. (1985). Constraints, satisfaction and residential mobility: Speare's model reconsidered. *Demography, 22*(2), 199-222.

Larner, M. (1990). Local residential mobility and its effects on social networks: a cross-cultural comparison. In M. Cochran, M. Larner, D. Riley, L. Gunnarsson & C. R. Henderson Jr. (Eds.), *Extending families: The social networks of parents and their children*. Cambridge: University Press.

Latane, B., Liu, J. H., Nowak, A., Bonevento, M., & et al. (1995). Distance matters: Physical space and social impact. *Personality & Social Psychology Bulletin, 21*(8), 795-805.

Levinger, G., & Huesmann, L. R. (1980). An "incremental exchange" perspective on the pair relationship: Interpersonal reward and level of involvement. In K. J. Gergen, M. S. Greenberg & R. H. Willis (Eds.), *Social exchange: advances in theory and research* (pp. 165-196). New York: Plenum Press.

Levitt, P. (2001). Transnational Migration: Taking Stock and Future Directions. *Global Networks, 1*(3), 195-216.

Licoppe, C., & Smoreda, Z. (2006). Rhythms and ties: Towards a pragmatics of technologically-mediated sociability. In R. Kraut, M. Brynin & S. Kiesler (Eds.), *Computers, Phones, and the Internet: The Social Impact of Information Technology*: Oxford University Press.

Lin, N., & Westcott, J. (1991). Marital engagement/disengagement, social networks and mental health. In J. Eckenrode (Ed.), *The social context of coping* (pp. 213-238). New York, NY, US: Plenum Press.

Litwak, E., & Kulis, S. (1987). Technology, Proximity, and Measures of Kin Support. *Journal of Marriage & Family, 49*(3), 649-661.

Long, L. (1988). *Migration and residential mobility in the United States*. New York: Russell Sage Foundation.

Long, L., Tucker, C. J., & Urton, W. L. (1988). Measuring migration distances: Self-reporting and indirect methods. *Journal of the American Statistical Association, 83*(403), 674-678.

Lynch, K. (1960). *The image of the city*. Cambridge, MA: MIT Press.

Magdol, L. (2000). The people you know: The impact of residential mobility on mothers' social network ties. *Journal of Social & Personal Relationships, 17*(2), 183-204.

Magdol, L. (2002). Is moving gendered? The effects of residential mobility on the psychological well-being of men and women. *Sex Roles, 47*(11), 553-560.

Magdol, L., & Bessel, D. R. (2003). Social capital, social currency, and portable assets: The impact of residential mobility on exchanges of social support. *Personal Relationships, 10*(2), 149-170.

Marvin, C. (1988). *When old technologies were new; thinking about electric communication in the late nineteenth century*. New York: Oxford University Press.

McAllister, R. J., Butler, E. W., & Kaiser, E. J. (1973). The adaptation of women to residential mobility. *Journal of Marriage & Family, 35*(2), 197-204.

Menon, G., & Yorkston, E. (2000). The use of memory and contextual clues in the formation of behavioral frequency judgments. In A. A. Stone, J. S. Turkkan, C. A. Bachrach, J. B. Jobe, H. S. Kurtzman & V. S. Cain (Eds.), *The science of self-report: Implications for research and practice* (pp. 63-79). New Jersey: Lawrence Erlbaum Associates.

Mesch, G., & Manor, O. (1998). Social ties, environmental perception, and local attachment. *Environment and Behavior, 30*(4), 504-520.

Milardo, R. M., Johnson, M. P., & Huston, T. L. (1983). Developing close relationships: Changing patterns of interaction between pair members and social networks. *Journal of Personality and Social Psychology, 44*(5), 964-976.

Mirowsky, J., & Ross, C. E. (1989). *Social Causes of Psychological Distress*. Hawthorne, NY: Aldine De Gruyter.

Mok, D., Wellman, B., & Basu, R. (2007). Did distance matter before the Internet? Interpersonal contact and support in the 1970s. *Social Networks, Forthcoming*.

Moos, R., & Moos, B. (1994). *Family environment scale manual: Development, applications, research* (Third ed.). Palo Alto, CA: Consulting Psychologist Press.

Nussbaum, J. F. (1994). Friendship in older adulthood. In M. L. Hummert, J. M. Wiemann & J. F. Nussbaum (Eds.), *Interpersonal communication in older adulthood : interdisciplinary theory and research* (pp. 209-225). Thousand Oaks, Calif.: Sage Publications.

O'Brien, J., Rodden, T., Rounceield, M., & Hughes, J. A. (2000). At Home with Technology: An Ethnographic Study of a Set-Top Box Trial. *ACM Transactions on Computer-Human Interaction, 6*(3), 282-308.

Olson, G. M., & Olson, J. S. (2000). Distance Matters. *Human-Computer Interaction, 15*(2-3), 139-178.

Orth-Gomer, K., & Johnson, J. V. (1987). Social network interaction and mortality. A six year follow-up study of a random sample of the Swedish population. *Journal of Chronic Disease, 40*(10), 949-957.

Palen, L., Salzman, M., & Youngs, E. (2000). *Going Wireless: Behavior and Practice of New Mobile Phone Users.* Paper presented at the ACM Conference on Computer Supported Collaborative Work, Philadeliphia, PA.

Perlman, D., & Fehr, B. (1986). Theories of friendship: The analysis of interpersonal attraction. In V. J. Derlega & B. A. Winstead (Eds.), *Friendship and social interaction* (pp. 9-40). New York: Springer-Verlag.

Pierce, G., Sarason, I., & Sarason, B. (1991). General and relationship-based perceptions of social support: Are two constructs better than one? *Journal of Personality and Social Psychology, 61*(6), 1028-1039.

Putnam, R. (1995). Tuning In, Tuning Out: The Strange Disappearance of Social Capital in America. *PS: Political Science and Politics, 28*(4), 664-683.

Quarantelli, E. L. (1960). A note on the protective function of the family in disasters. *Marriage and Family Living, 22*(3), 263-264.

Radloff, L. S. (1977). The CES-D Scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement, 1*(3), 385-401.

Reis, H. T., & Collins, N. (2000). Measuring relationship properties and interactions relevant to social support. In S. Cohen, L. G. Underwood & B. Gottlieb (Eds.), *Social support measurement and interventions: A guide for health and social scientists* (pp. 136-194). New York: Oxford.

Reynolds, P., & Kaplan, G. A. (1990). Social connections and risk for cancer: prospective evidence from the Alameda County Study. *Behavioral Medicine, 16*(3), 101-110.

Rice, R., & Love, G. (1987). Electronic emotion: Socio-emotional content in a computer-mediated communication network. *Communication Research, 14*(1), 85-108.

Richardson, H. W., & Gordon, P. (2001). *Sustainable Portland? A critique and Los Angeles counterpoint.* Paper presented at the ACSP, Cleveland, OH.

Ringel, N. B., & Finkelstein, J. C. (1991). Differentiating Neighborhood Satisfaction and Neighborhood Attachment Among Urban Residents, *Basic and Applied Social Psychology, V12*(2), 177-193

Ritchey, N. (1976). Explanations of Migration. *Annual Review of Sociology, 2*, 363-404.

Rohlfing, M. E. (1995). "Doesn't anybody stay in one place anymore?" An exploration of under-studied phenomenon of long-distance relationships. In J. T. Wood & S. Duck (Eds.), *Understudied relationships; Off the beaten track* (Vol. 6). Thousand Oaks: Sage Publications.

Rook, K. S. (1987). Social support versus companionship: Effects on life stress, loneliness, and evaluations by others. *Journal of Personality and Social Psychology, 52*(6), 1132-1147.

Rose, S. (1984). How friendships end: Patterns among young adults. *Journal of Social & Personal Relationships, 1*(3), 267-277.

Rose, S. (1985). Same- and cross-sex friendships and the psychology of homosociality. *Sex Roles, V12*(1), 63-74.

Rose, S., & Serafica, F. C. (1986). Keeping and ending casual, close and best friendships. *Journal of Social & Personal Relationships, 3*(3), 275-288.

Rossi, P. H. (1955). *Why families move?* Glencoe, IL: The Free Press.

Rotter, J. B. (1971). Generalized expectancies for interpersonal trust. *American Psychologist, 26*(5), 443-452.

Russell, D., Peplau, L., & Cutrona, C. (1980). The revised UCLA loneliness scale: Concurrent and discriminant validity evidence. *Journal of Personality & Social Psychology, 39*(3), 472-480.

Salvador, T., & Anderson, K. (2003). Practical Considerations of Context for Context Based Systems: An Example from an Ethnographic Case Study of a Man Diagnosed with Early Onset Alzheimer's Disease. In *UbiComp 2003: Ubiquitous Computing* (Vol. 2864/2003, pp. 243-255): Springer Berlin / Heidelberg.

Sarason, B. R., Pierce, G., Shearin, E. N., & Sarason, I. G. (1991). Perceived social support and working models of self and actual others. *Journal of Personality and Social Psychology, 60*(2), 273-287.

Sarason, B. R., Sarason, I. G., & Gurung, R. (2001). Close personal relationships and health outcomes: A key to the role of social support. In B. Sarason & S. Duck (Eds.), *Personal*

Relationships: Implications for clinical and community psychology (pp. 15-42). West Sussex: John Wiley & Sons, Ltd.

Sarason, B. R., Shearin, E. N., Pierce, G. R., & Sarason, I. G. (1987). Interrelations of social support measures: Theoretical and practical implications. *Journal of Personality and Social Psychology, 52*(4), 813-832.

Schachter, J. (2004). *Geographic mobility: 2002-2003*: U.S. Census Bureau.

Schmidtke, O. (2001). Transnational migration: a challenge to European citizenship regimes. *World Affairs, 164*(1), 3-16.

Seeman, T. E., Kaplan, G. A., Knudsen, L., Cohen, R., & Guralnik, J. (1987). Social network ties and mortality among the elderly in the Alameda County Study. *Am J Epidemiol, 126*(4), 714-723.

Shklovski, I., & Bessiere, K. (2004). *Measuring Internet uses.* Paper presented at the Association of Internet Researchers (AOIR) 5.0, Sussex, UK.

Shklovski, I., Kiesler, S., & Kraut, R. (2006). The Internet and social interaction: A meta-analysis and critique of studies, 1995-2003. In R. Kraut, M. Brynin & S. Kiesler (Eds.), *Computers, Phones and the Internet: The Social Impact of Information Technology*: Oxford University Press.

Shklovski, I., Kraut, R., & Rainie, L. (2004). The Internet and Social Relationships: Contrasting Cross-Sectional and Longitudinal Analyses. *Journal of Computer Mediated Communication, 10*(1).

Shklovski, I., & Mainwaring, S. (2005). Exploring technology adoption through the lens of residential mobility. *in proceedings of CHI 2005, Portland, Oregon.*

Sigman, S. J. (1991). Handling discontinuous aspects of continuing social relationships: Toward research on the persistence of social forms. *Communication Theory, 1*, 106-127.

Siio, I., Rowan, J., & Mynatt, E. (2002). Peek-a-drawer: communication by furniture. *In Proceedings of CHI '02 extended abstracts on Human factors in computing systems*.

Smoreda, Z., & Licoppe, C. (2000). Gender-specific use of the domestic telephone. *Social Psychology Quarterly, 63*(3), 238-252.

Smoreda, Z., & Thomas, F. (2001). *Social networks and residential ICT adoption and use.* Paper presented at the EURESCOM Summit, Heidelburg.

Sorkin, D., Rook, K. S., & Lu, J. L. (2002). Loneliness, Lack of Emotional Support, Lack of Companionship, and the Likelihood of Having a Heart Condition in an Elderly Sample. *Annals of Behavioral Medicine, 24*(4), 290-298.

Speare, A., Jr. (1974). Residential Satisfaction as an Intervening Variable in Residential Mobility. *Demography, 11*(2), 173-188.

Sproull, L., & Kiesler, S. (1991). *Connections: New ways of working in the networked organization*. Camridge, MA: MIT Press.

Stafford, L. (2004). *Maintaining long-distance and cross-residential relationships*. New Jersey: Lawrence Erlbaum Associates.

Starker, J. E. (1990). Psychosocial aspects of geographicl relocation: The development of a new social network. *American Journal of Health Promotion, 5*(2), 52-57.

Starker, J. E., Morgan, D. L., & March, S. (1993). Analyzing change in networks of personal relationships. In D. Perlman & W. H. Jones (Eds.), *Advances in Personal Relationships* (Vol. 4, pp. 229-260). London: Jessica Kingsley Publishers.

StataCorp. (2003). Stata Statistical Software: Release 8.0. College Station, TX: Stata Corporation.

Stokols, D., & Shumaker, S. A. (1982). The psychological context of residential mobility and well-being. *Journal of Social Issues, 38*(3), 149-171.

Stokols, D., Shumaker, S. A., & Martinez, J. (1983). Residential mobility and personal well-being. *Journal of Environmental Psychology, 3*, 5-19.

Taylor, D. A., & Altman, I. (1987). Communication in interpersonal relationships: Social penetration processes. In M. E. Roloff & G. R. Miller (Eds.), *Interpersonal processes: new directions in communication research* (pp. 257-277). Newbury Park, Calif.: Sage Publications.

Thibaut, J. W., & Kelley, H. H. (1986). *The social psychology of groups*. New Brunswick, U.S.A.: Transaction Books.

Thoits, P. A. (1983). Multiple identities and psychological well-being: A reformulation and test of the social isolation hypothesis. *American Sociological Review, 48*(2), 174-187.

Thoits, P. A. (1992). Social support functions and network structures: A supplemental view. In H. O. F. Veiel & U. Baumann (Eds.), *The meaning and measurement of social support* (pp. 57-62). Washington, DC, US: Hemisphere Publishing Corp.

Tolmie, P., Pycock, J., Diggins, T., MacLean, A., & Karsenty, A. (2002). *Unremarkable computing.* Paper presented at the SIGCHI Conference on Human Factors in Computing Systems (CHI), Minneapolis, MN.

Tomz, M., Wittenberg, J., & King, G. (2001). Clarify: Software for interpreting and presenting statistical results. Retrieved July 12, 2006, from http://gking.harvard.edu/stats.shtml

Tourangeau, R. (2000). Remembering What Happened: Memory Errors and Survey Reports. In A. A. Stone, J. S. Turkkan, C. A. Bachrach, J. B. Jobe, H. S. Kurtzman & V. S. Cain (Eds.), *The Science of Self-Report: Implications for Research and Practice* (pp. 29-48). Mahweh, New Jersey: Lawrence Erlbaum Associates.

Umberson, D. (1987). Family status and health behaviors: social control as a dimension of social integration. *Journal of Health Social Behavior, 28*(3), 306-319.

Väänänen, A., Buunk, B. P., Kivimäki, M., Pentti, J., & Vahtera, J. (2005). When it is better to give than to receive: long-term health effects of perceived reciprocity in support exchange. *Journal of Personality & Social Psychology, 89*(2), 176-193.

Weiss, R. S. (1974). The provisions of social relationships. In Z. Rubin (Ed.), *Doing unto others: joining, molding, conforming, helping, loving* (pp. 17-26). Englewood Cliffs, N.J.: Prentice-Hall.

Weiss, R. S. (1990). Losses associated with mobility. In S. Fisher & C. L. Cooper (Eds.), *On the move: the psychology of change and transition* (pp. 3-12). West Sussex: John Wiley & Sons Ltd.

Wellman, B. (1996). Are personal communities local? A Dumptarian reconsideration. *Social Networks, 18*(4), 347-354.

Wellman, B., & Wortley, S. (1990). Different strokes from different folks: Community ties and social support. *American Journal of Sociology, 96*(3), 558-588.

Williams, A. W., Ware, J. E., & Donald, C. A. (1981). A model of mental health, life events, and social supports applicable to general populations. *Journal of Health & Social Behavior, 22*(4), 324-336.

Winstanley, A., Thorns, D. C., & Perkins, H. C. (2002). Moving house, creating home: Exploring residential mobility. *Housing Studies, 17*(6), 813-832.

Winstead, B. A., & Derlega, V. J. (1986). Friendship and social interaction: An introduction. In V. J. Derlega & B. A. Winstead (Eds.), *Friendship and social interaction* (pp. 1-8). New York: Springer-Verlag.

Wright, P. H. (1984). Self-referent motivation and the intrinsic quality of friendship. *Journal of Social & Personal Relationships, 1*(1), 115-130.

Wright, P. H., & Scanlon, M. B. (1991). Gender role orientations and friendship: Some attenuation, but gender differences abound. *Sex Roles, 24*(9), 551-566.

Appendix A: Questions used in the movers' survey

This appendix presents the list of established scales that had been used in the mover's survey as well as a copy of the Time 1 questionnaire.

Established scales used in the survey

1. Condensed and expanded lists for reasons for moving (condensed used in surveys T1 and T3, expanded was used in survey T2) (Schachter, 2004)
2. Census questions asking about rental/ownership of residence (Schachter, 2004)
3. The family environment scale – selected six questions (Moos & Moos, 1994)
4. The Internet use scale (Kraut et al., 2006; Shklovski & Bessiere, 2004)
5. Interpersonal trust scale (Rotter, 1971)
6. Daily hassles scale (Kanner et al., 1981)
7. Life satisfaction scale (Diener et al., 1985)
8. UCLA loneliness scale (Russell, Peplau, & Cutrona, 1980)
9. Big-Five personality scales – Extraversion, Agreeableness, Openness (O. John & Srivastava, 1999)
10. CES-Depression scale (Radloff, 1977)
11. Interpersonal Support Evaluation List (ISEL-12) (S. Cohen et al., 1984)
12. A series of demographic questions, measuring sex, education, marital status, employment status, student status, race and income commonly employed by the US Census.

Residential mobility survey – initial questionnaire

Section 1: Moving Process

Your current zip code _____ Your previous zip code _____

1. Have you changed residence in the last 6 months?

   ☐1 No - You can stop & return your questionnaire. We will not contact you further.
   ☐2 Yes - Please complete the rest of this questionnaire.

2. How long have you been living at your current location? ___ months

3. How long have you lived at your previous location? ___ years ___months

4. What motivated your decision to move? **(CHECK ALL THAT APPLY)**

   ☐1 Family-related reasons (marriage, separation, others)
   ☐2 Work-related reasons (new job, school, relocation, opportunities, retirement)
   ☐3 Housing-related reasons (buying a house, better neighborhood, cheaper housing)
   ☐4 Other (please specify) _____

5. How many members of your household moved with you to your new location? _____

6. Where did you live before moving to the present residence? **(CHECK ONE BOX)**

   ☐1 In the same neighborhood
   ☐2 In another part of the same city
   ☐3 In another city
   ☐4 In another state
   ☐5 In another country
   ☐6 Other (please specify) _____

7. How many times have you moved in the last five years? _____
   (NUMBER OF TIMES YOU HAD TO FILL OUT A "CHANGE OF RESIDENCE" FORM)

8. Is your current residence **(CHECK ONE BOX)**

   ☐1 Owned by you or someone in your household
   ☐2 Rented
   ☐3 Occupied without payment of rent
   ☐4 Other (specify) _____

9. Was your previous residence **(CHECK ONE BOX)**

   ☐1 Owned by you or someone in your household
   ☐2 Rented
   ☐3 Occupied without payment of rent
   ☐4 Other (specify) _____

10. How much do you agree with the following statements about the process of moving and getting adjusted to your new location?

	Strongly agree	Moderately agree	Neutral	Moderately disagree	Strongly disagree
a. It was easy to plan and organize the move	☐1	☐2	☐3	☐4	☐5
b. The move was very stressful	☐1	☐2	☐3	☐4	☐5
c. Overall, I am pleased with how my move went	☐1	☐2	☐3	☐4	☐5
d. Getting adjusted to living in a new environment has been a difficult process	☐1	☐2	☐3	☐4	☐5
e. So far, I am adapting very well to my new home	☐1	☐2	☐3	☐4	☐5
f. I am sure that my decision to move was best for me and my family	☐1	☐2	☐3	☐4	☐5
g. I am very satisfied with my decision to move to my new location	☐1	☐2	☐3	☐4	☐5
h. I am not sure if I picked the right place to live	☐1	☐2	☐3	☐4	☐5

Section 2. Before the move – Please answer the following questions about your experience before the move.

1. How easy was it to accomplish the following activities associated with moving?

	Very easy	Moderately easy	Neither easy nor hard	Moderately hard	Very hard	N/A
a. Find a place to live	☐1	☐2	☐3	☐4	☐5	☐6
b. Find a job	☐1	☐2	☐3	☐4	☐5	☐6
c. Find a church, synagogue or other religious institution in your new location	☐1	☐2	☐3	☐4	☐5	☐6
d. Find hobbies and activities in your new location	☐1	☐2	☐3	☐4	☐5	☐6
e. Find a school	☐1	☐2	☐3	☐4	☐5	☐6
f. Find information about children's activities in your new location (e.g. girl scouts or soccer)	☐1	☐2	☐3	☐4	☐5	☐6
g. Find doctors and other professionals	☐1	☐2	☐3	☐4	☐5	☐6
h. Find political information about your new location	☐1	☐2	☐3	☐4	☐5	☐6
i. Meet new people	☐1	☐2	☐3	☐4	☐5	☐6

2. In the table below please fill in how much you used different resources to make decisions or perform tasks **in the 6 months prior to your move** to a new location. Fill in a number from 0 to 4, where 0 means you did not use the resource at all and a 4 means you used it extensively.

not at all				extensively
1	2	3	4	5

Task	Resource		
	Family	Friends	Acquaintances
a. Find a place to live	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5
b. Pack up and move your goods	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5
c. Find a job	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5
d. Find a church, synagogue or other religious institution in your new location	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5
e. Find hobbies and activities in your new location	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5
f. Find a school	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5
g. Find doctors and other professionals	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5
h. Find political information about your new location	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5
i. Meet new people	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5
j. Get in touch with friends in the new location	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5
k. Get in touch with family in the new location	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5

Task	Resource	
	Newspapers	Internet Websites
l. Find a place to live	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5
m. Pack up and move your goods	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5
n. Find a job	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5
o. Find a church or synagogue or other religious institution in your new location	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5
p. Find hobbies and activities in your new location	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5
q. Find a school	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5
r. Find doctors and other professionals	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5
s. Find political information about your new location	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5
t. Meet new people	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5	☐ ☐ ☐ ☐ ☐ 1 2 3 4 5

3. How many close friends did you have in your new location, whom you knew before the move?

- ☐1 None
- ☐2 One or two
- ☐3 Three to five
- ☐4 Six to ten
- ☐5 More than ten

4. How many close relatives did you have in your new location before the move?

- ☐1 None
- ☐2 One or two
- ☐3 Three to five
- ☐4 Six to ten
- ☐5 More than ten

5. How many co-workers or acquaintances did you know at your new location before the move?

- ☐1 None
- ☐2 One or two
- ☐3 Three to five
- ☐4 Six to ten
- ☐5 More than ten

Section 3. Your general social circle at your previous location

1. Your local social circle before your move

Think of the people you know, who lived within an hour of you, but not in your household. These should be people you actively kept in touch with 6 months prior to your move. You could have kept in touch with them in person, by phone, or over the Internet.

a. How many were relatives living **within an hour** of you _____ (number)

b. How many were friends living **within an hour** of you _____ (number)

2. Your distant social circle before your move

Now, think of the people you know, who lived more than an hour away from you. These should be people you actively kept in touch with 6 months prior to your move. You could have kept in touch with them in person, by phone, or over the Internet.

a. How many were relatives living **more than an hour away** from you that _____ (number)

b. How many were friends living **more than an hour away** from you _____ (number)

Section 4. Involvement

1. Think of the **6 months prior to your move**. To what extent do you agree with the statements below about yourself during those 6 months? **(PLEASE CHECK ONE BOX FOR EACH ITEM)**

	Strongly agree	Moderately agree	Neutral	Moderately disagree	Strongly disagree
a. I belonged to a group of friends that took part in common activities, e.g., played cards, listened to music, played sports, etc.	☐1	☐2	☐3	☐4	☐5
b. I spent a lot of time by myself	☐1	☐2	☐3	☐4	☐5
c. I belonged to many organizations	☐1	☐2	☐3	☐4	☐5
d. I spent a lot of time with my friends	☐1	☐2	☐3	☐4	☐5
e. I actively participated in a religious group or organization	☐1	☐2	☐3	☐4	☐5
f. I actively participated in a community group or organization (e.g., Lions Club, volunteer or political cause)	☐1	☐2	☐3	☐4	☐5
g. I actively participated in a group or organization for leisure activities (e.g., sports, games, book discussion)	☐1	☐2	☐3	☐4	☐5
h. I actively participated in an online group or organization	☐1	☐2	☐3	☐4	☐5
i. I felt part of an organization or community	☐1	☐2	☐3	☐4	☐5
j. I felt like I knew what was going on in an organization or community I belonged to	☐1	☐2	☐3	☐4	☐5
k. I didn't feel I belonged in any organization or community	☐1	☐2	☐3	☐4	☐5
l. I felt at home in my neighborhood or local area	☐1	☐2	☐3	☐4	☐5
m. I frequently got together with people who knew what was going on in my local area	☐1	☐2	☐3	☐4	☐5
n. I frequently had ideas for improving things in my local area	☐1	☐2	☐3	☐4	☐5
o. I worked to bring about change in my local area	☐1	☐2	☐3	☐4	☐5

2. How important is it to you to:

	Very Important	Important	Somewhat Important	Not really Important	Not at all Important
a. Belong to an organization	☐1	☐2	☐3	☐4	☐5
b. Be involved in a community	☐1	☐2	☐3	☐4	☐5
c. Spend time with a group of friends	☐1	☐2	☐3	☐4	☐5
d. Spend time alone	☐1	☐2	☐3	☐4	☐5

Section 5. Frequency of leisure activities

1. In the **6 months before your move**, approximately how frequently did you do the following activities? **(CHECK ONE BOX FOR EACH ITEM)**

	Several times a day	About once a day	3-5 days a week	1-2 days a week	Every few weeks	Less often	Never
a. Spent time with friends	☐1	☐2	☐3	☐4	☐5	☐6	☐7
b. Called friends just to talk	☐1	☐2	☐3	☐4	☐5	☐6	☐7
c. Called relatives just to talk	☐1	☐2	☐3	☐4	☐5	☐6	☐7
d. Used a cell phone	☐1	☐2	☐3	☐4	☐5	☐6	☐7
e. Communicated with others using Instant Messaging or chat	☐1	☐2	☐3	☐4	☐5	☐6	☐7
f. Invited people to my home	☐1	☐2	☐3	☐4	☐5	☐6	☐7
g. Gave or attended dinner parties	☐1	☐2	☐3	☐4	☐5	☐6	☐7
h. Visited a friend	☐1	☐2	☐3	☐4	☐5	☐6	☐7
i. Visited a relative	☐1	☐2	☐3	☐4	☐5	☐6	☐7
j. Went out to dinner with others	☐1	☐2	☐3	☐4	☐5	☐6	☐7
k. Played cards or games with others	☐1	☐2	☐3	☐4	☐5	☐6	☐7
l. Played a team sport	☐1	☐2	☐3	☐4	☐5	☐6	☐7
m. Did volunteer work	☐1	☐2	☐3	☐4	☐5	☐6	☐7
n. Took a class	☐1	☐2	☐3	☐4	☐5	☐6	☐7
o. Attended a religious service	☐1	☐2	☐3	☐4	☐5	☐6	☐7
p. Attended a club meeting	☐1	☐2	☐3	☐4	☐5	☐6	☐7
q. Spent time reading a book	☐1	☐2	☐3	☐4	☐5	☐6	☐7
r. Watched TV	☐1	☐2	☐3	☐4	☐5	☐6	☐7
s. Used a computer at home	☐1	☐2	☐3	☐4	☐5	☐6	☐7

Section 6. Information sources and technology

1. Prior to your move, how many of the following products in working condition did you have in your home? **(FILL IN A NUMBER FOR EACH BLANK)**

_____	Computers	_____	Televisions
_____	Cellular phones	_____	Answering machines or services
_____	Landline phones		

2. How long have you owned a cell phone (starting with the first cell phone you ever owned)?

☐1 I don't own a cell phone – **PLEASE SKIP TO QUESTION 4**
☐2 Less than 6 months
☐3 Between 6 months and a year
☐4 Between 1 and 2 years
☐5 More than 2 years

3. In the 6 months before your move, how frequently did you use your cell phone?

☐1 Several times a day
☐2 About once a day
☐3 3-5 days a week
☐4 1-2 days a week
☐5 Every few weeks
☐6 Less often
☐7 Never

4. In preparation to your move, did you change any of the following:

	Yes	No	Dropped Service
a. Your mailing address	☐1	☐2	
b. Your landline phone #	☐1	☐2	☐3
c. Your cell phone #	☐1	☐2	☐3
d. Your email address	☐1	☐2	☐3

If you have more than one email address, how many did you change? _____

5. Prior to your move, if you had a computer at home connected to the Internet, how was it connected? **(CHECK ONE BOX)**

☐1 No computer connected to the Internet
☐2 Regular telephone line connected to your computer's modem
☐3 Special high-speed telephone line (ISDN or DSL) connected to your computer
☐4 Cable service line connected to your computer
☐5 Web TV line, connected to your television set

6. Prior to your move, did you ever go online to access the Internet (including browsing the Web, chatting online, sending email or receiving email)?

☐1 Yes
☐2 No **– PLEASE SKIP TO SECTION 7**

7. How long have you been using the Internet? **(CHECK ONE BOX)**

- ☐1 I do not use the Internet
- ☐2 Less than 6 months
- ☐3 Between 6 months and a year
- ☐4 Between 1 and 2 years
- ☐5 More than 2 years

8.

	Yes	No
a. Before the move, did you have an e-mail address?	☐1	☐2
b. Currently, do you have an e-mail address?	☐1	☐2

Please answer Question 9 if you had access to the Internet or World Wide Web before your move (you checked "yes" in question 6).

9. There are many different ways to use the Internet. In the 6 months before your move, how frequently have you used the Internet for the following purposes? **(CHECK ONE BOX FOR EACH ITEM)**

	Several times a day	About once a day	3-5 days a week	1-2 days a week	Every few weeks	Less often	Never
a. Getting local news	☐1	☐2	☐3	☐4	☐5	☐6	☐7
b. Finding information about national or international news	☐1	☐2	☐3	☐4	☐5	☐6	☐7
c. Finding information about local events	☐1	☐2	☐3	☐4	☐5	☐6	☐7
d. Getting information about movies, books, or other leisure activities	☐1	☐2	☐3	☐4	☐5	☐6	☐7
e. Getting information for a hobby	☐1	☐2	☐3	☐4	☐5	☐6	☐7
f. Getting information for work or school	☐1	☐2	☐3	☐4	☐5	☐6	☐7
g. Killing time	☐1	☐2	☐3	☐4	☐5	☐6	☐7
h. Releasing tension	☐1	☐2	☐3	☐4	☐5	☐6	☐7
i. Overcoming loneliness	☐1	☐2	☐3	☐4	☐5	☐6	☐7
j. Being entertained	☐1	☐2	☐3	☐4	☐5	☐6	☐7
k. Playing games	☐1	☐2	☐3	☐4	☐5	☐6	☐7
l. Downloading or listening to music	☐1	☐2	☐3	☐4	☐5	☐6	☐7
m. Getting information about a product you might want to buy	☐1	☐2	☐3	☐4	☐5	☐6	☐7
n. Making an airplane or travel reservation	☐1	☐2	☐3	☐4	☐5	☐6	☐7
o. Buying a product or service	☐1	☐2	☐3	☐4	☐5	☐6	☐7
p. Investing money in a stock or mutual fund or handling your finances	☐1	☐2	☐3	☐4	☐5	☐6	☐7
q. Meeting new people for social purposes	☐1	☐2	☐3	☐4	☐5	☐6	☐7
r. Participating in online discussion groups	☐1	☐2	☐3	☐4	☐5	☐6	☐7

	Several times a day	About once a day	3-5 days a week	1-2 days a week	Every few weeks	Less often	Never
s. Communicating with people you first met online	☐1	☐2	☐3	☐4	☐5	☐6	☐7
t. Communicating with friends in your local area	☐1	☐2	☐3	☐4	☐5	☐6	☐7
u. Communicating with friends NOT in your local area	☐1	☐2	☐3	☐4	☐5	☐6	☐7
v. Communicating with relatives in your local area	☐1	☐2	☐3	☐4	☐5	☐6	☐7
w. Communicating with relatives NOT in your local area	☐1	☐2	☐3	☐4	☐5	☐6	☐7
x. Accessing an online community website	☐1	☐2	☐3	☐4	☐5	☐6	☐7
y. Accessing a web site about the local area	☐1	☐2	☐3	☐4	☐5	☐6	☐7
z. Participating in an online group	☐1	☐2	☐3	☐4	☐5	☐6	☐7
aa. Post factual information on a website or group communication system	☐1	☐2	☐3	☐4	☐5	☐6	☐7
bb. Expressing ideas and opinions on a website or group communication system	☐1	☐2	☐3	☐4	☐5	☐6	☐7

10. Prior to your move did you use the Internet to do any of the following move-related activities?

	Not at all	A little	Moderately	Quite a bit	Extensively
a. Find information about a moving-related service (e.g. realtor or moving company)	☐1	☐2	☐3	☐4	☐5
b. Find information about your own hobbies and activities in your new town	☐1	☐2	☐3	☐4	☐5
c. Find out about volunteer opportunities	☐1	☐2	☐3	☐4	☐5
d. Do a cost of living analysis	☐1	☐2	☐3	☐4	☐5
e. Join any online groups about the new location or activities in the new location	☐1	☐2	☐3	☐4	☐5
f. Meet someone from your new location	☐1	☐2	☐3	☐4	☐5

Section 7a. People you socialize with

1. The following question asks about your relationship with people outside your immediate family, whom you knew **before your move.** Please list the first name and last initial of one or more people (if applicable). Please use names and initials you will be able to recognize at a later time. We will ask you questions about some of these people in a later questionnaire. If more than one person has the same name and initial, please use the first two or three letters of their last names.

   a. Please list people with whom you socialized before your move. For example, these are people you went out with, discussed hobbies, movies or other spare-time activities, chatted online, or went out to lunch.

1) _____ M F _____age	2) _____ M F _____ age	3) _____ M F _____age

2. From the list above, please select one person **who is closest to you in age** and answer the following questions about them. Please indicate this persons' first name and last initial _____

a. Before the move, how close did s/he live?	1) Within 5 min drive	2) Within 15 min drive	3) Within 30 min drive	4) Within 1-2 hr drive	5) Within 3-4 hr drive	6) Further away
b. Currently, how close to you does s/he live?	1) Within 5 min drive	2) Within 15 min drive	3) Within 30 min drive	4) Within 1-2 hr drive	5) Within 3-4 hr drive	6) Further away
c. How long have you known her/him?	< 1 month	< 3 months	< 6 months	< 1 year	< 2 years	< 3 years	3+ years
d. What is her/his relation to you?	1. Romantic partner	2. Close friend	3. Friend			
	4. Acquaintance	5. Relative	6. Other _____			
e. How did you meet her/him?	1. Was a neighbor	2. Through school or work	3. Is a relative			
	4. Through a mutual friend	5. Through club/hobby	6. Met online			

2. In the 6 months before your move, how frequently did you communicate with him/her by these modes of communication?

	Many times per day	Daily	Weekly	Biweekly	Monthly	Less often	Never
a. In person	1	2	3	4	5	6	7
b. By phone	1	2	3	4	5	6	7
c. By e-mail	1	2	3	4	5	6	7
d. By instant messaging	1	2	3	4	5	6	7
e. By text messaging (SMS)	1	2	3	4	5	6	7

	Not at all				Very
f. How close do you feel to him/her?	1	2	3	4	5

	Yes	No	Do Not Know
g. Does s/he have a cell phone?	1	2	3
h. Does s/he have an Internet connection at home?	1	2	3
i. Does s/he have an Internet connection at work?	1	2	3

3. In the 6 months before your move, how frequently did you do the following with him/her?

	Infrequently				Frequently
a. Receive practical favors or help?	1	2	3	4	5
b. Engage in hobbies or spare time interests?	1	2	3	4	5
c. Participate in leisure activities together?	1	2	3	4	5
d. Discuss important personal matters?	1	2	3	4	5
e. Receive emotional support?	1	2	3	4	5
f. Receive useful advice or information?	1	2	3	4	5

Section 7b. People you discuss important issues with

1. The following question asks about your relationship with people outside your immediate family, whom you knew **before your move.** Please list the first name and last initial of one or more people (if applicable). Please use names and initials you will be able to recognize at a later time. We may ask you questions about some of these people in a later questionnaire. If you have already mentioned a person on a previous page, please do not mention them again.

   a. Please list people with whom you discussed important issues. For example, these are people with whom you discussed your career, child rearing, school, health, or personal relationships

1) _____ M F _____age	2) _____ M F _____ age	3) _____ M F _____age

2. From the list above, please select one person **who is closest to you in age** and answer the following questions about them. Please indicate this persons' first name and last initial _____

a. Before the move, how close did s/he live?	1) Within 5 min drive	2) Within 15 min drive	3) Within 30 min drive	4) Within 1-2 hr drive	5) Within 3-4 hr drive	6) Further away
b. Currently, how close to you does s/he live?	1) Within 5 min drive	2) Within 15 min drive	3) Within 30 min drive	4) Within 1-2 hr drive	5) Within 3-4 hr drive	6) Further away

c. How long have you known her/him?	< 1 month	< 3 months	< 6 months	< 1 year	< 2 years	< 3 years	3+ years

d. What is her/his relation to you?	1. Romantic partner	2. Close friend	3. Friend
	4. Acquaintance	5. Relative	6. Other _____

e. How did you meet her/him?	1. Was a neighbor	2. Through school or work	3. Is a relative
	4. Through a mutual friend	5. Through club/hobby	6. Met online

4. **In the 6 months before your move**, how frequently did you communicate with him/her by these modes of communication?

	Many times per day	Daily	Weekly	Biweekly	Monthly	Less often	Never
a. In person	1	2	3	4	5	6	7
b. By phone	1	2	3	4	5	6	7
c. By e-mail	1	2	3	4	5	6	7
d. By instant messaging	1	2	3	4	5	6	7
e. By text messaging (SMS)	1	2	3	4	5	6	7

	Not at all				Very
f. How close do you feel to him/her?	1	2	3	4	5

	Yes	No	Do Not Know
g. Does s/he have a cell phone?	1	2	3
h. Does s/he have an Internet connection at home?	1	2	3
i. Does s/he have an Internet connection at work?	1	2	3

5. **In the 6 months before your move**, how frequently did you do the following with him/her?

	Infrequently				Frequently
a. Receive practical favors or help?	1	2	3	4	5
b. Engage in hobbies or spare time interests?	1	2	3	4	5
c. Participate in leisure activities together?	1	2	3	4	5
d. Discuss important personal matters?	1	2	3	4	5
e. Receive emotional support?	1	2	3	4	5
f. Receive useful advice or information?	1	2	3	4	5

Section 7c. People who helped you with useful information or referrals

1. The following question asks about your relationship with people outside your immediate family, whom you knew **before your move.** Please list the first name and last initial of one or more people (if applicable). Please use names and initials you will be able to recognize at a later time. We may ask you questions about some of these people in a later questionnaire. If you have already mentioned a person on a previous page, please do not mention them again.

   a. Please list people who helped you with useful information or referrals. For example, these are people who gave you advice about important purchases, helped you find a doctor or realtor, or referred you to people or organizations at your new location.

1) _____ M F _____age	2) _____ M F _____ age	3) _____ M F _____age

2. From the list above, please select one person **who is closest to you in age** and answer the following questions about them. Please indicate this persons' first name and last initial _____

a. Before the move, how close did s/he live?	1) Within 5 min drive	2) Within 15 min drive	3) Within 30 min drive	4) Within 1-2 hr drive	5) Within 3-4 hr drive	6) Further away
b. Currently, how close to you does s/he live?	1) Within 5 min drive	2) Within 15 min drive	3) Within 30 min drive	4) Within 1-2 hr drive	5) Within 3-4 hr drive	6) Further away

c. How long have you known her/him?	< 1 month	< 3 months	< 6 months	< 1 year	< 2 years	< 3 years	3+ years

d. What is her/his relation to you?	1. Romantic partner	2. Close friend	3. Friend
	4. Acquaintance	5. Relative	6. Other _____
e. How did you meet her/him?	1. Was a neighbor	2. Through school or work	3. Is a relative
	4. Through a mutual friend	5. Through club/hobby	6. Met online

3. **In the 6 months before your move**, how frequently did you communicate with him/her by these modes of communication?

	Many times per day	Daily	Weekly	Biweekly	Monthly	Less often	Never
a. In person	1	2	3	4	5	6	7
b. By phone	1	2	3	4	5	6	7
c. By e-mail	1	2	3	4	5	6	7
d. By instant messaging	1	2	3	4	5	6	7
e. By text messaging (SMS)	1	2	3	4	5	6	7

	Not at all				Very
f. How close do you feel to him/her?	1	2	3	4	5

	Yes	No	Do Not Know
g. Does s/he have a cell phone?	1	2	3
h. Does s/he have an Internet connection at home?	1	2	3
i. Does s/he have an Internet connection at work?	1	2	3

4. **In the 6 months before your move**, how frequently did you do the following with him/her?

	Infrequently				Frequently
a. Receive practical favors or help?	1	2	3	4	5
b. Engage in hobbies or spare time interests?	1	2	3	4	5
c. Participate in leisure activities together?	1	2	3	4	5
d. Discuss important personal matters?	1	2	3	4	5
e. Receive emotional support?	1	2	3	4	5
f. Receive useful advice or information?	1	2	3	4	5

Section 7d. People whom you first met online

1. The following question asks about your relationship with people outside your immediate family, whom you knew **before your move.** Please list the first name and last initial of one or more people (if applicable). Please use names and initials you will be able to recognize at a later time. If you have already mentioned a person on a previous page, please do not mention them again.

   b. Please list people whom you first met online. For example, these may be people whom you met on a news site, through a distribution list, in a chat room or online game or through an online dating service.

1) _____ M F _____age	2) _____ M F _____ age	3) _____ M F _____age

2. From the list above, please select one person **who is closest to you in age** and answer the following questions about them. Please indicate this persons' first name and last initial _____

a. Before the move, how close did s/he live?	1) Within 5 min or less	2) Within 15 min drive	3) Within 30 min drive	4) Within 1-2 hr drive	5) Within 3-4 hr drive	6) Further away
b. Currently, how close to you does s/he live?	1) Within 5 min or less	2) Within 15 min drive	3) Within 30 min drive	4) Within 1-2 hr drive	5) Within 3-4 hr drive	6) Further away

c. How long have you known her/him?	< 1 month	< 3 months	< 6 months	< 1 year	< 2 years	< 3 years	3+ years

d. What is her/his relation to you?	1. Romantic partner	2. Close friend	3. Friend
	4. Acquaintance	5. Relative	6. Other _____

e. How did you meet her/him?

- ☐1 Someone I knew introduced me
- ☐2 Activity or hobby-oriented website or mailing list
- ☐3 Chat rooms
- ☐4 Instant Messenger
- ☐5 Dating web-sites site or mailings (e.g. match.com, Friendster)
- ☐6 On-line gaming (e.g., yahoo games and/or MMORPGs)
- ☐7 Community/school/work websites at the new location
- ☐8 Other (please specify) _____

3. In the 6 months before your move, how frequently did you communicate with him/her

	Many times per day	Daily	Weekly	Biweekly	Monthly	Less often	Never
a. In person	1	2	3	4	5	6	7
b. By phone	1	2	3	4	5	6	7
c. By e-mail	1	2	3	4	5	6	7
d. By instant messaging	1	2	3	4	5	6	7
e. By text messaging (SMS)	1	2	3	4	5	6	7

	Not at all				Very
f. How close do you feel to him/her?	1	2	3	4	5

	Yes	No	Do Not Know
g. Does s/he have a cell phone?	1	2	3
h. Does s/he have an Internet connection at home?	1	2	3
i. Does s/he have an Internet connection at work?	1	2	3

4. In the 6 months before your move, how frequently did you do the following with him/her?

	Infrequently				Frequently
a. Receive practical favors or help?	1	2	3	4	5
b. Engage in hobbies or spare time interests?	1	2	3	4	5
c. Participate in leisure activities together?	1	2	3	4	5
d. Discuss important personal matters?	1	2	3	4	5
e. Receive emotional support?	1	2	3	4	5
f. Receive useful advice or information?	1	2	3	4	5

Section 8. People whom you met at your new location

1. The following question asks about your relationship with people outside your immediate family, whom you met **at your new location.** Please list the first name and last initial of one or more people (if applicable). Please use names and initials you will be able to recognize at a later time. If you have already mentioned a person on a previous page, please do not mention them again.

   a. Please list people whom you met at your new location, whom you did not know 6 months before your move.

1) _____ M F _____age	2) _____ M F _____ age	3) _____ M F _____age

2. From the list above, please select one person **who is closest to you in age** and answer the following questions about them. Please indicate this persons' first name and last initial _____

a. Currently, how close to you does s/he live?	1) Within 5 min drive	2) Within 15 min drive	3) Within 30 min drive	4) Within 1-2 hr drive	5) Within 3-4 hr drive	6) Further away
b. How long have you known her/him?	< 1 month	< 3 months	< 6 months	< 1 year	< 2 years	< 3 years	3+ years
c. What is her/his relation to you?	1. Romantic partner	2. Close friend	3. Friend			
	4. Acquaintance	5. Relative	6. Other _____			
d. How did you meet her/him?	1. Is a neighbor	2. Through school or work	3. Is a relative			
	4. Through a mutual friend	5. Through club/hobby	6. Met online			

f. If met online, please specify how you met them

- ☐1 Someone I knew introduced me
- ☐2 Activity or hobby-oriented website or mailing list
- ☐3 Chat rooms
- ☐4 Instant Messenger
- ☐5 Dating web-sites site or mailings (e.g. match.com, Friendster)
- ☐6 On-line gaming (e.g., yahoo games and/or MMORPGs)
- ☐7 Community/school/work websites at the new location
- ☐8 Other (please specify) _____

3. **Currently,** how frequently did you communicate with him/her by these modes of communication?

	Many times per day	Daily	Weekly	Biweekly	Monthly	Less often	Never
a. In person	1	2	3	4	5	6	7
b. By phone	1	2	3	4	5	6	7
c. By e-mail	1	2	3	4	5	6	7
d. By instant messaging	1	2	3	4	5	6	7
e. By text messaging (SMS)	1	2	3	4	5	6	7

	Not at all				Very
f. How close do you feel to him/her?	1	2	3	4	5

	Yes	No	Do Not Know
g. Does s/he have a cell phone?	1	2	3
h. Does s/he have an Internet connection at home?	1	2	3
i. Does s/he have an Internet connection at work?	1	2	3

4. **Currently**, how frequently did you do the following with him/her?

	Infrequently				Frequently
a. Receive practical favors or help?	1	2	3	4	5
b. Engage in hobbies or spare time interests?	1	2	3	4	5
c. Participate in leisure activities together?	1	2	3	4	5
d. Discuss important personal matters?	1	2	3	4	5
e. Receive emotional support?	1	2	3	4	5
f. Receive useful advice or information?	1	2	3	4	5

Section 9. Communication in your household 6 months BEFORE the move.

1. Prior to your move, how many males and females in each of the following age brackets lived in your household? Include yourself in these counts.

	Males	Females
a. Adults 21 years and older		
b. Young adults, aged 16 to 20		
c. Teens, aged 12 to 15		
d. Children, aged 0 to 11		

2. Who was the person in your household who was closest to you in age? List their first name here. **(IF YOU LIVE ALONE, PLEASE SKIP TO SECTION 10)** _____

a.	Has this person moved with you to your new location?	☐1 Yes	☐2 No				
b.	How old is this household member?	_____ yrs.					
c.	What is this person's gender?					Male	Female
d.	How long have you known this person?	< 1 month	< 3 months	< 6 months	< 1 year	< 2 years	< 3 years	3+ years
e.	What was this person's relation to you?	1. Spouse / partner	2. Parent	3. Child			
		4. Other relative	5. Roommate	6. Other _____			

3. In the 6 months before your move, how frequently did you communicate with him/her by these modes of communication?

	Many times per day	Daily	Weekly	Biweekly	Monthly	Less often	Never
a. In person	1	2	3	4	5	6	7
b. By phone	1	2	3	4	5	6	7
c. By e-mail	1	2	3	4	5	6	7
d. By instant messaging	1	2	3	4	5	6	7
e. By text messaging (SMS)	1	2	3	4	5	6	7

	Not at all				Very
f. How close do you feel to him/her?	1	2	3	4	5

	Yes	No	Do Not Know
g. Does s/he have a cell phone?	1	2	3
h. Does s/he have an Internet connection at home?	1	2	3
i. Does s/he have an Internet connection at work?	1	2	3

4. In the 6 months before your move, how frequently did you do the following with him/her?

	Infrequently				Frequently
a. Receive practical favors or help?	1	2	3	4	5
b. Engage in hobbies or spare time interests?	1	2	3	4	5
c. Participate in leisure activities together?	1	2	3	4	5
d. Discuss important personal matters?	1	2	3	4	5
e. Receive emotional support?	1	2	3	4	5
f. Receive useful advice or information?	1	2	3	4	5

Section 10. The social network

The following question relates to the people you have described in detail in **Sections 7a-d, Section 8** and **Section 9**. Please fill in the appropriate names (if you didn't answer about someone in one of the sections, leave that row or column blank and ignore corresponding cells).

Please check "Yes" for pairs of people who have communicated with each other over the last 6 months. For example, if the person you described in Section 7a has communicated with the person you described in Section 9 (Household member) over the last 6 months, check yes in the cell where these people come together.

	_____ from Section 7B	**_____ from Section 7C**	**_____ from Section 7D**	**_____ from Section 8**	**_____ From Section 9**
_____ from Section 7A	☐1 Yes ☐2 No	☐1 Yes ☐2 No	☐1 Yes ☐2 No	☐1 Yes ☐2 No	☐1 Yes ☐2 No
_____ from Section 7B		☐1 Yes ☐2 No	☐1 Yes ☐2 No	☐1 Yes ☐2 No	☐1 Yes ☐2 No
_____ from Section 7C			☐1 Yes ☐2 No	☐1 Yes ☐2 No	☐1 Yes ☐2 No
_____ from Section 7D				☐1 Yes ☐2 No	☐1 Yes ☐2 No
_____ from Section 8					☐1 Yes ☐2 No

Section 11. Problems and life events

This question asks about the problems and hassles you've experienced **during the last 4 weeks**. The list below includes areas where you might have experienced both minor annoyances and major pressures or difficulties. They can occur few or many times in 4 weeks. Check the Yes box next to each problem or hassle that you experienced even if you experienced it only once **in the last 4 weeks**. If you have not experienced this problem **in the last 4 weeks**, please check No.

	Yes	No		Yes	No
1. Housework	☐1	☐2	2. Time spent with family	☐1	☐2
3. Enough money for extras	☐1	☐2	4. People at work	☐1	☐2
5. Your work load	☐1	☐2	6. Your neighborhood	☐1	☐2
7. Political or social issues	☐1	☐2	8. Car maintenance	☐1	☐2
9. Minor repairs	☐1	☐2	10. Your medical care	☐1	☐2
11. Your health	☐1	☐2	12. Your friends	☐1	☐2
13. Sex	☐1	☐2	14. Family-related obligations	☐1	☐2
15. Being organized	☐1	☐2	16. School	☐1	☐2
17. Enough money for necessities	☐1	☐2	18. The weather	☐1	☐2
19. The nature of your work	☐1	☐2	20. Members of your family	☐1	☐2
21. News events	☐1	☐2	22. Taking care of paper work	☐1	☐2
23. Yard work	☐1	☐2	24. Your physical appearance	☐1	☐2
25. Your physical abilities	☐1	☐2	26. Social commitments	☐1	☐2
27. Home entertainment	☐1	☐2	28. Job-related deadlines, goals	☐1	☐2
29. Conserving — gas, electricity, etc	☐1	☐2	30. Health or well-being of family member	☐1	☐2
31. Recreation and entertainment outside home				☐1	☐2

Section 12. Dealings with others

1. To what extent do you agree with the statements below about your relationships with other people? **(PLEASE CHECK ONE BOX FOR EACH ITEM)**

	Strongly agree	Moderately agree	Neutral	Moderately disagree	Strongly disagree
a. If I wanted to go on a trip for a day (for example, to the country or mountains), I would have a hard time finding someone to go with me	☐1	☐2	☐3	☐4	☐5
b. I feel that there is no one I can share my most private worries and fears with	☐1	☐2	☐3	☐4	☐5
c. If I were sick, I could easily find someone to help me with my daily chores	☐1	☐2	☐3	☐4	☐5
d. There is someone I can turn to for advice about handling problems with my family	☐1	☐2	☐3	☐4	☐5
e. If I decide one afternoon that I would like to go to a movie that evening, I could easily find someone to go with	☐1	☐2	☐3	☐4	☐5
f. When I need suggestions on how to deal with a personal problem, I know someone I can turn to	☐1	☐2	☐3	☐4	☐5
g. I don't often get invited to do things with others	☐1	☐2	☐3	☐4	☐5
h. If I had to go out of town for a few weeks, it would be difficult to find someone who would look after my house or apartment (the plants, pets, garden, etc.)	☐1	☐2	☐3	☐4	☐5
i. If I wanted to have lunch with someone, I could easily find someone to join me	☐1	☐2	☐3	☐4	☐5
j. If I was stranded 10 miles from home, there is someone I could call who could come and get me	☐1	☐2	☐3	☐4	☐5
k. If a family crisis arose, it would be difficult to find someone who could give me good advice about how to handle it	☐1	☐2	☐3	☐4	☐5
l. If I needed some help in moving to a new house or apartment, I would have a hard time finding someone to help me	☐1	☐2	☐3	☐4	☐5

Section 13. Your mood and behavior

1. Below is a list of the ways you might have felt or behaved recently. Please indicate how many days in the past week you felt this way by checking the appropriate box.

	5-7 days	3-4 days	1-2 days	0 days
a. I was happy	☐1	☐2	☐3	☐4
b. I felt that everything I did was an effort	☐1	☐2	☐3	☐4
c. I felt depressed	☐1	☐2	☐3	☐4
d. My sleep was restless	☐1	☐2	☐3	☐4
e. I felt lonely	☐1	☐2	☐3	☐4
f. I could not "get going"	☐1	☐2	☐3	☐4
g. I had trouble keeping my mind on what I was doing	☐1	☐2	☐3	☐4
h. I was bothered by things that don't usually bother me	☐1	☐2	☐3	☐4
i. I felt hopeful about the future	☐1	☐2	☐3	☐4
j. I felt fearful	☐1	☐2	☐3	☐4
k. I felt that I could not shake off the blues even with help from my family or friends	☐1	☐2	☐3	☐4
l. I had periods of irritability or anger	☐1	☐2	☐3	☐4

Section 14. Time and Social Relationships

1. Here are a number of statements about characteristics that may or may not apply to you. Please indicate whether each of them applies to you (**CHECK ONE BOX FOR EACH ITEM**)

	Strongly agree	Moderately agree	Neutral	Moderately disagree	Strongly disagree
a. I often feel under stress because I don't have enough time	☐1	☐2	☐3	☐4	☐5
b. I spend enough time with my family and friends	☐1	☐2	☐3	☐4	☐5
c. I have plenty of time for fun these days	☐1	☐2	☐3	☐4	☐5
d. I never seem to have enough time to do what's necessary around the house	☐1	☐2	☐3	☐4	☐5
e. I am frequently interrupted	☐1	☐2	☐3	☐4	☐5
f. I feel part of a group of friends	☐1	☐2	☐3	☐4	☐5
g. I feel my interests and ideas are not shared by those around me	☐1	☐2	☐3	☐4	☐5
h. I feel outgoing and friendly	☐1	☐2	☐3	☐4	☐5
i. I can find companionship when I want it	☐1	☐2	☐3	☐4	☐5
j. I feel isolated from others	☐1	☐2	☐3	☐4	☐5
k. I feel there is no one I can turn to	☐1	☐2	☐3	☐4	☐5

Section 15. About you

1. Here are a number of statements about characteristics that may or may not apply to you. Please indicate whether each of them applies to you **(CHECK ONE BOX FOR EACH ITEM)**

	Strongly agree	Moderately agree	Neutral	Moderately disagree	Strongly disagree
a. I am talkative	☐1	☐2	☐3	☐4	☐5
b. I am reserved	☐1	☐2	☐3	☐4	☐5
c. I am full of energy	☐1	☐2	☐3	☐4	☐5
d. I generate a lot of enthusiasm	☐1	☐2	☐3	☐4	☐5
e. I tend to be quiet	☐1	☐2	☐3	☐4	☐5
f. I have an assertive personality	☐1	☐2	☐3	☐4	☐5
g. I am sometimes shy and inhibited	☐1	☐2	☐3	☐4	☐5
h. I am outgoing or sociable	☐1	☐2	☐3	☐4	☐5
i. I am original and can come up with new ideas	☐1	☐2	☐3	☐4	☐5
j. I am ingenious and a deep thinker	☐1	☐2	☐3	☐4	☐5
k. I am inventive	☐1	☐2	☐3	☐4	☐5
l. I prefer work that is routine	☐1	☐2	☐3	☐4	☐5
m. I like to reflect on and play with ideas	☐1	☐2	☐3	☐4	☐5
n. I have few artistic interests	☐1	☐2	☐3	☐4	☐5
o. I am sophisticated in art, music, or literature	☐1	☐2	☐3	☐4	☐5

2. Here are a number of statements about characteristics that may or may not apply to you. Please indicate whether you agree or disagree with each statement.
(CHECK ONE BOX FOR EACH ITEM)

	Strongly agree	Moderately agree	Neutral	Moderately disagree	Strongly disagree
a. In most ways my life is close to my ideal	☐1	☐2	☐3	☐4	☐5
b. The conditions of my life are excellent	☐1	☐2	☐3	☐4	☐5
c. I am satisfied with my life	☐1	☐2	☐3	☐4	☐5
d. So far I have gotten the important things I want in life	☐1	☐2	☐3	☐4	☐5
e. If I could live my life over, I would change almost nothing	☐1	☐2	☐3	☐4	☐5

Section LAST. Describing yourself

1. What is your name?
   First name _____ Last name _____

2. What is your gender?
   - ☐1 Male
   - ☐2 Female

3. What is your date of birth? _____/_____/_____
   month / day / year

4. Are you a full or part-time student? **(CHECK ONE BOX)**
   - ☐1 Yes, full-time
   - ☐2 Yes, part-time
   - ☐3 No, neither

5. Which of the categories below best describes your present employment status? **(CHECK ONE BOX)**
   - ☐1 Employed full-time (including self-employed)
   - ☐2 Employed part-time (including self-employed)
   - ☐3 Not employed
   - ☐4 Retired
   - ☐5 Disabled
   - ☐6 Other _____ (specify)

6. What is the highest degree or level of school you have COMPLETED?
   (**CHECK ONE BOX. IF CURRENTLY ENROLLED, MARK THE PREVIOUS GRADE OR HIGHEST DEGREE RECEIVED**)
   - ☐1 No schooling completed
   - ☐2 Nursery school to 4th grade
   - ☐3 5th grade to 8th grade
   - ☐4 9th grade to 12th grade (NO DIPLOMA)
   - ☐5 High school graduate (HIGH SCHOOL DIPLOMA OR AN EQUIVALENT)
   - ☐6 Some college credit, but less than 1 year
   - ☐7 1 or more years of college, no degree
   - ☐8 Associate degree (for example: AA, AS)
   - ☐9 Bachelor's degree (for example: BA, AB, BS)
   - ☐10 Master's degree (for example: MA, MS, MEng, Med)
   - ☐11 Professional degree (for example: MD, DDS, DVM, LLB, JD)
   - ☐12 Doctorate degree (for example: PhD, EdD)

7. If you would like to complete surveys online in the future, please list your e-mail address

   _____