TESTING A USES AND GRATIFICATIONS MODEL OF ONLINE RELATIONSHIPS

A dissertation submitted to the College of Communication and Information of Kent State University in partial fulfillment of the requirements for the degree of Doctor of Philosophy

By

Vikanda Pornsakulvanich

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CHAPTER I
INTRODUCTION

Computer-Mediated Communication (CMC) offers a wide range of communicative, informational, and entertainment services. More and more people around the world select CMC as a tool for sending e-mail, checking news, doing research, playing games, downloading music or movies, keeping in touch with family and friends, seeking similar others, and buying products.

CMC has been defined as “synchronous and asynchronous electronic mail and computer conferencing by which senders encode in text messages that are relayed from senders’ computers to receivers” (Walther, 1992, p. 52). As functions of CMC have expanded, CMC has come to refer to “a wide range of technologies that facilitate both human communication and the interactive sharing of information through computer networks, including e-mail, discussion groups, newsgroups, chat, instant messages, and Web pages” (Barnes, 2003, p. 4). In this study, CMC is limited to Internet-based CMC, which includes all functions of CMC on the Internet: e-mail, chatrooms, discussion boards, instant messages, Web pages, and Internet telephone. The Internet is “a network of computers that allows for the transmission of data” (Wood & Smith, 2001, p. 33).

Both synchronous CMC and asynchronous CMC provide new venues for social interaction. Synchronous mediated communication, such as IM (Instant Messaging), MUDs (Multi-User Dungeons), or MOOs (Multi-User Object Domains), allows participants to communicate concurrently with others. Conversely, asynchronous
mediated communication such as e-mail or Usenet newsgroups allows participants to communicate with others one-at-a-time, but not simultaneously (Morris & Ogan, 1996). E-mail and instant messaging are the most popular Internet activities (Cummings, Butler, & Kraut, 2002). E-mail has become an essential and convenient tool for communicating with friends and family. MOOs and MUDs have been a common playground for meeting new people and talking to others who have similar interests.

Recent evidence shows that communicating interpersonally is one of the most important reasons people use CMC (University of California, 2003). People have basic interpersonal needs to belong, to be part of a group, to have relationships with others, and to be loved by others (Baumeister & Leary, 1995). Naturally, people communicate to fulfill their interpersonal needs for inclusion, affection, and control (Schutz, 1966).

With the increasing use of CMC for interpersonal communication, CMC has been a valuable tool for many people to form, maintain, and develop relationships (McKenna & Bargh, 1999; Parks & Floyd, 1996; Parks & Roberts, 1998; Utz, 2000; Walther, 1992, 1994, 1996). Anonymity in synchronous and asynchronous CMC may offer opportunities for people, specifically for those who suffer from a social deficit, to disclose information about themselves, to initiate conversation, and to form close relationships in ways that may not be achieved in face-to-face interactions.

In the past decade, researchers mainly looked at how people used CMC, in general, but few focused on how and why certain people used CMC differently from others. Individual differences such as loneliness and unwillingness to communicate should influence how CMC is used to communicate and build relationships. In this study,
I examine the role individual differences, motives, and CMC use play in the outcomes of using CMC. The next sections provide current theoretical perspectives and a rationale for the study.

Statement of Problem

People are different in their social and psychological conditions, which may affect how and why they use media to fulfill their needs (Katz, Blumler, & Gurevitch, 1974). Past research on relational communication via CMC has seldom looked at the influence of individual differences and motives on the use of CMC. Most CMC research has examined how people, in general, use CMC for relational communication and how they form, develop, and maintain relationships in CMC settings in which physical and nonverbal cues are restricted. Social information processing (SIP) theory (Walther, 1992) and the hyperpersonal perspective (Walther, 1996) usually have been used to explain relational communication.

SIP theory and the hyperpersonal perspective contradict the early notion that the absence of nonverbal cues in CMC interactions leads to impersonal and hostile communication (Culnan & Markus, 1987; Daft & Lengel, 1984; Short, Williams, & Christie, 1976; Sproull & Kiesler, 1986). According to these two perspectives, the lack of social cues in CMC does not make CMC interactions unpleasant. Rather, the hyperpersonal perspective suggests that CMC can lead to equal or even more socially desirable interactions than do face-to-face interactions (Walther, 1996). SIP theory suggests that people can use textual messages to form impressions and to develop
relationships with others through CMC (Walther, 1992). The two perspectives help us understand relational communication via CMC, in general.

SIP theory and the hyperpersonal perspective, however, do not take into account the possible effects of individual differences on CMC use. For example, people who have difficulties in face-to-face interaction (e.g., communication avoidance) may communicate better in CMC settings. Similar to Armstrong and Rubin’s (1989) finding that callers who perceived face-to-face communication to be less rewarding considered talk radio as a nonthreatening alternative to face-to-face interactions, individual differences should affect how people use CMC to fulfill their interpersonal needs.

Thus far, SIP theory and the hyperpersonal perspective have overlooked the influence of individual differences on CMC use. We do not understand fully how loneliness, unwillingness to communicate, CMC motives, and CMC use and interaction explain outcomes of using CMC such as communication satisfaction and relationship closeness, how CMC serves as a functional alternative to face-to-face communication among those who have different dispositions, and how types of online relationships influence differences in CMC use and interaction. Thus, additional research on the role of individual differences and motives for CMC use is warranted. Chenault (1998) stated that the scarcity of studies on CMC and online personal relationships must be overcome. Parks and Floyd (1996) suggested that scholars should explore the development of online relationships among people with limited opportunities for face-to-face interaction.

This study attempts to examine how communication and social-personal dispositions affect CMC use for relational communication by using a different theoretical
framework—uses and gratifications. In the next section, I provide a rationale why the uses and gratifications perspective helps explain differences in how and why people use CMC for interpersonal communication.

Rationale for the Study

Different from SIP theory and the hyperpersonal perspective, uses and gratifications (U&G) emphasizes the role of individual differences, media use, and choice. It views people as active and goal-oriented in their communication behavior. Basically, U&G has three major purposes: to understand how people use media to gratify their needs, to explain motives for media use, and to determine the outcomes of using media (Katz et al., 1974).

Several scholars have suggested that U&G is appropriate for studying new media technologies (Morris & Ogan, 1996; Newhagen & Rafaeli, 1996; A. M. Rubin & Bantz, 1989). U&G has been used to explain aspects of CMC use such as Internet use for social communication and self-presentation (Birnie & Horvath, 2002; Flaherty, Pearce, & Rubin, 1998; Papacharissi, 2002; Papacharissi & Rubin, 2000; Wright, 2002). These studies provide evidence that U&G is valuable for studying how and why people use the Internet. For instance, Wright (2002) applied U&G to explain motives for communication within online support groups and found that convenience was the most salient motive for using online support. Also, perceptions of similarity were positively related to interpersonal motives for using online social support groups. Papacharissi (2002) studied motives for creating a personal home page by using U&G as a theoretical framework and found that information and entertainment were the most important motives for creating
the personal home page. People who did not find face-to-face communication rewarding spent the most time on the Internet and tended to create their personal home page for passing time and entertainment.

Guided by U&G, this study had three main purposes. First, I tested a model of CMC use for online relationships by examining the influence of unwillingness to communicate, loneliness, CMC motives, and CMC use and interaction (e.g., the amount and types of use and self-disclosure) on attitudinal and behavioral outcomes: communication satisfaction and online relationship closeness. Second, I examined differences in CMC motives for interpersonal communication among those who had different dispositions. Third, I investigated how types of online relationships (i.e., purely virtual, migratory mixed-mode, and traditional long-distance relationships) influence differences in the amount of CMC use, types of CMC selected, and self-disclosure.

Regarding the first purpose, I focused on the influence of two dispositions: unwillingness to communicate and loneliness on CMC use. Such dispositions are particularly meaningful to the study of online relationships. Both unwillingness to communicate and loneliness are considered social deficits attributable to communication avoidance and devalued interpersonal interactions. These dispositions are related to unfulfilled interpersonal communication needs in face-to-face interactions (e.g., Armstrong & Rubin, 1989; Weiss, 1973). Past research suggests that people who do not find face-to-face communication rewarding or satisfying are motivated to use media to gratify their interpersonal needs (Armstrong & Rubin, 1989; Papacharissi & Rubin, 2000). Morahan-Martin and Schumacher (2003) suggested that CMC provides an ideal
social setting for satisfying needs of belongingness and companionship. With CMC’s
diverse functions such as e-mail, instant messaging, and discussion boards, CMC settings
offer a variety of choices for people who do not find face-to-face communication
satisfying to meet new people, to share thoughts and opinions, and, possibly, to develop
close relationships with other users.

According to U&G, people communicate to gratify their felt needs, which
emanate from social and psychological conditions. These needs produce motives that
affect communication behaviors, which result in cognitive, affective, and behavioral
outcomes such as learning, satisfaction, and a desire of subsequent interaction (Katz et
al., 1974; R. B. Rubin & Rubin, 1992). Hence, differences in unwillingness to
communicate and loneliness should affect CMC motives. Motivation should influence
CMC use and interaction, which, in turn, affect the outcomes of CMC use.

In addition, this study focused on two outcomes: online relationship closeness and
communication satisfaction. Communication satisfaction and relationship closeness
usually have been defined and studied in face-to-face contexts (e.g., Hecht, 1978a;
Wheeless, 1978). In this study, these concepts are applied to the study of relationships in
online settings. Online relationship closeness is perceived satisfaction in relationships as
a result of sharing similarities in personal characteristics, pleasant sentiments, behaviors,
and symbolic expressions (Wheeless, 1978). Communication satisfaction refers to the
fulfillment of positive communicative expectations through online interactions (Hecht,
1978a). These two outcomes are crucial to the study of online relationships because they
reflect interpersonal needs to be fulfilled through online interactions.
Need fulfillment is a central premise of U&G. According to R. B. Rubin and Rubin (1992), U&G provides a framework to understand both personal and mediated communication, which allows us to examine media gratifications and interpersonal outcomes such as interpersonal need fulfillment. R. B. Rubin, Perse, and Barbato (1988) suggested that levels of satisfaction are associated with need fulfillment.

Scholars usually have used U&G to explain mass media such as television, radio, and newspaper, which have limited interpersonal utility. However, researchers have focused less attention on interpersonal motives for using CMC and interpersonal need fulfillment in CMC settings (Wright, 2002). With the unique functions of CMC for interpersonal and mediated communication, it is meaningful to study how and why people communicate interpersonally in mediated settings. Given the limited study in this area, the questions of how CMC is used to gratify interpersonal needs and how communication satisfaction and online relationship closeness are related to unwillingness to communicate, loneliness, CMC motives, and CMC use and interaction deserve further exploration. Examining these relationships would extend our knowledge of a U&G model to understand interpersonal need fulfillment in CMC contexts, to understand communication as a whole process, and to predict communication outcomes better.

Wright (2002) noted that investigating interpersonal needs in mediated contexts provides “researchers insight into the reasons why people may or may not become involved with a medium and this allows for predicting the circumstances in which the medium will be used” (p. 91).
The second purpose of this study was to examine differences in CMC motives for interpersonal communication among those who had different dispositions, specifically unwillingness to communicate and loneliness. Rosengren and Windahl (1972) proposed that media can be a substitute, a supplement, or a complement to face-to-face interpersonal communication. Media supplement interpersonal communication when people are satisfied with both individual and environmental possibilities to gratify needs. On the other hand, media substitute for interpersonal communication when people are not satisfied with individual or environmental possibilities to fulfill needs. Thus, it is expected that people who have different dispositions should differ in their motivation to use CMC for gratifying interpersonal needs. Those who do not find face-to-face communication satisfying (i.e., avoid communication) should be motivated to use CMC to communicate interpersonally more than those who find face-to-face communication to be rewarding. In this way, they use CMC as a substitute to interpersonal communication.

Researchers have examined whether CMC is a functional alternative to interpersonal communication. Flaherty et al. (1998) suggested that CMC was not a functional alternative to face-to-face communication. Participants preferred face-to-face communication to fulfill their communication needs. Papacharissi and Rubin (2000), though, reported that those who found face-to-face communication less rewarding used CMC as a functional alternative to interpersonal communication. Nonetheless, prior studies have not examined how dispositions, namely unwillingness to communicate and loneliness, affect CMC motives to communicate interpersonally. Therefore, in this study, I examined differences in CMC motives for interpersonal communication among people
with high and low levels of communication avoidance, and chronic and situational loneliness. This investigation should help us understand better the effects of dispositions on interpersonal communication needs and the role of CMC as a functional alternative to face-to-face interpersonal communication.

The third purpose was to investigate whether types of online relationships influence differences in the amount and type of CMC use and self-disclosure. This study emphasizes three types of online relationships: purely virtual, migratory mixed-mode, and traditional long-distance relationships. According to Stafford (2005), purely virtual relationships are relationships between people who meet online and stay in touch only through online interactions. Migratory mixed-mode relationships are relationships between people who meet online and then engage in face-to-face meetings. Traditional long-distance relationships are relationships between people who meet offline and use CMC with other traditional media to stay in touch.

Most research on relational communication via CMC has examined purely virtual relationships (Rabby & Walther, 2003). Walther and Parks (2002) pointed out that many CMC users migrated to offline channels or used CMC to stay in touch with their family and friends. Moreover, Baym, Zhang, and Lin (2004) suggested that types and geographical distance of relationships influenced how a CMC channel was selected for social interaction. Stafford (2005) suggested that CMC might have less impact on those who use it as an additional channel of communication. However, little is known about how people who are in different types of online relationships use each function of CMC (e.g., e-mail, instant messaging, dating sites) and how they differ in the amount, depth,
and honesty of self-disclosure. It is meaningful to explore further the effects of types of online relationships on CMC use and interaction to understand better the link between online interpersonal relationships and communication behavior.

In the next section, I provide the theoretical framework to understand need fulfillment, goal-directed behavior, and media uses and gratifications (U&G) by reviewing interpersonal need fulfillment and U&G. Second, I review representative literature about individual differences, motives, online relationships, CMC use and interaction, and behavioral and attitudinal outcomes. Third, I present a model of CMC use for online relationships. Lastly, I propose hypotheses and research questions for the study.

Theoretical Framework

*Interpersonal Need Fulfillment*

In everyday life, people communicate for a variety of purposes such as sharing feelings and opinions with others, seeking information, keeping in touch with friends and family, and passing time. Generally, they communicate to gratify their interpersonal needs (Schutz, 1966). Indeed, Maslow (1954) considered love and belongingness to be fundamental needs for human beings. Schutz (1966) explained that people have a fundamental interpersonal relations orientation toward others based upon three needs: inclusion, control, and affection. Inclusion refers to the need to be attended to, to belong to, and to be known by others. Control is the need for power, influence, and control over others and over one’s future, and the need to be controlled by others. Affection refers to the need to have close relationships with someone, to love, and to be loved by others.
Similar to Schutz (1966), Baumeister and Leary (1995) explained that human beings have a need to belong, which is “a need to form and maintain at least a minimum quantity of interpersonal relationships” (p. 499). Clearly, people are motivated to form and to maintain quality, positive, and significant interpersonal relationships with others. Satisfying the need to belong involves two criteria. First, people need to have frequent, affectively pleasant personal interactions with others. Second, people need to perceive their interactions with others are stable and enduring, and display affective concern for each other’s well-being. The absence of belongingness causes deprivation and a diversity of ill effects on health and well-being (Baumeister & Leary, 1995).

In fact, interpersonal needs and interpersonal motives are related. As A. M. Rubin and Windahl (1986) noted, “needs are manifested in motives. Motives are the expectations generated for communication behavior. A need for belongingness, for instance, may produce a motive to use communication channels to seek companionship” (p. 191). In addition to Schutz’s (1966) three interpersonal needs of inclusion, control, and affection, R. B. Rubin et al. (1988) suggested three additional fundamental interpersonal communication motives: pleasure, relaxation, and escape. Pleasure refers to communicating for fun and entertainment. Escape refers to communicating to get away from other activities. Relaxation refers to communicating to rest and to unwind.

Interpersonal needs lead to goal-directed behaviors (Schutz, 1966). Schutz suggested that interpersonal needs influence interpersonal communication and are fulfilled through attaining satisfactory relationships with others. To fulfill interpersonal needs, people engage in personal interactions and seek to form relationships with others.
However, when interpersonal needs cannot be fulfilled through face-to-face interaction, people use other channels of communication to gratify their needs (Rosengren & Windahl, 1972). Media can serve as functional alternatives when other activities (e.g., face-to-face interaction) cannot fulfill people’s needs (Katz et al., 1974). Need fulfillment, goal-directed communication behavior, and functional alternatives are the central premise of U&G. This will be reviewed in the next section.

*Uses and Gratifications Perspective*

U&G has been used to explain uses and effects of interpersonal and mediated communication channels (A. M. Rubin & Bantz, 1989; A. M. Rubin & Rubin, 1989; R. B. Rubin et al., 1988), as well as uses and effects of new media technologies such as videocassette recorders (VCRs) and CMC (e.g., Flaherty et al., 1998; Papacharissi, 2002; Papacharissi & Rubin, 2000; A. M. Rubin & Bantz, 1989).

U&G is a psychological perspective that emphasizes the active role of people in selecting media to fulfill their needs. It focuses on explaining how and why people use the media rather than how the media influence people (Klapper, 1963). Fisher (1978) proposed that “communicators actively control the information they process” (p. 156). Active communicators will select what information they wish to receive, what information they will remember, and what information they wish to convey to others. A. M. Rubin (1993) suggested that a valid view of audience activeness lies between “(a) being ‘passive’ and expected to be influenced by the communicated messages, or (b) being ‘active’ and expected to make rational decisions about what media content to accept or reject” (p. 98).
U&G has been studied, expanded, and revised over the years (Katz et al., 1974; Palmgreen, 1984; Palmgreen, Wenner, & Rayburn, 1980; A. M. Rubin, 2002; A. M. Rubin & Windahl, 1986). According to A. M. Rubin (2002), U&G includes five underlying assumptions. First, people are active, goal-directed, and motivated in selecting their media for consumption. Second, people select and use the appropriate channels of communication to gratify their needs and wants. Third, different people have diverse communication behaviors, which are based upon social and psychological factors. Fourth, social and psychological situations influence how well media can serve and satisfy people’s needs and wants. Media can be functional alternatives to other channels of communication. Finally, people are usually more influential than media, but not always. When people are not satisfied with their choice of communication channels, they may select functional alternatives.

Functional Alternatives

According to Rosengren and Windahl (1972), functional alternatives refer to various ways of satisfying needs. In general, people’s needs—such as the need for social interaction—may be satisfied in more than one way. For example, a traditional way to satisfy the need for social interaction is face-to-face meetings. However, other ways to satisfy this need, that is, functional alternatives, may include writing letters, electronic mail, telephone conversation, and listening to talk radio.

Rosengren and Windahl (1972) suggested that people differ in the degree of dependence on functional alternatives, depending on individual and environmental possibilities for need satisfaction. Individual possibilities reflect social-psychological
variables such as extroversion, empathy, and socialization, whereas environmental possibilities include extra-individual variables such as friends and society. When the two possibilities are divided into satisfactory and nonsatisfactory levels, people depend on functional alternatives in one of the four ways; this refers to “a typology of possibilities for need satisfaction” (Rosengren & Windahl, 1972, p. 167). First, when people are satisfied with both individual and environmental possibilities to gratify needs in a certain way, they depend less on functional alternatives. Then, the functional alternatives are a supplement. Second, when people are not satisfied with either individual or environmental possibilities to fulfill needs in a certain way, they are very dependent on the functional alternatives. In this way, the functional alternatives become a substitute for the way in which people satisfy their needs. The third and fourth cells reflect when people are satisfied with either one of the two possibilities and moderately depend on the functional alternatives. Then, the functional alternatives are a complement.

Based on the assumptions of functional alternatives, it is speculated that people who experience a high level of communication avoidance may not be able to satisfy their interpersonal needs through face-to-face communication. They may select CMC as a substitute to face-to-face communication. On the other hand, people who experience a low level of communication avoidance may be able to satisfy their interpersonal needs through face-to-face interactions. They may select CMC to supplement their face-to-face communication.

Researchers have studied the role of functional alternatives in interpersonal and media use. Katz, Gurevitch, and Haas (1973) proposed that different media could be
functional alternatives to each other when they served the same needs. For example, they found that film and television facilitated friendship and solidarity, whereas newspapers and books provided topics for discussion. Furthermore, Perse and Courtright (1993) suggested that VCRs, cable, and movies were functional alternatives to television viewing.

Armstrong and Rubin (1989) suggested that talk radio listening or calling was a functional alternative to interpersonal interaction. Similarly, Papacharissi and Rubin (2000) found that those who felt face-to-face communication to be less rewarding used CMC as a functional alternative to interpersonal communication. However, Flaherty et al. (1998) questioned whether CMC was a functional alternative to face-to-face communication because participants preferred face-to-face communication to fulfill their communication needs.

According to U&G, then, media can be functional alternatives to other modes of communication such as face-to-face interaction (Katz et al., 1974; Rosengren & Windahl, 1972). In the current study, I consider functional alternatives by examining different CMC motives for interpersonal communication among those who have different dispositions. Thus far, I have examined the problem, rationale for the study, and U&G as a main theoretical framework. In the next section, I focus on a review of the relevant research.

Review of Literature

My aim in this section is to examine CMC studies relating to the influence of individual differences and motivation on the use of CMC for relational communication.
First, I review the influence of individual differences on relational communication via CMC. Second, I discuss research on motives for using CMC. Third, I focus on types of online relationships: purely virtual, migratory mixed-mode, and traditional long-distance relationships. Fourth, I discuss the role of self-disclosure and the influence of the amount and type of CMC use on relational communication. Finally, I review two outcome variables: online relationship closeness and communication satisfaction.

Studies of individual differences and CMC use in online relationships are still in a preliminary stage. There have been few studies on this particular topic (Bargh, McKenna, & Fitzsimons, 2002; McKenna & Bargh, 2000; Morahan-Martin & Schumacher, 2003; Utz, 2000). Some CMC researchers have examined online relationship formation using SIP theory and/or the hyperpersonal perspective (Walther, 1992, 1993, 1996; Walther & Burgoon, 1992). As referenced earlier, these studies do not examine how particular groups of individuals such as chronically lonely people and those who experience high levels of communication avoidance differ in their CMC use from those who are nonlonely and experience low levels of communication avoidance.

Applying U&G as a theoretical framework for this study helps us understand better the role of individual differences, motives, and CMC use in building or maintaining online relationships. According to U&G, people differ in their social and psychological conditions, which influence their media motives, choices, uses, and outcomes of using media (e.g., Katz et al., 1974; A. M. Rubin & Bantz, 1989). Some may be more motivated to use CMC for fulfilling their interpersonal needs. Some may be better able to express themselves and feel more comfortable disclosing their personal
information in online environments than in offline settings (McKenna, Green, & Gleason, 2002). Individual differences are important components to understand how and why people use CMC differently. I review the relevant literature about the role of individual differences on CMC use in the next section.

**Individual Differences**

Individual differences in communication and social-personal dispositions such as unwillingness to communicate and loneliness should influence how and why people use CMC for relational communication. Researchers have been interested in examining how individual differences affect media and communication behaviors such as television use (Conway & Rubin, 1991; Perse & Rubin, 1990; A. M. Rubin & Rubin, 1982; R. B. Rubin & Rubin, 1982), VCR use (A. M. Rubin & Rubin, 1989), talk radio listening (Armstrong & Rubin, 1989), and CMC use (McKenna & Bargh, 1999, 2000; Papacharissi, 2002; Papacharissi & Rubin, 2000; Utz, 2000). For instance, Utz (2000) found that sociability was moderately correlated with the formation of online friendships. McKenna et al. (2002) found that people who avoided face-to-face communication were more likely to disclose their true selves online than offline.

**Unwillingness to Communicate**

Unwillingness to communicate (UC) is a communication disposition (Daly, 2002) that is related to communication avoidance and communication anxiety. UC refers to “a chronic tendency to avoid and/or devalue oral communication” (Burgoon, 1976, p. 61). The UC construct contains two dimensions: (a) Approach-Avoidance (UC-AA), which is the extent to which a person participates in his/her interpersonal interaction; and (b)
Reward (UC-RW), which refers to a person’s perceptions about his/her interpersonal interaction (Burgoon, 1976).

People’s desire to avoid communication has had various labels such as communication apprehension (McCroskey, 1997), reticence (Phillips, 1997), shyness (Buss, 1997), social anxiety (Leary, 1983), and social-communicative anxiety (Daly, Caughlin, & Stafford, 1997). Kelly (1982) examined the theoretical assumptions underlying reticence, communication apprehension, unwillingness to communicate, and shyness. Kelly found that these constructs had “many similarities and a few fine distinctions, despite the false diversity suggested by the four labels” (p. 112). Daly et al. (1997) pointed out that these antecedents all refer to a similar fundamental disposition to avoid communication. Burgoon (1976) explained that UC is related to anomia, alienation, introversion, low self-esteem, communication apprehension, and reticence. Therefore, in this study, unwillingness to communicate refers to communication avoidance and anxiety behaviors and feeling less rewarded in interpersonal communication.

As mentioned previously, the need for belongingness is a fundamental human need (Baumeister & Leary, 1995; Maslow, 1954). Schutz (1966) suggested that interpersonal needs would be satisfied by forming satisfactory relationships with others. However, it is not easy for people who experience communication avoidance or lack of reward to initiate conversations, to meet new people, or to form relationships with others. Feelings of social and communication anxiety may impede the benefits of personal relationships.
Naturally, people who feel anxious or devalued communication tend to have less opportunity to find companionship in interpersonal interaction than those who enjoy communication. Face-to-face interaction may be less rewarding than using other channels of communication for those who experience communication avoidance. The absence of physical and nonverbal cues in CMC settings may be more beneficial to these individuals for interpersonal initiation and interaction. CMC anonymity may help them communicate without concerns for being judged by others. As a result, they may select CMC to deal with their social deficits. As Taylor (2002) noted, “people change their use of technology to facilitate their creation of a desired social and psychological reality” (p. 198).

**Unwillingness to communicate and media use.** Empirical evidence suggests that people who try to avoid face-to-face communication and feel that it is not rewarding are more likely to use CMC or other media to compensate for these felt interpersonal communication deficiencies (Armstrong & Rubin, 1989; Papacharissi & Rubin, 2000; Roberts, Smith, & Pollock, 2000; Scealy, Phillips, & Stevenson, 2002) and for personal relationship formation (McKenna & Bargh, 2000). For instance, Armstrong and Rubin (1989) studied callers and noncallers’ motives for listening to talk radio. They suggested that talk radio callers tended to find face-to-face communication less rewarding and felt less willing to communicate in face-to-face settings than did noncallers. Callers were more motivated than noncallers to listen to talk radio, listened to talk radio for more hours, and had more affinity with talk radio than did noncallers.

Research suggests that those who are unwilling to communicate use CMC as a functional alternative to face-to-face interpersonal communication. For instance,
Papacharissi and Rubin (2000) examined the associations between unwillingness to communicate and CMC motives and use. They found that CMC users who found face-to-face interaction less rewarding were more likely than their counterparts to select CMC for interpersonal purposes. On the other hand, CMC users who felt face-to-face interaction to be rewarding were more likely to use CMC for seeking information.

In addition, Papacharissi (2002) investigated unwillingness to communicate and personal homepage use. She found that CMC users who felt less valued in their face-to-face interaction and had few offline interactions with others tended to use CMC the most. Furthermore, these users tended to use their home page for entertainment and passing time. Birnie and Horvath (2002) studied how shy people used traditional channels of communication (e.g., face-to-face and telephone) and CMC for social interaction. They found that shy individuals were more likely to use CMC than to use traditional modes of communication for social communication.

Past research shows links among communication avoidance behaviors (e.g., unwillingness to communicate, shyness, communication anxiety), CMC use, and relationship formation. For example, Roberts et al. (2000) found that shy people formed relationships ranging from friendships to romance. Moreover, shy people, in general, were less shy online and reported decreased shyness offline after 6 months of CMC use. Roberts et al. discovered that CMC use could increase psychological well-being and social skills of shy people.

Also, CMC interactions help people who experience communication avoidance overcome their social deficits. These individuals feel less inhibited and more comfortable
in their social interaction through CMC than in face-to-face communication. They perceive CMC settings as safe environments in which to disclose personal information, and to initiate and to form relationships. For instance, Strizke, Nguyen, and Durkin (2004) observed that shy people were less shy online and more likely to initiate relationships online than offline. Scharlott and Christ (1995) reported that shy people preferred to use an online matchmaking service such as Matchmaker to overcome the relational initiation problems. They were more likely to use Matchmaker to find companionship than were participants who were less shy.

In addition, Scealy et al. (2002) discussed that people who had problems communicating in face-to-face interaction did not have difficulties when communicating through CMC. They communicated as much as those who enjoyed face-to-face communication. Also, the authors found a link between communication avoidance behavior and CMC motives. For instance, people who avoided face-to-face communication (e.g., shy people and those who experience communication anxiety) tended to use CMC for more leisure purposes such as recreation. In addition to unwillingness to communicate, loneliness is another individual disposition that is important to the study of online relationships.

*Loneliness*

In general, loneliness refers to “the unpleasant experience that occurs when a person’s network of social relations is deficient in some important way” (Perlman & Peplau, 1981, p. 31). It is a social-personal disposition (Daly, 2002) that affects media
use (Perse & Rubin, 1990), media gratifications (Canary & Spitzberg, 1993), and relational communication (McKenna et al., 2002).

Scholars have defined and studied loneliness in many forms. One of the most cited relational deficit typologies is Weiss’s (1973) fundamental distinction between emotional and social loneliness. Emotional loneliness is a lack of emotional attachments and results in feelings of being alone and emptiness despite the companionship of others. Social loneliness refers to a lack of an engaging social network and results in feelings of boredom and marginality.

Another typology deals with the duration of loneliness. Beck and Young (1978) distinguished among chronic loneliness, which is the absence of relationships over a long period of time, situational loneliness, which occurs after major stressful events such as the termination of a relationship, and transient loneliness, which refers to feelings of loneliness for a short period of time that most people normally experience.

People who cope with loneliness for different lengths of time may be motivated to use CMC differently. Past research suggests that chronically lonely and situationally lonely people differ in their media use (Canary & Spitzberg, 1993; Finn & Gorr, 1988). For instance, the chronically lonely are less likely to use media (e.g., television and print media) for surveillance and escape purposes than are situationally lonely and nonlonely people (Canary & Spitzberg, 1993). However, the question of how chronically lonely and situationally lonely people differ in their CMC motives needs further investigation. Thus, this study focuses on chronically lonely, situationally lonely, and nonlonely people to understand better the interaction between different types of loneliness and CMC motives.
Loneliness has been related to social and psychological deficiencies such as shyness, introversion, low self-esteem, lack of social skills, external locus of control (Jones, 1982; Peplau & Perlman, 1982), and communication apprehension (Bell & Daly, 1985). The interpersonal communication literature shows that lonely people have fewer social skills in dating, and are less satisfied with their dating experiences (Prisbell, 1988) and romantic relationships (Flora & Segrin, 2000) than are nonlonely people. Also, lonely people perceive themselves and are perceived by others as being less communicatively competent than nonlonely people (Spitzberg & Canary, 1985). They are more likely to engage in less self-disclosure than those who are nonlonely (Bell & Daly, 1985). Solano, Batten, and Parish (1982) suggested that lonely people exhibited a low level of intimacy in self-disclosure, which could impair the development of relationships.

Similar to those who suffer from communication avoidance, lonely people generally tend not to value face-to-face communication. They tend to be shy, introverted, and avoid interpersonal communication (Bell & Daly, 1985; Jones, 1982; Peplau & Perlman, 1982). Hosman (1991) studied the relationship between interpersonal communication motives and loneliness and found that lonely people do not communicate interpersonally for pleasure and affection. Similarly, Jones (1982) examined the links between loneliness and interpersonal communication, and noted that loneliness was associated with greater communication apprehension. The results imply that lonely people do not find communication rewarding and pleasurable, and tend to avoid communication. There is a potential that lonely people are more likely to be drawn to
CMC to fulfill an interpersonal need for connection or belongingness and to seek personal relationships that they are not establishing in face-to-face interactions.

Loneliness and media use. Empirical research shows the association between loneliness and media uses and gratifications (Canary & Spitzberg, 1993; Finn & Gorr, 1988; Leung, 2002; McKenna & Bargh, 2000; Moody, 2001; Morahan-Martin & Schumacher, 2003; Perse & Rubin, 1990; A. M. Rubin, Perse, & Powell, 1985). For example, A. M. Rubin et al. (1985) found that lonely people were more likely to watch television when they felt lonely and were less likely to engage in interpersonal communication with others.

Some studies have revealed that chronically lonely people were more likely to be passive in their media use and to perceive less gratification from using media than were less lonely and nonlonely people. For instance, Canary and Spitzberg (1993) found that loneliness and media use were not linearly related. They compared media use among chronically lonely, situationally lonely, and nonlonely people and suggested that chronically lonely people perceived less gratification from the media than did situationally lonely and nonlonely people. Chronically lonely people felt less gratification when using media for surveillance and escape than did situationally lonely and nonlonely people. Similarly, Finn and Gorr (1988) found that those with a high degree of loneliness were passive in their media use. They suggested that lonely people watched television to gratify their social compensation needs: companionship, pass time, habit, and escape.

Perse and Rubin (1990) examined how loneliness affected television viewing and motivation. They concluded that chronically lonely people preferred electronic media
channels to interpersonal channels. However, when compared with nonlonely people, chronically lonely people were less likely to watch soap operas to seek excitement or for social interaction. They tended to watch soap operas to pass the time.

Recent studies have suggested an association between loneliness and CMC use for personal relationships and social interaction. For instance, Morahan-Martin and Schumacher (2003) found that lonely people were more likely than the nonlonely to use CMC to meet new people and to talk to others with similar interests.

Some studies have revealed a relationship between loneliness and a preference for online interactions. Caplan (2003) and Morahan-Martin and Schumacher (2003), for example, found that lonely people preferred online social interactions to face-to-face interactions. They felt online social interactions were less threatening and more rewarding than face-to-face interactions.

Loneliness also is associated with self-disclosure via CMC. Research has suggested that the lonely are more likely than the nonlonely to disclose private information online (McKenna et al., 2002; Morahan-Martin & Schumacher, 2003). McKenna et al. (2002) found that lonely people felt that they were better able to reveal their true selves with other online users than to those they knew offline.

Leung (2002) studied the relationships among loneliness, self-disclosure, and using chatrooms. Leung investigated whether chronically lonely, situationally lonely, and nonlonely people differed along self-disclosure dimensions (i.e., depth, amount, positiveness, honesty, and intent) when interacting in chatrooms. Chronically lonely people disclosed less accurate information and less information than did nonlonely
people. However, Leung reported that chronically lonely people were not less active than situationally lonely or nonlonely people in their use of chatrooms.

To sum up, the literature reviewed suggests that due to unfulfilled interpersonal needs (e.g., affection and belongingness) and social interaction deficiencies, people who do not find face-to-face communication rewarding or satisfying may be motivated to use CMC to seek companionship or to fulfill other interpersonal needs. However, researchers have not examined how dispositions, particularly unwillingness to communicate and loneliness, affect CMC motives. It is viable to study the interaction effects of communication avoidance (e.g., high and low) and loneliness (e.g., chronic, situational, and nonlonely) on CMC motives for interpersonal communication. The present investigation helps us comprehend differences in people’s interpersonal communication motives in mediated contexts and the role of CMC use as a functional alternative to interpersonal communication. Besides loneliness and unwillingness to communicate, motivation to use CMC is another factor that should affect how people use CMC for relational communication. I review CMC motives in the next section.

**Communication Motivation**

Understanding motivation is important for understanding communication behavior. Katz et al. (1974) suggested that motivation influences communication choices, strategies, and behaviors. Basically, people communicate to fulfill needs that emanate from their social and psychological backgrounds. These needs produce different communication motives, which, in turn, affect people’s communication choices and actions.
People are motivated to communicate through interpersonal or media channels to fulfill their needs. A. M. Rubin and Rubin (1985) suggested that U&G can explain both interpersonal communication motives and media motives. They noted, “the salience of needs and motives, the awareness of various communication channels, and the perception of the utility of communication channels are important variables in human interaction, both in interpersonal and mass communication” (p. 47).

**CMC Motives**

The study of media motivation helps us understand better people’s communication choices and behaviors and their reasons to watch television, listen to radio, visit a chatroom, and create a personal web page. Also, exploring media motivation helps explain the outcomes of using media, such as satisfaction with online support groups (Wright, 2002).

Researchers often have studied motives for using new media technologies by looking at combinations of interpersonal and media motives (A. M. Rubin & Rubin, 1989). Scholars have examined motives for using various types of new media technologies such as cable television (Becker, Dunwoody, & Rafaeli, 1983), political bulletin boards (Garramone, Harris, & Anderson, 1986), VCRs (A. M. Rubin & Bantz, 1989), remote controls (Ferguson, 1994), the Internet (Charney & Greenberg, 2002; Kaye & Johnson, 2002; Papacharissi & Rubin, 2000; Wolfradt & Doll, 2001), and a personal web page (Papacharissi, 2002).

For example, A. M. Rubin and Bantz (1989) suggested that VCR motives reflected both interpersonal communication needs (e.g., socialization) and mass
communication needs (e.g., entertainment). Charney and Greenberg (2002) specified eight Internet motives: keep informed, diversion, peer identity, good feelings, communication, sights and sounds, career, and coolness. Wolfradt and Doll (2001) studied Internet motives among German adolescents and identified three Internet motives: information, entertainment, and interpersonal communication.

Papacharissi and Rubin (2000) constructed a scale to measure why people use the Internet by combining interpersonal communication, media, and new technologies motives identified in previous studies (A. M. Rubin, 1981; A. M. Rubin & Rubin, 1989; R. B. Rubin et al., 1988). They identified five motives for using the Internet: interpersonal utility (e.g., to express oneself freely, to participate in discussions, to get other opinions, to meet new people); pass time (e.g., to occupy time, to pass the time when bored); information seeking (e.g., to get information for free, to see what is out there); convenience (to communicate with friends and family); and entertainment (e.g., because it is enjoyable and entertaining).

CMC motives have been related to certain dispositions and CMC use such as the amount and types of use. For example, Papacharissi and Rubin (2000) found that people who found face-to-face interactions rewarding were motivated to use CMC for seeking information. In contrast, those who did not find face-to-face communication satisfying were motivated to use CMC for interpersonal communication. They also found that those who used CMC for interpersonal communication tended to spend the most time on the Internet. Wolfradt and Doll (2001) found that visiting chatrooms was positively related to interpersonal communication motivation, but negatively related to information
motivation. Nevertheless, how CMC motives are related to other factors that are vital for
the study of online relationships such as self-disclosure, loneliness, relationship
closeness, and communication satisfaction needs further exploration to aid our
understanding of the influence of CMC motives on CMC use for relational
communication.

*Online Relationships*

Types of online relationships may affect the amount and types of CMC use and
self-disclosure. This study considers three types of online relationships: (a) purely virtual
relationships between people who meet and stay in touch only online, (b) migratory
mixed-mode relationships between those who meet online and then engage in face-to-
face meeting, and (c) traditional long-distance relationships between those who know
each other offline and stay in touch through CMC and other traditional media.

When studying online relationships, most CMC researchers have paid attention to
purely virtual relationships (Rabby & Walther, 2003). Other types of relationships such
as migratory mixed-mode relationships and traditional long-distance relationships have
been less often studied. In fact, a number of CMC users migrate to offline contact or use
CMC to stay in touch with their family and friends. Parks and Floyd (1996) noted a
significant proportion of CMC users first met each other online, and then migrated to
offline communication by calling each other and meeting face-to-face. Also,
Haythornthwaite (2000) and Stafford (2005) pointed out that many people used CMC as
an additional mode of communication to stay in touch with their long-distance
relationships, family, and friends. Walther and Parks (2002) noted, “it is increasingly
common for people to use the Internet as one among many channels for communication with work partners, social partners, and family members. How this technology affects such relationships is not well understood” (p. 556). Baym (2002) suggested that CMC could serve as a means to maintain relationships but such relationships have been “underexplored.”

People who use CMC as a primary channel of communication may use CMC differently than those who use CMC as an additional mode of communication (Stafford, 2005). Baym et al. (2004) pointed out that types and geographical distance of relationships influence how a CMC channel is selected for social interaction. For example, people in long-distance relationships are more likely to use CMC to maintain relationships, whereas those in local relationships are more likely to use face-to-face communication for social relationships. Prior studies suggest a link between types of relationships, such as long-distance and local, and CMC use. However, little is known about how people who are in purely virtual, migratory mixed-mode, and traditional long-distance relationships use the functions of CMC, such as e-mail, instant messaging, and discussion boards, how they differ in time spent on the Internet, and in the amount, depth, and honesty of self-disclosure. Given the limited research on this subject, I examine how these types of relationships affect self-disclosure and the amount and type of CMC use to understand better the link between online interpersonal relationships and communication behavior.
CMC Use and Interaction

Besides individual differences, motivation, and types of online relationships, CMC use and interaction are important components for understanding online relationships. According to U&G, people’s social and psychological conditions and motivation guide their media use and interaction (Katz et al., 1974). It is expected that unwillingness to communicate, loneliness, and CMC motives influence patterns of CMC use such as the amount and type of use and self-disclosure.

Users rely considerably on textual information in CMC interactions. In face-to-face interaction, physical and nonverbal cues help people make inferences about one another. However, in CMC interaction, textual and paralinguistic cues influence how CMC users view each other. CMC users employ paralinguistic cues (e.g., using uppercase and lowercase letters, question marks, and emoticons) as a substitute for nonverbal cues to express feelings and emotions (Jacobson, 1999). In a text-based environment, people also make attributions about others through linguistic cues or language choices. The linguistic cues convey personality and attitude characteristics (Walther, 1993).

Also, communicating through CMC is often anonymous. A well-known picture drawing by Steiner (1993) in the New Yorker, portrayed one dog sitting in front of a computer and saying to another dog, “On the Internet, nobody knows you’re a dog” (p. 61). This cartoon expresses the anonymity of CMC. Generally, anonymity refers to “lack of identifiability” (Joinson, 2003, p. 23). More specifically, anonymity is defined as “the degree to which a communicator perceives the message source is unknown and
unspecified” (Anonymous, 1998, p. 387). Anonymous (1998) suggested two key elements for a clearer understanding of anonymity in communication. First, anonymity should be viewed on a continuum from fully anonymous to fully identifiable. This suggests that the message source can be partially anonymous. Second, anonymity depends upon the communicators’ perception of their anonymity. For instance, self-anonymity refers to senders’ perception that they are anonymous to others when they are the message source, whereas other-anonymity refers to receivers’ perception of the message source’s anonymity. Anonymity in CMC leads to self-disclosure in online interactions (McKenna & Bargh, 2000; Spears & Lea, 1994).

**Self-disclosure**

Self-disclosure is a major component of the processes of relationship formation and maintenance. Derlega, Metts, Petronio, and Margulis (1993) defined self-disclosure as “what individuals verbally reveal about themselves to others (including thoughts, feelings, and experiences)” (p. 1). Derlerga et al. suggested that self-disclosure is a key to the formation, maintenance, and disengagement of relationships. Also, self-disclosure is a significant strategy used to obtain information from others, to reduce uncertainty, and to make oneself likeable and attractive to others. Self-disclosure also is positively associated with the development of trust and intimacy. Graham, Barbato, and Perse (1993) found that interpersonal communication motives were related to breadth and depth of disclosure.

From a meta-analysis of the literature about self-disclosure and the development of relationships, Dindia (2002) concluded that self-disclosure is a reciprocal process for
both strangers and intimates. Earlier, Jourard (1971) and Rogers (1951) noted that people
who are able to reveal their true selves to others will be more likely to form relationships
with others and to feel satisfied with their personal lives.

In the past, the amount and depth of self-disclosure were considered to be the vital
components of interpersonal relationships (Jourard, 1971; Rogers, 1951). Later,
researchers acknowledged the multi-dimensionality of self-disclosure and have examined
(a) amount, (b) depth or intimacy, (c) honesty or accuracy, (d) positiveness or
negativeness, and (e) intent of self-disclosure (Wheeless, 1978; Wheeless & Grotz,
1976). For example, Wheeless and Grotz (1976) found that amount, depth, and honesty
were positively related to trust in a relationship. Martin and Anderson (1995) found that
positive and honest self-disclosure were positively associated with father and young adult
relationship satisfaction.

**Self-disclosure and CMC use.** Past research supports the notion that anonymity in
CMC leads to disclosure (Bargh, Fitzsimons, & McKenna, 2003; Bargh et al., 2002;
Joinson, 2001; McKenna & Bargh, 2000; Parks & Floyd, 1996; Spears & Lea, 1994;
Walther, 1996). Anonymity also allows people to disclose their true selves (McKenna &
Bargh, 2000; Spears & Lea, 1994) or to disclose multiple versions of self (Turkle, 1995).

Some evidence also suggests that CMC interactions lead to a greater level of self-
disclosure than do face-to-face interactions (Bargh et al., 2002; Joinson, 2001, 2003;
McKenna et al., 2002; Parks & Floyd, 1996). Researchers have compared levels of self-
disclosure in online and offline interactions. For instance, Joinson (2001) found that
CMC dyads disclosed more about themselves than did face-to-face dyads. He also
assessed the extent to which participants disclosed themselves through CMC interactions when having a video link during the participation. He found that participants in the video link condition exhibited less self-disclosure than did those using no video link. Furthermore, participants’ levels of self-disclosure in the CMC video link condition were similar to levels of self-disclosure of those in the face-to-face condition.

Research has shown that online interactions can lead to high levels of breadth and depth of self-disclosure. For example, Parks and Floyd (1996) investigated relationship formation and self-disclosure among Usenet newsgroup participants. They concluded that CMC participants usually revealed moderate to high levels of breadth and depth of their personal information to other online users. Tidwell and Walther (2002) also found that CMC partners used a greater proportion of self-disclosure and used more in-depth questions than did face-to-face partners.

To sum up, the literature reviewed suggests that breadth and depth of self-disclosure are crucial factors of relationship formation and closeness. Nevertheless, little is known about the contribution of other dimensions of self-disclosure such as positiveness, honesty, and intent to predicting online relationship closeness and communication satisfaction. To understand the multi-dimensionality of self-disclosure in online settings better, it is vital to explore how positiveness, honesty, and intent of self-disclosure influence other factors such as relationship closeness and communication satisfaction. It is possible that those who intend to reveal their personal feelings, are honest in their self-disclosures, and disclose positive things about themselves to others may feel satisfied with their online interactions. As Walther (1996) noted, CMC users
make positive and idealized attributions of their online partners, which create self-fulfilling prophecies among themselves. In addition to self-disclosure, the amount and types of CMC use are important components to understand online relationships.

Amount and Type of CMC Use

In the present study, the amount of CMC use refers to the time spent using each CMC function in a day. Types of CMC use refer to CMC functions such as e-mail, chat, WWW browsing, and file sharing. Because U&G assumes that social and psychological conditions and motives affect media use and selection (Katz et al., 1974), people’s dispositions and CMC motives should influence the amount and type of CMC use.

Some evidence suggests that Internet motivation affects the amount and type of Internet use. For example, Papacharissi and Rubin (2000) found that those who used the Internet for interpersonal utility purposes (e.g., affection, inclusion, and control) tended to spend the most time on the Internet. Furthermore, the authors found that information-seeking motivation positively predicted WWW browsing and negatively predicted e-mail use. Wolfradt and Doll (2001) found that interpersonal communication motivation contributed to chatroom and e-mail use. Entertainment motivation predicted playing computer games.

The amount and type of Internet use contribute to online relationship formation and satisfaction. For example, Bonebrake (2002) found that the more time spent communicating online, the more new online relationships were formed. Wright (2000) found that older adults who spent more time communicating on the Internet were more satisfied with their online support network. Parks and Floyd (1996) found that 60.7% of
participants formed personal relationships in asynchronous discussion boards. Parks and Roberts (1998) reported that 93.6% of MOO users formed personal relationships. Moreover, Utz (2000) observed that 77% of MUD users formed relationships with other MUD users.

Although various functions of CMC (e.g., chatrooms and discussion boards) allow people to communicate and to find companionship in the ways they desire, research suggests that communicating through synchronous and asynchronous CMC is somewhat different. The interactions through *synchronous* channels such as chatrooms are fairly immediate. People tend to use language that is similar to a hybrid between conversation and writing, such as the abbreviation of words and the exclusion of articles (Walther, 1993). Communicating through *asynchronous* channels such as e-mail and discussion boards is not immediate. On the other hand, people have more time to edit and revise information in the ways they desire. Asynchronous channels allow people to have more control over messages and tend to provide greater capability for self-presentation than do synchronous channels (Walther, 1996).

Overall, the literature shows that motivation affects the types of CMC selected and the amount of CMC use. Moreover, using different types of CMC can also lead to different communication outcomes such as relationship formation (Parks & Floyd, 1996; Utz, 2000). Yet, how the use of each CMC function such as e-mail, Internet telephone, and instant messaging contributes to relationship closeness and communication satisfaction needs further investigation to understand better the importance of each CMC
function for fulfilling interpersonal needs online. I review how interpersonal needs are fulfilled in online settings in the next section.

Behavioral and Attitudinal Outcomes:

Online Relationship Closeness and Communication Satisfaction

In this study, online relationship closeness and communication satisfaction reflect interpersonal needs to be fulfilled through online interactions. According to U&G, outcomes such as interpersonal need fulfillment can be cognitive, affective, and behavioral, and are influenced by communication behaviors such as choices of communication channels (Katz et al., 1974; R. B. Rubin & Rubin, 1992). Thus, variations in CMC use and interaction such as the amount and types of use and self-disclosure should lead to different outcomes: online relationship closeness and communication satisfaction. First, this section presents perspectives that have been used in the study of face-to-face and online relationship development. Then, past research related to selected behavioral and attitudinal outcomes (i.e., relationship closeness and communication satisfaction) is reviewed.

Face-to-Face Relationship Development

Early studies on relationship development through face-to-face interaction suggested that physical and nonverbal cues such as facial expressions, physical movement, and vocal qualities are crucial components contributing to relationship development. Social penetration theory (Altman & Taylor, 1973) and uncertainty reduction theory (Berger & Calabrese, 1975) are early interpersonal perspectives that
describe the process of information seeking and information exchange, and the role of self-disclosure in relationship development.

Social penetration theory posits that relationships, which range from distant to intimate, are developed through layers of information exchange. Generally, as a relationship develops, people disclose more topics (i.e., breadth) and more intimate information (i.e., depth) to others. The more people disclose their personal information to others, the more relationships develop to intimate levels.

According to uncertainty reduction theory, people engage in information-seeking behaviors to reduce uncertainty during their initial interaction. When there is high uncertainty, people seek more information to make attributions about others and to reduce uncertainty. Berger and Calabrese (1975) suggested that uncertainty reduction leads to greater liking and intimacy. Also, verbal and nonverbal expressions are important in the relationship formation process. The amount of verbal communication and nonverbal affiliative expressiveness can reduce uncertainty and lead to the formation of relationships. Moreover, uncertainty reduction theory suggests that self-disclosure is one of the interactive strategies that people use to seek information about others and to reduce uncertainty.

*Online Relationship Development*

Past research supports the notion that people form personal relationships in both synchronous CMC environments (e.g., chatrooms, MOOs, MUDs) and asynchronous CMC environments (e.g., Usenet newsgroups) (Bargh et al., 2002, 2003; Parks & Floyd, 1996; Parks & Roberts, 1998; Spears & Lea, 1994; Turkle, 1995; Utz, 2000; Walther,
Researchers studying relationship formation via CMC have argued that the restriction of nonverbal cues helps, rather than hinders, relationship formation (Bargh et al., 2002, 2003; McKenna & Bargh, 1999; Walther, 1992, 1994, 1996).

Scholars have applied social information processing (SIP) (Walther, 1992) and the hyperpersonal perspective (Walther, 1996) to explain CMC use for relational communication. According to SIP theory, the absence of physical and nonverbal cues in CMC does not obstruct people from forming impressions and developing online relationships. Rather, people adapt available communicative cues in CMC, such as linguistic and paralinguistic cues to communicate, make attributions about others, form impressions, and develop relationships. With sufficient time to interact, people using CMC can form impressions (Walther, 1993) and engage in relational communication (Walther & Burgoon, 1992) in a similar way as people using face-to-face communication.

The hyperpersonal perspective explains how CMC use can provide higher levels of intimacy and intensity in relationships than does face-to-face interaction (Walther, 1996). Walther (1996) defined hyperpersonal communication as “CMC that is more socially desirable than we tend to experience in parallel face-to-face interaction” (p. 17). Without nonverbal cues, CMC receivers make positive and idealized attributions of their online partners. CMC senders are free from social constraints and have opportunities to select their self-presentation. Asynchronous channels offer CMC users more time to edit and review messages before sending them. Consequently, the reciprocity of positive and idealized attributions by CMC receivers and selective self-presentation by CMC senders may create self-fulfilling prophecies among receivers and senders (Walther, 1996).
SIP theory and the hyperpersonal perspective are valuable perspectives for understanding how people use CMC for their social interaction and how time constraints, the lack of nonverbal cues, and anonymity influence self-disclosure and relational communication. Nevertheless, SIP theory and the hyperpersonal perspective have received some criticism. The main criticism is that these perspectives do not consider sufficiently the effects of individual differences and motivation on relational communication (Joinson, 2003; Sherman, 2001; Utz, 2000). For example, Utz (2000) argued that these perspectives overlook the influence of individual differences on relational communication. People are different in their dispositions and motivation, which may affect relational communication.

Thus far, I reviewed the perspectives that have been used in the study of relationship development. In the next section, I focus on two specific outcomes of CMC use: online relationship closeness and communication satisfaction.

*Online Relationship Closeness*

Online relationship closeness is perceived satisfaction in relationships as a result of sharing similarities in personal characteristics, pleasant sentiments, behaviors, and symbolic expressions. Wheeless (1978) developed the concept of interpersonal solidarity to explain the closeness in relationships. He defined interpersonal solidarity as the affective aspect of interpersonal relationships such as similarity, liking, frequent interaction, and trust. It involves (a) similarities in personal characteristics (e.g., age, attitudes, occupation), (b) pleasant sentiments (e.g., liking, attraction, trust), (c) behaviors
(e.g., cooperation and frequent interaction), (d) symbolic expressions of similarities or intimacy (e.g., secret symbols), and (e) closeness in physical space and/or social status.

Scholars have conceptualized and measured relationship development differently. Some have focused on dimensions of relationships (e.g., Baxter, 1983; Burgoon & Hale, 1983; Knapp, Ellis, & Williams, 1980). For instance, Bugoon and Hale (1983) identified six relational dimensions: immediacy/affection, receptive/trust, composure/relaxation-arousal, formality, dominance, and similarity/depth. Alternatively, others have paid attention to stages of relationship development and deterioration (e.g., Duck, 1982; Knapp, 1978; Welch & Rubin, 2002). Knapp (1978), for example, specified 10 relationship stages: initiating, experimenting, intensifying, integrating, bonding, differentiating, circumscribing, stagnating, avoiding, and terminating. Recently, Welch and Rubin (2002) developed the Escalating and Deescalating Scales to measure Knapp’s relationship stages. Although relationship development has been studied according to dimensions or stages, the conceptualization of relationship development mainly derived from the basic premise that relationships that are developed range from distant to intimate or close ones (Altman & Taylor, 1973). This study applied Wheeless’s (1978) interpersonal solidarity concept to explain online relationship closeness.

**CMC use and online relationship closeness.** Relationship closeness is related to self-disclosure and the amount of CMC use. The interpersonal communication literature suggests that self-disclosure is a critical predictor of the formation and closeness of relationships (Altman & Taylor, 1973; Berger & Calabrese, 1975). Self-disclosure positively predicts closeness in relationships (Wheeless, 1976). People who exhibit high
levels of breadth and depth of self-disclosure are more likely to form close relationships than those who exhibit low levels of breadth and depth of self-disclosure.

Consistent with interpersonal communication research, Parks and Floyd (1996) and Parks and Roberts (1998) found that CMC users exhibit high levels of breadth and depth of self-disclosure and form close relationships with their online partners. Consistently, CMC users who were able to disclose their true selves to their partners were more likely to form online relationships (Bargh & McKenna, 2004; Bargh et al., 2002; McKenna et al., 2002).

The amount of CMC use is associated with relational communication and relationship closeness. The literature shows that time spent communicating online is an essential, but not a major, predictor of the formation of online relationships. Past research highlights that time is an important factor for online relationship formation. For example, over three sessions in a 6-week period, Walther (1993) found that participants in CMC groups formed impressions slower than did those in face-to-face groups after the first session. However, by the third session, CMC and face-to-face groups spent approximately an equal amount of time to form impressions. Walther, Anderson, and Park (1994) found that CMC participants with no time restrictions on their interaction conveyed greater levels of socioemotional communication than did those with a time restriction on their interaction. Walther and Burgoon (1992) compared levels of relational communication (see Burgoon & Hale, 1984) between face-to-face and CMC interactions over time. They found that participants communicating through CMC showed greater social orientation than did those communicating through face-to-face.
However, Walther (1995) argued that time was not a major factor influencing levels of relational communication in all cases. The findings showed that CMC participants had higher levels of most relational communication than did face-to-face participants regardless of time. Also, CMC participants achieved more positive levels of relational communication. He concluded that CMC participants had more intimate and sociable relational communication than did face-to-face participants.

In sum, the literature suggests amount and depth of self-disclosure are important for understanding relationship closeness. Also, time spent online may influence relational communication. Besides online relationship closeness, communication satisfaction is another possible outcome of CMC use that should be affected by CMC use and interaction.

**Communication Satisfaction**

Satisfaction is defined as “the affect associated with the fulfillment or nonfulfillment of normative expectations” (Hecht, 1978b, p. 48). Hecht (1978a) defined communication satisfaction as the positive reinforcement that is related to the fulfillment of positive communicative expectations. Communication satisfaction, in this study, refers to the fulfillment of positive communicative expectations through online interactions. Hecht suggested that communication satisfaction is associated with self-disclosure and relationship development.

Dispositions, communication motivation, and self-disclosure predict communication satisfaction. For instance, Morahan-Martin and Schumacher (2003) found that lonely people were more likely to be satisfied with their online interactions than were
nonlonely people. Papacharissi and Rubin (2000) found that UC-RW and information-seeking motivation predicted CMC satisfaction. R. B. Rubin et al. (1988) found that four interpersonal communication motives—pleasure, affection, inclusion, and relaxation—were positively associated with communication satisfaction. In addition, earlier, Jourard (1971) and Rogers (1951) discussed that people were more satisfied with their communication when they engaged in high levels of self-disclosure (e.g., breadth and depth). Martin and Anderson (1995) found that motives for interpersonal communication (e.g., inclusion, affection, pleasure) and self-disclosure (e.g., honesty, amount, positiveness) predicted communication satisfaction. And, Myers (1998) found that self-disclosure was a positive predictor of communication satisfaction.

Overall, past research suggests that online relationship closeness and communication satisfaction may be explained by CMC use and interaction, certain dispositions, and CMC motives. However, there are three areas that need additional investigation. The first is to examine the overall associations among unwillingness to communicate, loneliness, CMC motives, CMC use and interaction, online relationship closeness, and communication satisfaction. This will help us better understand communication as a whole process and interpersonal need fulfillment in online contexts. The second area is to investigate the effects of different dispositions on CMC motives for interpersonal communication. This will extend our knowledge of the role of functional alternatives in CMC contexts. Finally, it is important to study the effects of types of online relationships on CMC use and interaction to understand better the association between online interpersonal relationships and communication behavior.
A Model of CMC Use for Online Relationships

CMC use for online relationships is a promising area that deserves further investigation. As CMC increasingly has been used for social interaction, more and more researchers have been interested in examining how people use CMC for interpersonal communication. Researchers have investigated relational communication by applying SIP theory and the hyperpersonal model (Utz, 2000; Walther, 1992, 1993, 1996; Walther & Burgoon, 1992). Some used U&G to explain the role of motives in CMC use for online relationships (e.g., Wright, 2002). Nevertheless, little is known about how people who differ in their dispositions use CMC for social interaction, how CMC motives influence self-disclosure and CMC use, and how CMC use contributes to online relationship closeness and communication satisfaction.

Using U&G as a theoretical framework for this study helps us understand the role of CMC use as a functional alternative to face-to-face interpersonal communication, how CMC is used among those with different dispositions, and whether CMC use can fulfill people’s interpersonal needs. Exploring CMC use for online relationships will extend our knowledge of the U&G model concerning need fulfillment in CMC contexts and functional alternatives in CMC use.

Based on the review of relevant literature and the U&G model, Figure 1 presents the model of CMC use for online relationships. The model presents five main conceptual features: (a) individual differences (i.e., unwillingness to communicate and loneliness); (b) CMC motives (i.e., self-fulfillment, information seeking, affection, interpersonal involvement); (c) online relationships (i.e., purely virtual, migratory mixed-mode,
traditional long-distance relationships; (d) CMC use and interaction (i.e., the amount and type of CMC use and self-disclosure); and (e) behavioral and attitudinal outcomes (i.e., online relationship closeness and communication satisfaction). The model suggests that one’s dispositions lead to motives for using CMC, and motives influence CMC use and interaction, which, in turn, affect outcomes of using CMC. For instance, unwillingness to communicate and loneliness affect CMC motives for interpersonal communication. Motives and online relationships influence the amount and type of CMC use and self-disclosure in online interactions. Online relationship closeness and communication satisfaction are affected by CMC use and interaction.

Hypotheses and Research Questions

This study tested the model of CMC use for online relationships. Some evidence suggests that communication avoidance and loneliness predict greater self-disclosure when using CMC. For example, McKenna et al. (2002) and Morahan-Martin and Schumacher (2003) found that socially anxious and lonely people were more likely to reveal their private information to online users than to those they knew offline. However, Leung (2002) found that chronically lonely people disclosed lesser amounts of personal information than did nonlonely people. Therefore, no clear-cut conclusion can be drawn from the literature about the relationship between these dispositions and self-disclosure. It is not clear how unwillingness to communicate and loneliness contribute to CMC use and interaction (i.e., the level of self-disclosure when using CMC, and the amount and type of CMC use).
Figure 1. A model of CMC use for online relationships.
Motivation for using CMC should be important when explaining the association between individual differences in dispositions and CMC use and interaction. As U&G and the conceptual model reflect, such individual differences affect motives that contribute to CMC use and interaction. Hence, in this study, I examine whether such dispositions (i.e., unwillingness to communicate and loneliness) and CMC motives explain CMC use and interaction (i.e., self-disclosure and the amount and type of CMC use). The first research questions are:

RQ1a: How do unwillingness to communicate, loneliness, and CMC motives predict self-disclosure when using CMC?

RQ1b: How do unwillingness to communicate, loneliness, and CMC motives predict the amount and type of CMC use?

Research has linked motives for interpersonal communication and the breadth or amount and depth of self-disclosure. Communicating for pleasure and affection has been associated with greater breadth of disclosure, whereas communicating for inclusion has been related to greater breadth and depth of disclosure (Graham et al., 1993). Thus, interpersonal communication motives should lead to greater self-disclosure than other motives for using CMC such as information-seeking and entertainment motives. People who are motivated to use CMC for seeking similar others, meeting new people, sharing experiences, and expressing themselves to others should be more likely to disclose information about themselves than those who use CMC for other purposes such as doing research or downloading music (Utz, 2000). Therefore, I expect:
H1: CMC motives for interpersonal communication (e.g., affection, inclusion, control) will positively predict greater amount and depth of self-disclosure.

Previous research shows that the amount and depth of self-disclosure explain relationship closeness and communication satisfaction. The interpersonal communication literature suggests that self-disclosure contributes to relationship formation and closeness (Altman & Taylor, 1973; Berger & Calabrese, 1975; Derlega et al., 1993). CMC research suggests that high levels of self-disclosure predict relationship closeness (Bargh & McKenna, 2004; Bargh et al., 2002; McKenna et al., 2002; Parks & Floyd, 1996; Parks & Roberts, 1998; Walther, 1996). Moreover, high levels of self-disclosure contribute to communication satisfaction (Martin & Anderson, 1995; Myers, 1998). Earlier, Jourard (1971) and Rogers (1951) had suggested that people were more satisfied with their lives when they disclose their personal information to others.

The amount and depth of self-disclosure should be related to online relationship closeness and communication satisfaction. However, it is possible that other dimensions of self-disclosure such as positiveness, honesty, and intent also may explain these two outcomes. People who intend to reveal their personal feelings to others, are honest in their self-disclosures, and disclose positive things about themselves to others should feel satisfied with their online interactions. As Walther (1996) suggested, CMC users made positive and idealized attributions of their online partners, which created self-fulfilling prophecies among themselves (Walther, 1996). Therefore, I propose:
H2a: The amount, depth, positiveness, honesty, and intent of self-disclosure will positively predict online relationship closeness.

H2b: The amount, depth, positiveness, honesty, and intent of self-disclosure will positively predict communication satisfaction.

The overall associations among individual differences (i.e., unwillingness to communicate and loneliness), CMC motives, CMC use and interaction (i.e., self-disclosure and the amount and type of CMC use), and the outcomes of using CMC (i.e., online relationship closeness and communication satisfaction) have not been established. Thus, the next research questions ask:

RQ2a: How do unwillingness to communicate, loneliness, CMC motives, self-disclosure, and the amount and type of CMC use predict online relationship closeness?

RQ2b: How do unwillingness to communicate, loneliness, CMC motives, self-disclosure, and the amount and type of CMC use predict communication satisfaction?

The second purpose of this study is to examine differences in CMC motives for interpersonal communication among those who had different dispositions. The literature suggests that people who experience loneliness and communication avoidance tend to have strong needs for belonging and are likely to seek companionship (Schutz, 1966; Weiss, 1973). Due to their deficiencies, as suggested by the lack of social skills and interactions, they may not find face-to-face interpersonal communication rewarding (Burgoon, 1976; Daly et al., 1997; Hosman, 1991; Jones, 1982). Also, people who do not
find their face-to-face communication rewarding may be more likely to use CMC or other media to compensate for these felt interpersonal communication deficiencies (Armstrong & Rubin, 1989; Papacharissi & Rubin, 2000; Roberts et al., 2000; Scealy et al., 2002).

Rosengren and Windahl (1972) suggested that media can be a substitute, a supplement, or a complement to face-to-face communication. Media can be a supplement to face-to-face communication when people are satisfied with both individual and environmental possibilities to gratify needs. On the other hand, media become substitutes to face-to-face communication when people are not satisfied with either individual or environmental possibilities to fulfill needs. People who experience high levels of communication avoidance should prefer CMC channels for gratifying interpersonal communication needs and have salient of CMC motives for interpersonal communication, as compared to those with lower levels of communication avoidance.

Thus, the next hypothesis is:

\[ H3: \text{ People who experience high levels of communication avoidance will have more salient CMC motives for interpersonal communication than those with low levels of communication avoidance. } \]

Moreover, past research suggests that chronically lonely, situationally lonely, and nonlonely people differ in their motives to use media (e.g., Canary & Spitzberg, 1993; Finn & Gorr, 1988). For instance, Canary and Spitzberg (1993) found that chronically lonely people were less likely to use media for surveillance and escape purposes than were situationally lonely and nonlonely people. Perse and Rubin (1990) found that chronically lonely people were less likely to watch soap operas to seek excitement or for
social interaction when compared to nonlonely people. Instead, they tended to watch soap operas to pass the time. However, little is known about how types of loneliness affect levels of CMC motives for interpersonal communication. Hence, the next research question is:

RQ3: Are there differences among chronically lonely, situationally lonely, and nonlonely people in their CMC motives for interpersonal communication?

In addition, the next research question examines the interaction effects of communication avoidance (e.g., high and low) and types of loneliness (e.g., chronic, situational, nonlonely) on levels of CMC motives for interpersonal communication. The next research question asks:

RQ4: Are there differences among people who are chronically lonely, situationally lonely, and nonlonely and who experience high and low levels of communication avoidance in their CMC motives for interpersonal communication?

Finally, the third purpose of this study is to explore differences among types of online relationships in CMC use and interaction. Stafford (2005) pointed out that people who have purely virtual relationships use CMC as the only channel of communication for relational communication, whereas those who have migratory mixed-mode and traditional long-distance relationships use CMC and other modes of communication such as face-to-face and telephone for social interaction. CMC may have less impact on those who use it as an additional channel of communication (Stafford, 2005). A. M. Rubin and Windahl (1986) noted that “the more functional alternatives there are for an individual,
the lesser is the dependency on and influence of a specific medium (p. 193). Therefore, it is anticipated that people who use CMC as a primary channel of communication should differ from those who use CMC as an additional channel of communication in their self-disclosure and the amount and types of CMC use. Given the limited research about this subject, the next research question is:

RQ5: Are there differences among people who are in purely virtual, migratory mixed-mode, and traditional long-distance relationships in self-disclosure and the amount and types of CMC use?

In sum, the literature reviewed here suggests contributions of individual differences (i.e., unwillingness to communicate and loneliness), CMC motives, and CMC use and interaction (i.e., self-disclosure and the amount and type of CMC use) to predicting online relationship closeness and communication satisfaction as the outcomes of using CMC. U&G helps explicate how individual differences and motives affect CMC use and interaction and how online relationship closeness and communication satisfaction are explained by CMC interaction.

In the next chapter, I explain the methodology for assessing the hypotheses and answering the research questions. I also review the sample, procedure, measurement, and data analysis of the study.
CHAPTER II

METHOD

Sample and Procedure

Data were collected from students from various departments who registered in a multi-section undergraduate communication class at Kent State University and who used the Internet as a means of relational communication. Participants received two research points for their voluntary participation. They were recruited through a posted announcement where they signed up to participate.

College student samples have been used in several studies relating to Internet use (e.g., Bonebrake, 2002; Charney & Greenberg, 2002; LaRose, Lin, & Eastin, 2003; Morahan & Schumacher, 2000; Papacharissi & Rubin, 2000). These studies suggest that college students are appropriate samples for Internet study because they have Internet experience and access to the Internet on campus and, often, elsewhere. They generally use a variety of CMC functions such as chatrooms, instant messaging, newsgroups, and listservs, and communicate through e-mail regularly (Charney & Greenberg, 2002; Morahan & Schumacher, 2000; Papacharissi & Rubin, 2000).

In this study, the approximate sample size was calculated from more than five times the 45 items in the CMC Motives Scales. Bryant and Yarnold (2001) suggested that a minimum number of samples for factor analysis should be at least five times the number of items. Also, sample size is estimated for a multiple regression and a multivariate analysis of variance (MANOVA). Based on Cohen (1988), to achieve a power of .80 and a medium effect size, the sample size requires 126 and 176 participants.
for multiple regression and MANOVA, respectively. Thus, the sample size of this study is based on numbers of participants for computing the factor analysis.

A total of 261 students registered in the communication course participated in this study. Participants were 46.0% male and 54.0% female. There were 38.3% freshmen, 37.2% sophomores, 14.9% juniors, and 8.4% seniors. A majority of participants was Caucasian (89.3%), followed by African American (8.0%), other (1.5%), Asian/Pacific Islander (0.8%), and Hispanic (0.4%). They ranged in age from 18 to 41 years ($M = 20.29, SD = 3.15$).

Participants completed a packet of questionnaires that were divided into three parts. The first part of the questionnaire consisted of UC-AA, UC-RW, loneliness, CMC motives, and amount and type of Internet use. The second part contained types of online relationships, self-disclosure, interpersonal solidarity, and communication satisfaction. The third part consisted of general demographic information. These questionnaires were accompanied with informed consent information describing the purpose of the study, confidentiality of participation, and credits gained from participation (see Appendix A).

**Measurement**

*Unwillingness to Communicate*

Burgoon’s (1976) Unwillingness-to-Communicate (UC) Scale was used to measure participants’ perception of their communication. The UC Scale contains two dimensions: Approach-Avoidance (UC-AA) and Reward (UC-RW). Each dimension consists of 10 items. Participants indicated their degree of agreement with each statement using a 7-point Likert-type scale ranging from *Strongly Disagree* (1) to *Strongly Agree*
Responses for each dimension were summed and averaged ($M = 4.73, SD = 1.09$ for UC-AA, and $M = 5.64, SD = 0.71$ for UC-RW). High UC-AA scores mean that a person is relatively fearful and anxious in interpersonal encounters, that is, a person has a high level of communication avoidance. High UC-RW scores indicate that a person feels valued in his/her interpersonal interactions with friends and family, that is, a person has a high level of communication reward.

For some analyses, high and low communication avoidance groups were formed by using a median ($Mdn = 4.70$) split. The high communication avoidance group included participants who had the UC-AA scores above the median, and the low communication avoidance group included participants who had scores at the median and below. As a result, 127 participants were grouped as high communication avoidance and 134 participants were grouped as low communication avoidance for these analyses.

The UC Scale has been used in interpersonal and mass communication studies (e.g., Armstrong & Rubin, 1989; Burgoon & Hale, 1983; Kelly, 1982; Papacharissi, 2002; Papacharissi & Rubin, 2000). Researchers have reported acceptable reliability for the measure. Cronbach coefficient alphas were .88 and .89 for the UC-AA dimension, and .82 and .88 for the UC-RW dimension (Papacharissi & Rubin, 2000; A. M. Rubin, 1993). The coefficient alphas in the present study were .89 for the UC-AA dimension and .80 for the UC-RW dimension.

The UC Scale also is a valid measure. For example, Armstrong and Rubin (1989) reported that talk radio callers found communication less rewarding and tended to avoid interpersonal interactions as compared with noncallers. Papacharissi and Rubin (2000)
found that the UC-AA dimension predicted interpersonal utility motives, whereas the UC-RW dimension predicted information-seeking and entertainment motives. In addition, Kelly (1982) found that the UC-AA dimension was positively associated with communication apprehension, reticence, and shyness.

**Loneliness**

The UCLA Loneliness Scale (Version 3) (Russell, 1996) was used to measure participants’ loneliness. The UCLA Loneliness Scale has been a widely used measure of loneliness (Shaver & Brennan, 1991). The initial version of the scale consisted of 20 statements measuring the experience of loneliness (Russell, Peplau, & Ferguson, 1978). Even though the scale was found to be reliable and valid, researchers still expressed concerns about the negatively worded items and about discriminant validity.

Consequently, Russell, Peplau, and Cutrona (1980) developed a revised version of the UCLA Loneliness Scale, which consisted of both positively and negatively worded items. Russell et al. reported that the revised scale was reliable. They also found evidence of discriminant validity. The revised scale was related to measures of personality and depression. However, scholars encountered problems with the wording of the items (e.g., double negative items).

Later, Russell (1996) developed the simplified version of the UCLA Loneliness Scale (Version 3), which was used in this study. Russell aimed to simplify the response format and wording of the items. The scale consists of 20 items assessing loneliness. Participants were asked to indicate how often they feel lonely, ranging from *Never* (1) to
Always (4) (see Appendix C). Responses to the 20 items were summed and averaged. The mean of the scale was 1.97 ($SD = 0.46$).

For some analyses, the scores were divided into three groups according to prior studies to assess the potential differences among chronically lonely, situationally lonely, and nonlonely groups (Canary & Spitzberg, 1993; Leung, 2002; Spitzberg & Canary, 1985). Chronically lonely people represented those whose scores fell 1 standard deviation above the scale’s mean (i.e., 2.43 and above). Situationally lonely people represented those whose scores fell between the mean and 1 unit of standard deviation (i.e., 1.97 to 2.42). Nonlonely people represented those whose scores fell below the mean (i.e., below 1.97). The majority of participants were nonlonely (55.6%). Situationally lonely represented 28.0% and chronically lonely 16.5% of the sample.

The UCLA Loneliness Scale is reliable and valid. Russell (1996) reported adequate test-retest reliability when the scale was used with various groups of participants (e.g., college students, nurses, and elderly). Also, coefficient alphas for the scale have ranged from .89 to .94 across the samples (Russell, 1996). The Cronbach coefficient alpha for the scale in this study was .93. Russell (1996) also reported construct validity of the scale. He found that scores on the UCLA Loneliness Scale were strongly related to scores on the NYU Loneliness Scale (Rubenstein & Shaver, 1982) and scores on the Differential Loneliness Scale (Schmidt & Sermant, 1983). On the other hand, loneliness was negatively related to social support among college student participants.

The UCLA Loneliness Scale (Version 3) has been used in CMC and interpersonal communication studies. For example, Flora and Segrin (2000) used the scale to assess
loneliness among dating couples and relationship development. The Cronbach coefficient alpha of the scale was .91. Morahan-Martin and Schumacher (2000, 2003) also used the scale in studies of loneliness and Internet use.

**CMC Motives**

The CMC Motives Scale measures reasons people use the Internet (Papacharissi & Rubin, 2000). It measures a combination of interpersonal (inclusion/companionship, affection, and control), media (entertainment, habit, information, social interaction, escape, surveillance, pass time, and relaxation), and new technology (time control, convenience, economy, and expressive need) motives. The scale consists of 45 items, comprising five a priori dimensions: interpersonal utility, information seeking, entertainment, pass time, and convenience. The response options range from *Not at All* (1) to *Exactly* (5) like one’s own reasons for using the Internet including e-mail, instant messaging, chatrooms, and the like (see Appendix D). The factor analysis of the scale’s 45 items is reported in the next chapter.

The CMC Motives Scale is reliable and valid. Papacharissi and Rubin (2000) reported Cronbach alphas of the five dimensions: interpersonal utility ($\alpha = .93$), information seeking ($\alpha = .87$), pass time ($\alpha = .85$), entertainment ($\alpha = .85$), and convenience ($\alpha = .78$). As evidence for criterion-related validity, Papacharissi and Rubin found that those who found face-to-face communication less rewarding preferred to use the Internet for interpersonal communication. In addition, those who found face-to-face interactions rewarding preferred to use the Internet for information seeking and entertainment.
The CMC Motives Scale has been used in CMC studies. For instance, Wright (2002) used the scale to measure people’s motives for using Internet support groups. Wright reported Cronbach alphas of five dimensions ranging from .74 to .93.

Amount and Type of CMC Use

The amount and type of CMC use were operationalized as the number of minutes each CMC function (e.g., e-mail, chatrooms, instant messaging) was used each day. The measure of amount and type of Internet use developed by Papacharissi and Rubin (2000) was adapted to assess the amount and type of CMC use of participants in this study. Participants identified how many minutes they used each type of Internet function (i.e., e-mail, newsgroups/bulletin boards/listservs, chatrooms, instant messaging, WWW browsing, dating sites, Internet telephone, and other Internet use) both yesterday and on an average day (see Appendix E). These two numbers were summed and averaged to create an index of the amount of each type of use.

The means of each type of CMC use were: e-mail \(M = 15.09, SD = 16.45\); newsgroups/bulletin boards/listservs \(M = 7.57, SD = 18.05\); chatrooms \(M = 0.93, SD = 5.62\); instant messaging \(M = 67.46, SD = 74.25\); WWW browsing \(M = 41.89, SD = 45.12\); dating sites \(M = 0.87, SD = 4.51\); Internet telephone \(M = 0.25, SD = 2.40\); and other Internet use \(M = 6.17, SD = 37.84\).

Online Relationships

This study investigated three types of online relationships: (a) purely virtual relationships, (b) migratory mixed-mode relationships, and (c) traditional long-distance relationships. After completing the first part of the questionnaire concerning UC-AA,
UC-RW, loneliness, CMC motives, and amount and type of CMC use, participants completed the second part regarding their online relationships. First, an open-ended question asked participants to specify their relationship (e.g., acquaintance, classmate, friend, romantic partner, and family member) with a person with whom they communicate on the Internet. Next, participants responded to a question asking, “How would you know and stay in touch with this person?” to indicate: (a) whether they know this person online and then use the Internet as the only channel of communication, (b) whether they know this person online and engage in face-to-face meetings, or (c) whether they know this person offline and then use the Internet as one means to stay in touch (see Appendix F).

**Self-disclosure**

The Revised Self-disclosure Scale developed by Wheeless (1978) was used to measure participants’ self-disclosure. The scale contains 31 items, tapping five dimensions of self-disclosure: intended disclosure, amount, positive-negative, depth, and honesty. Participants indicated the degree to which the statements reflect how they communicate with a specific person online using a 7-point Likert-type scale ranging from *Strongly Disagree* (1) to *Strongly Agree* (7). For instance, “I do not often talk about myself online” and “I intimately disclose who I really am, openly and fully in my conversation” (see Appendix G).

Responses to the items on each dimension were summed and averaged. Higher scores indicated greater self-disclosure. The means of five dimensions of self-disclosure were: intended disclosure ($M = 5.06, SD = 1.03$); amount ($M = 3.71, SD = 0.82$); positive-
negative ($M = 5.00, SD = 0.86$); depth ($M = 3.54, SD = 1.19$); and honesty ($M = 4.99, SD = 0.90$).

Wheeless’s (1978) Revised Self-disclosure Scale has, typically, been a valid and reliable and measure. Studies have provided evidence of the construct validity of the scale. For example, self-disclosure was related to communication apprehension, trustworthiness, and interpersonal solidarity (Wheeless, 1978; Wheeless & Grotz, 1977; Wheeless, Nesser, & McCroskey, 1986). In addition, Wheeless (1978) reported Cronbach alphas of the original five dimensions: amount ($\alpha = .88$), depth ($\alpha = .84$), intent ($\alpha = .85$), positive-negative ($\alpha = .91$), and honesty ($\alpha = .87$).

The Revised Self-disclosure Scale has been used in interpersonal and CMC studies. Martin and Anderson (1995) used the measure to assess self-disclosure in the father and young adult relationship and reported Cronbach coefficient alphas of five dimensions ranging from .70 to .86. Leung (2002) used the scale in the study of loneliness and self-disclosure in online settings. Cronbach coefficient alphas ranged from .59 to .80. Myers and Johnson (2004) used the scale to assess self-disclosure in peer relationships and reported a coefficient alpha of .78 for the overall scale. The Cronbach alphas of the five dimensions in the current study were: intended disclosure ($\alpha = .76$); amount ($\alpha = .65$), positive-negative ($\alpha = .74$), depth ($\alpha = .77$), and honesty ($\alpha = .81$).

**Online Relationship Closeness**

Wheeless’s (1978) Interpersonal Solidarity Scale (ISS) was used to measure online relationship closeness. Wheeless (1976) noted that interpersonal solidarity is a
feeling of closeness of relationships resulting from similarities in personal characteristics, pleasant sentiments, behaviors, and symbolic expressions of similarities.

The ISS contains 20 items accompanied by a 7-point Likert-type scale ranging from *Strongly Disagree* (1) to *Strongly Agree* (7). Participants identified their degree of closeness with a specific person they communicated through CMC. The scale contains statements such as, “We are close to each other” and “I like this person much more than most people I know” (see Appendix H). Responses to all items were summed and averaged. Higher scores indicated greater online relationship closeness. The mean of the scale was 5.39 (SD = 0.99).

The ISS is reliable and valid. In the past, split-half reliabilities of the scale were .96 (Wheeless, 1978) and .94 (Wheeless, Wheeless, & Baus, 1984) and coefficient alpha for the scale was .95 (Myers, 1998; Weber & Patterson, 1996). The Cronbach alpha for the 20-item scale in this study was .94. In addition, supporting its validity, Wheeless (1978) found that self-disclosure, individualized trust, and interpersonal solidarity were related. Weber and Patterson (1996) found a positive correlation between scores on the ISS scores and scores on the Communicative Based Emotional Support Scale (CBESS).

**Communication Satisfaction**

Hecht’s (1978a) Interpersonal Communication Satisfaction (Com-Sat) Inventory was used to measure participants’ degree of communication satisfaction with the online relationship. Participants indicated their levels of agreement with 19 statements on a 7-point Likert-type scale (1 = *Strongly Disagree*, 7 = *Strongly Agree*). I reworded the scale slightly so that it reflects communication satisfaction with the online relationship. Items
include statements such as, “I was very satisfied with online conversations” and “I felt that during online conversations I was able to present myself as I wanted the other person to view me” (see Appendix I). Responses were summed and averaged. Higher scores indicated a greater degree of communication satisfaction. The mean score of the scale was 4.84 (SD = 1.12).

Scholars have used this scale to measure communication satisfaction in various types of relationships, including interpersonal relationships (Wheeless, Frymier, & Thompson, 1992), father and young adult relationships (Martin & Anderson, 1995), nurse and physician relationships (Glenn, Rhea, & Wheeless, 1997), and sibling relationships (Myers, 1998). The Com-Sat Inventory has been reliable. Coefficient alphas across past studies have ranged from .87 to .95 (Glenn et al., 1997; Martin & Anderson, 1995; Myers, 1998). The Cronbach alpha for the scale in this study was .93.

Demographic Information

In the last part of the questionnaire, participants were asked to identify general information about themselves. Four items included gender, age, college credits completed, and ethnicity (see Appendix J).

Statistical Analysis

Descriptive statistics and reliability analyses of all the measures used in this study were performed. Principal components analysis with varimax rotation was used to extract factors of the CMC Motives Scale. The criteria for a factor to be retained were an eigenvalue equal to or greater than 1.00 and applying the .60/.40 rule for factor loadings.
For RQ1a and RQ1b, I used a hierarchical regression for each research question to test the contribution of individual differences (i.e., unwillingness to communicate and loneliness) and CMC motives to predicting CMC use and interaction (i.e., self-disclosure and the amount and type of use).

Hypothesis 1 posits that CMC motives for interpersonal communication (e.g., affection, inclusion, control) will positively predict greater amount and depth of self-disclosure. I used a multiple regression to assess the contribution of interpersonal communication motives to predicting self-disclosure.

Hypotheses 2a and 2b posit that the amount, depth, honesty, positiveness, intent of self-disclosure will positively predict online relationship closeness and communication satisfaction. I used multiple regression for each hypothesis to assess how self-disclosure explains online relationship closeness and communication satisfaction.

For RQ2a and RQ2b, I used hierarchical regression for each research question to assess the contribution of unwillingness to communicate, loneliness, CMC motives, self-disclosure, and the amount and types of use to predicting online relationship closeness and communication satisfaction.

Hypothesis 3 posits that people with high levels of communication avoidance will have more salient CMC motives for interpersonal communication than those with low levels of communication avoidance. A multivariate analysis of variance (MANOVA) was performed to assess how those who experienced high and low in communication avoidance differed in their CMC motives for interpersonal communication. For RQ3, I
used MANOVA to assess how chronically lonely, situationally lonely, and nonlonely differed in their CMC motives for interpersonal communication.

For RQ4, a 2 x 3 MANOVA was performed to assess differences among communication avoidance and loneliness groups in their CMC motives for interpersonal communication. RQ5 asks whether those in purely virtual, migratory mixed-mode, and traditional long-distance relationships differed in the amount and type of CMC use and self-disclosure. MANOVA was performed to assess whether there were differences among people who were in different types of online relationships in the amount and types of CMC use and self-disclosure.
CHAPTER III

RESULTS

This study was conducted to examine (a) the contribution of unwillingness to communicate, loneliness, CMC motives, self-disclosure, and the amount and type of CMC use to explaining online relationship closeness and communication satisfaction, (b) differences in CMC motives for interpersonal communication among those who experienced communication avoidance and were lonely, and (c) differences in self-disclosure and the amount and type of CMC use among those in purely virtual, migratory mixed-mode, and traditional long-distance relationships. I investigated three hypotheses and five research questions. This chapter presents the results of the study.

Factor Analysis for CMC Motives

The 45 items of CMC Motives Scale were factor analyzed by using principal components analysis with varimax rotation. The criteria for a factor to be retained were an eigenvalue equal to or greater than 1.00 and the .60/.40 rule for factor loadings. The factor solution initially yielded nine factors and accounted for 64.57% of the total variance. Factors six through nine were excluded from further analysis because they had only one item or no items that loaded cleanly on the factor. A second principal components analysis with varimax rotation was performed for the retained 22 items to assess the stability of the factor structure. Two of the 22 items were excluded because they did not load cleanly on a factor. The factor solution yielded four interpretable factors and accounted for 63.85% of the total variance.
Factor 1, self-fulfillment (eigenvalue = 7.87), accounted for 35.8% of the total variance after rotation. It contained all three pass time items, all three habit items, and two entertainment items. This factor reflected using the Internet more ritualistically for self-fulfillment such as passing time, habit, and enjoyment ($M = 3.64$, $SD = 0.86$).

Factor 2, information seeking (eigenvalue = 2.86), accounted for 13.0% of the total variance after rotation. It contained two items each for information seeking and convenience, and one economy item. This factor reflected using the Internet to search for convenient and economical information ($M = 4.28$, $SD = 0.64$).

Factor 3, affection (eigenvalue = 2.10), accounted for 9.6% of the total variance after rotation. It was defined by all three affection items and one expressive need item. This factor reflected using the Internet to express caring and appreciation of others ($M = 2.75$, $SD = 0.84$).

Factor 4, interpersonal involvement (eigenvalue = 1.21), accounted for 5.5% of the total variance after rotation. It included one inclusion item, one social interaction item, and one surveillance item. This factor reflected using the Internet for belongingness and participation with others ($M = 2.58$, $SD = 0.96$).

Table 1 presents primary factor loadings of the 20 items in the 4-factor solution and means and standard deviations of the items. Cronbach coefficient alphas for the four factors were: self-fulfillment ($\alpha = .92$), information seeking ($\alpha = .85$), affection ($\alpha = .81$), and interpersonal involvement ($\alpha = .74$). The most important reasons for using the Internet were information seeking ($M = 4.28$), followed by self-fulfillment ($M = 3.64$), affection ($M = 2.75$), and interpersonal involvement ($M = 2.58$).
Table 1

**Factor Loadings for CMC Motives**

<table>
<thead>
<tr>
<th>CMC Motives Items</th>
<th>Factor Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;I use the Internet…&quot;</td>
<td>Factor Loadings</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Factor 1: Self-Fulfillment</td>
<td></td>
</tr>
<tr>
<td>Because it gives me something to do to occupy my time (3.53, 1.15)</td>
<td>.85</td>
</tr>
<tr>
<td>When I have nothing better to do (3.51, 1.16)</td>
<td>.82</td>
</tr>
<tr>
<td>Because it passes the time away, particularly when I’m bored (3.70, 1.10)</td>
<td>.81</td>
</tr>
<tr>
<td>Because it’s a habit, just something to do (3.47, 1.21)</td>
<td>.76</td>
</tr>
<tr>
<td>Because I just like to use it (3.82, 1.03)</td>
<td>.75</td>
</tr>
<tr>
<td>Because it’s fun just to play around and check things out (3.97, 0.95)</td>
<td>.68</td>
</tr>
<tr>
<td>Because it’s enjoyable (3.74, 1.01)</td>
<td>.67</td>
</tr>
<tr>
<td>Just because it’s there (3.35, 1.13)</td>
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<tr>
<td>Factor 2: Information Seeking</td>
<td></td>
</tr>
<tr>
<td>To get information for free (4.17, 0.84)</td>
<td>.19</td>
</tr>
<tr>
<td>Because it is convenient (4.26, 0.88)</td>
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</tr>
<tr>
<td>To search for information (4.50, 0.65)</td>
<td>.13</td>
</tr>
<tr>
<td>Because it provides a new and interesting way to do research (4.04, 0.90)</td>
<td>.14</td>
</tr>
<tr>
<td>Because it’s easier to get information (4.41, 0.74)</td>
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<td>Factor 3: Affection</td>
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<td>To let others know I care about their feelings (2.96, 1.12)</td>
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</tr>
<tr>
<td>To show others encouragement (2.53, 1.07)</td>
<td>.02</td>
</tr>
<tr>
<td>To help others (2.83, 0.98)</td>
<td>.09</td>
</tr>
<tr>
<td>Because I enjoy answering other people’s questions (2.69, 1.11)</td>
<td>.17</td>
</tr>
<tr>
<td>Factor 4: Interpersonal Involvement</td>
<td></td>
</tr>
<tr>
<td>To belong to a group with the same interests as mine (2.26, 1.16)</td>
<td>.10</td>
</tr>
<tr>
<td>To get more points of view (2.68, 1.51)</td>
<td>.02</td>
</tr>
<tr>
<td>To participate in discussions (2.71, 1.22)</td>
<td>.19</td>
</tr>
</tbody>
</table>

*Note.* The parenthetical numbers are each item’s mean and standard deviation.
In sum, four CMC motives—self-fulfillment, information seeking, affection, and interpersonal involvement—were identified in this study. Only information-seeking items loaded on the intended factor in a manner similar to the original CMC Motives Scale (Papacharissi & Rubin, 2000). The other three motives, which were self-fulfillment, affection, and interpersonal involvement, loaded differently than expected on the factors. The self-fulfillment motive included a combination of items from entertainment and pass-time motives. Affection and interpersonal involvement motives, which were originally a part of interpersonal utility, loaded on separate factors in this study.

Dispositions and CMC Motives Predicting Self-disclosure

Research Question 1a asked how unwillingness to communicate, loneliness, and CMC motives predicted self-disclosure when using CMC. I used separate hierarchical regression analyses to assess the contribution of UC-AA, UC-RW, loneliness, and CMC motives to explaining each of the five dimensions of self-disclosure: intent, amount, depth, positiveness, and honesty.

The variables were entered in blocks reflecting a theoretical framework of the U&G model, expecting dispositions and communication motives to influence media use. UC-AA, UC-RW, and loneliness were entered on the first step. In separate analyses, these three predictors significantly explained four dimensions of self-disclosure: intent, \( R = .31, R^2 = .09, F(3, 257) = 9.28, p < .001 \); positiveness, \( R = .32, R^2 = .10, F(3, 257) = 9.74, p < .001 \); depth, \( R = .21, R^2 = .04, F(3, 257) = 3.81, p < .05 \); and honesty, \( R = .36, R^2 = .13, F(3, 257) = 12.90, p < .001 \) (see Table 2).
Table 2

*Hierarchical Regression Analyses for Unwillingness to Communicate, Loneliness, and CMC Motives Predicting Five Dimensions of Self-Disclosure (N = 261)*

<table>
<thead>
<tr>
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<th>SE B</th>
<th>β</th>
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</table>

*Note. The table summarizes five separate hierarchical regressions. * $p < .05$, ** $p < .01$, *** $p < .001$. 
On the first step, UC-AA and loneliness emerged as significant, but negative, predictors of the depth of self-disclosure. Also, UC-AA positively predicted positiveness of self-disclosure, whereas UC-RW positively predicted intended disclosure. UC-RW positively predicted honesty, whereas loneliness negatively predicted honesty.

Four CMC motives—self-fulfillment, information seeking, affection, and interpersonal involvement—were entered on the second step. CMC motives significantly predicted three dimensions of self-disclosure: amount, $R = .37$, $\Delta R^2 = .12$, $F(4, 253) = 8.92$, $p < .001$; depth, $R = .45$, $\Delta R^2 = .16$, $F(4, 253) = 12.80$, $p < .001$; and honesty, $R = .41$, $\Delta R^2 = .03$, $F(4, 253) = 2.69$, $p < .05$ (see Table 2). The affection motive positively predicted amount, depth, and intent. The interpersonal involvement motive positively predicted depth. The self-fulfillment motive positively predicted amount and depth, and negatively predicted honesty. On this step, the dispositions retained their significance. In addition, loneliness emerged as a significant negative predictor of positiveness of self-disclosure.

The final regression equation explained 13.8% of the variance in the amount of self-disclosure, $R = .37$, $R^2 = .13$, $F(7, 253) = 5.81$, $p < .001$. The affection motive ($\beta = .22$, $p < .01$) and the self-fulfillment motive ($\beta = .14$, $p < .05$) were significant positive predictors of the amount of self-disclosure.

The final regression equation accounted for 20.4% of the variance in the depth of self-disclosure, $R = .45$, $R^2 = .20$, $F(7, 253) = 9.25$, $p < .001$. UC-AA ($\beta = -.22$, $p < .01$) and loneliness ($\beta = -.16$, $p < .05$) were significant negative predictors of depth, whereas
the self-fulfillment motive ($\beta = .16, p < .05$), the affection motive ($\beta = .23, p < .01$), and the interpersonal involvement motive ($\beta = .14, p < .05$) positively predicted depth.

After all variables were entered, UC-AA ($\beta = .18, p < .01$) was a significant positive predictor of positiveness of self-disclosure, whereas loneliness ($\beta = -.16, p < .05$) negatively predicted positiveness. The final regression equation accounted for 11.5% of the variance in positiveness, $R = .34, R^2 = .12, F(7, 253) = 4.71, p < .001$. 

The final regression equation explained 16.6% of the variance in honesty of self-disclosure, $R = .41, R^2 = .17, F(7, 253) = 7.21, p < .001$. UC-RW ($\beta = .16, p < .05$) positively predicted honesty, whereas loneliness ($\beta = -.26, p < .01$) and the self-fulfillment motive ($\beta = -.15, p < .05$) were significant negative predictors of honesty.

Lastly, after all variables were entered, the final regression equation accounted for 11.7% of the variance in intended disclosure, $R = .34, R^2 = .11, F(7, 253) = 4.80, p < .001$. UC-RW ($\beta = .25, p < .01$) and the affection motive ($\beta = .16, p < .05$) positively predicted intended disclosure.

In sum, unwillingness to communicate, loneliness, and CMC motives predicted self-disclosure when using CMC. However, none of the predictors predicted all five dimensions of self-disclosure. Overall, dispositions predicted depth, positiveness, honesty, and intent, whereas CMC motives predicted amount, depth, honesty, and intent.

Following up on RQ1a, Hypothesis 1 proposed that CMC motives for interpersonal communication would positively predict greater amount and depth of self-disclosure. Affection and interpersonal involvement motives represented CMC motives
for interpersonal communication in this study because they contained affection and inclusion items.

Multiple regression analyses indicated that affection and interpersonal involvement motives accounted for 10.8% of the variance in the amount of self-disclosure, $R = .33$, $R^2 = .11$, $F(2, 258), p < .001$, and accounted for 13.4% of the variance in the depth of self-disclosure, $R = .37$, $R^2 = .13$, $F(2, 258), p < .001$. Hypothesis 1 was partially supported. Both the affection motive ($\beta = .24, p < .001$) and the interpersonal involvement motive ($\beta = .18, p < .01$) were significant positive contributors to the depth of self-disclosure. However, only the affection motive ($\beta = .26, p < .001$) positively predicted the amount of self-disclosure (see Table 3).

Table 3

*Multiple Regression Analysis for Motives Predicting Amount and Depth of Self-disclosure (N = 261)*

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<td>.18**</td>
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*Note. ** $p < .01$, *** $p < .001$.*
Dispositions and CMC Motives Predicting Amount and Type of CMC Use

Based on descriptive analysis of the average minutes of Internet use per day, participants used instant messaging the most (\(M = 67.46, SD = 74.25\)), followed by WWW browsing (\(M = 41.89, SD = 45.12\)), e-mail (\(M = 15.09, SD = 16.45\)), newsgroups/bulletin boards/listservs (\(M = 7.57, SD = 18.05\)), other Internet use (\(M = 6.19, SD = 37.84\)), chatrooms (\(M = 0.93, SD = 5.62\)), dating sites (\(M = 0.87, SD = 4.51\)), and Internet telephone (\(M = 0.25, SD = 2.40\)).

Research Question 1b asked how unwillingness to communicate, loneliness, and CMC motives predicted the amount and type of CMC use. I used separate hierarchical regression analyses to examine the contribution of UC-AA, UC-RW, loneliness, and CMC motives to the amount and type of CMC use. UC-AA, UC-RW, and loneliness were entered on the first step. None of the predictors was significantly related to the amount and type of CMC use, \(R = .12, R^2 = .02, F(3, 257) = 1.29, p = .23\) (see Table 4). On the second step, four CMC motives—self-fulfillment, information seeking, affection, and interpersonal involvement—were entered in the regression. CMC motives significantly predicted four types of CMC use: e-mail, \(R = .30, \Delta R^2 = .07, F(4, 253) = 4.90, p < .01\); newsgroups/bulletin boards/listservs, \(R = .38, \Delta R^2 = .13, F(4, 253) = 9.69, p < .001\); WWW browsing, \(R = .31, \Delta R^2 = .09, F(4, 253) = 6.33, p < .01\); and instant messaging, \(R = .45, \Delta R^2 = .19, F(4, 253) = 15.79, p < .001\). Still, none of the dispositions—UC-AA, UC-RW, and loneliness—was a significant predictor on this step.
Table 4

*Hierarchical Regression Analyses for Unwillingness to Communicate, Loneliness, and CMC Motives Predicting Amount and Type of CMC Use (N = 261)*

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</tr>
<tr>
<td></td>
<td>R² = .03</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Step 2</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>UC-AA</td>
<td>0.69</td>
<td>2.43</td>
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</tr>
<tr>
<td></td>
<td>UC-RW</td>
<td>2.69</td>
<td>4.03</td>
<td>.05</td>
</tr>
<tr>
<td></td>
<td>Loneliness</td>
<td>16.64</td>
<td>6.48</td>
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</tr>
<tr>
<td></td>
<td>Self-Fulfillment Motive</td>
<td>2.89</td>
<td>3.26</td>
<td>.07</td>
</tr>
<tr>
<td></td>
<td>Information-Seeking Motive</td>
<td>-1.61</td>
<td>4.14</td>
<td>-.03</td>
</tr>
<tr>
<td></td>
<td>Affection Motive</td>
<td>-3.22</td>
<td>3.34</td>
<td>-.07</td>
</tr>
<tr>
<td></td>
<td>Interpersonal Involvement Motive</td>
<td>3.04</td>
<td>2.97</td>
<td>.08</td>
</tr>
<tr>
<td>Other Internet Use</td>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>UC-AA</td>
<td>0.69</td>
<td>2.43</td>
<td>.02</td>
</tr>
<tr>
<td></td>
<td>UC-RW</td>
<td>2.69</td>
<td>4.03</td>
<td>.05</td>
</tr>
<tr>
<td></td>
<td>Loneliness</td>
<td>16.64</td>
<td>6.48</td>
<td>.20</td>
</tr>
<tr>
<td></td>
<td>Self-Fulfillment Motive</td>
<td>2.89</td>
<td>3.26</td>
<td>.07</td>
</tr>
<tr>
<td></td>
<td>Information-Seeking Motive</td>
<td>-1.61</td>
<td>4.14</td>
<td>-.03</td>
</tr>
<tr>
<td></td>
<td>Affection Motive</td>
<td>-3.22</td>
<td>3.34</td>
<td>-.07</td>
</tr>
<tr>
<td></td>
<td>Interpersonal Involvement Motive</td>
<td>3.04</td>
<td>2.97</td>
<td>.08</td>
</tr>
<tr>
<td></td>
<td>ΔR² = .00</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* The table summarizes eight separate hierarchical regressions. *p < .05, **p < .01, ***p < .001.
After all variables were entered, the final regression equation accounted for 8.6% of the variance in e-mail, $R = .29$, $R^2 = .09$, $F(7, 253) = 3.40$, $p < .01$. The positive predictors were self-fulfillment ($\beta = .17$, $p < .05$) and affection motives ($\beta = .20$, $p < .01$)

Interpersonal involvement ($\beta = .30$, $p < .001$) and information-seeking motives ($\beta = .14$, $p < .05$) were significant positive contributors to newsgroups/bulletin boards/listservs. After all variables were entered, the final regression equation explained 14.8% of the variance, $R = .38$, $R^2 = .15$, $F(7, 253) = 6.26$, $p < .001$.

The final regression equation explained 20.6% of the variance in instant messaging, $R = .45$, $R^2 = .21$, $F(7, 253) = 9.38$, $p < .001$. Self-fulfillment ($\beta = .40$, $p < .001$) and affection motives ($\beta = .14$, $p < .05$) positively predicted instant messaging.

The final regression equation explained 9.6% of the variance in WWW browsing, $R = .31$, $R^2 = .10$, $F(7, 253) = 3.83$, $p < .01$. Significant positive predictors were self-fulfillment ($\beta = .19$, $p < .05$) and affection motives ($\beta = .21$, $p < .01$).

Overall, CMC motives rather than dispositions predicted certain types of CMC use. CMC motives explained approximately 7% to 19% of the variance in the amount and type of CMC use, specifically e-mail, instant messaging, WWW browsing, and newsgroups/bulletin boards/listservs.

Self-disclosure Predicting Online Relationship Closeness

Hypothesis 2a stated that the amount, depth, positiveness, honesty, and intent of self-disclosure would positively predict online relationship closeness. I used multiple regression analysis to test the predictive relationships of the five dimensions of self-disclosure on online relationship closeness. The results indicated that five dimensions of
self-disclosure accounted for 17.1% of the variance in online relationship closeness, \( R = .41, R^2 = .17, F(5, 255) = 10.50, p < .001\). Hypothesis 2a was partially supported. These dimensions of self-disclosure contributed to online relationship closeness. The beta weights for depth, intent, and amount of self-disclosure indicated that these three variables had independent positive effects on online relationship closeness (see Table 5).

Table 5

*Multiple Regression Analysis for Five Dimensions of Self-disclosure Predicting Online Relationship Closeness (N = 261)*

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Predictors</th>
<th>( B )</th>
<th>( SE ) ( B )</th>
<th>( \beta )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online Relationship Closeness</td>
<td>Amount</td>
<td>.17</td>
<td>.08</td>
<td>.15*</td>
</tr>
<tr>
<td></td>
<td>Depth</td>
<td>.20</td>
<td>.06</td>
<td>.24**</td>
</tr>
<tr>
<td></td>
<td>Intent</td>
<td>.18</td>
<td>.07</td>
<td>.18**</td>
</tr>
<tr>
<td></td>
<td>Positiveness</td>
<td>-.08</td>
<td>.08</td>
<td>-.07</td>
</tr>
<tr>
<td></td>
<td>Honesty</td>
<td>.06</td>
<td>.08</td>
<td>.05</td>
</tr>
</tbody>
</table>

\( R^2 = .17^{***} \)

*Note. * \( p < .05, ** p < .01, *** p < .001\).
Dispositions, CMC Motives, and CMC Use and Interaction

Predicting Online Relationship Closeness

Research Question 2a asked whether unwillingness to communicate, loneliness, CMC motives, self-disclosure, and the amount and type of CMC use predicted online relationship closeness. I used hierarchical regression analysis to examine the contribution of UC-AA, UC-RW, loneliness, CMC motives, self-disclosure, and the amount and type of CMC use to online relationship closeness.

The predictors were entered in three conceptual blocks based on the U&G theoretical framework, which suggested that dispositions, communication motives, and media use contribute to communication outcomes. UC-AA, UC-RW, and loneliness were entered on the first step and accounted for 15.3% of the variance in online relationship closeness, $R = .39, R^2 = .15, F(3, 257) = 15.43, p < .001$ (see Table 6). UC-RW was a significant positive predictor of online relationship closeness, whereas UC-AA and loneliness were significant negative contributors to online relationship closeness.

Self-fulfillment, information-seeking, affection, and interpersonal involvement motives were entered on the second step. CMC motives accounted for 9.7% of the variance in online relationship closeness, $R = .50, \Delta R^2 = .09, F(4, 253) = 8.13, p < .001$ (see Table 6). Significant positive predictors on this step were self-fulfillment and affection motives. All dispositions retained their significance on this step.

On the third step, the five dimensions of self-disclosure (amount, depth, positiveness, honesty, and intent) and eight types of CMC use (email, instant messaging, newsgroups/bulletin boards/listservs, chatrooms, WWW browsing, dating sites, Internet
Table 6

Hierarchical Regression Analysis for Unwillingness to Communicate, Loneliness, CMC Motives, and CMC Use Predicting Online Relationship Closeness (N = 261)

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Predictors</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>R² = .15***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UC-AA</td>
<td>-.27</td>
<td>.06</td>
<td>-.30***</td>
<td></td>
</tr>
<tr>
<td>UC-RW</td>
<td>.40</td>
<td>.10</td>
<td>.29***</td>
<td></td>
</tr>
<tr>
<td>Loneliness</td>
<td>-.36</td>
<td>.16</td>
<td>-.17*</td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td>AR² = .10***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UC-AA</td>
<td>-.29</td>
<td>.06</td>
<td>-.32***</td>
<td></td>
</tr>
<tr>
<td>UC-RW</td>
<td>.35</td>
<td>.09</td>
<td>.25***</td>
<td></td>
</tr>
<tr>
<td>Loneliness</td>
<td>-.35</td>
<td>.15</td>
<td>-.16*</td>
<td></td>
</tr>
<tr>
<td>Self-Fulfillment Motive</td>
<td>.31</td>
<td>.08</td>
<td>.27***</td>
<td></td>
</tr>
<tr>
<td>Information-Seeking Motive</td>
<td>-.01</td>
<td>-.10</td>
<td>-.01</td>
<td></td>
</tr>
<tr>
<td>Affection Motive</td>
<td>.19</td>
<td>.08</td>
<td>.16*</td>
<td></td>
</tr>
<tr>
<td>Interpersonal Involvement Motive</td>
<td>-.11</td>
<td>.07</td>
<td>-.11</td>
<td></td>
</tr>
<tr>
<td>Step 3</td>
<td>AR² = .09**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UC-AA</td>
<td>-.24</td>
<td>.06</td>
<td>-.26***</td>
<td></td>
</tr>
<tr>
<td>UC-RW</td>
<td>.34</td>
<td>.10</td>
<td>.24**</td>
<td></td>
</tr>
<tr>
<td>Loneliness</td>
<td>-.29</td>
<td>.16</td>
<td>-.13</td>
<td></td>
</tr>
<tr>
<td>Self-Fulfillment Motive</td>
<td>.23</td>
<td>.08</td>
<td>.20**</td>
<td></td>
</tr>
<tr>
<td>Information-Seeking Motive</td>
<td>-.01</td>
<td>.09</td>
<td>-.00</td>
<td></td>
</tr>
<tr>
<td>Affection Motive</td>
<td>.07</td>
<td>.08</td>
<td>.06</td>
<td></td>
</tr>
<tr>
<td>Interpersonal Involvement Motive</td>
<td>-.15</td>
<td>.07</td>
<td>-.15*</td>
<td></td>
</tr>
<tr>
<td>Amount</td>
<td>.12</td>
<td>.08</td>
<td>.10</td>
<td></td>
</tr>
<tr>
<td>Depth</td>
<td>.17</td>
<td>.06</td>
<td>.21**</td>
<td></td>
</tr>
<tr>
<td>Intent</td>
<td>.09</td>
<td>.06</td>
<td>.09</td>
<td></td>
</tr>
<tr>
<td>Positiveness</td>
<td>-.07</td>
<td>.07</td>
<td>-.06</td>
<td></td>
</tr>
<tr>
<td>Honesty</td>
<td>.02</td>
<td>.07</td>
<td>.02</td>
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</tr>
<tr>
<td>E-mail</td>
<td>.00</td>
<td>.00</td>
<td>.03</td>
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</tr>
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<td>Newsgroups/ Bulletin Boards/ Listservs</td>
<td>.00</td>
<td>.00</td>
<td>.03</td>
<td></td>
</tr>
<tr>
<td>Chatrooms</td>
<td>-.01</td>
<td>.01</td>
<td>-.07</td>
<td></td>
</tr>
<tr>
<td>WWW Browsing</td>
<td>.00</td>
<td>.00</td>
<td>.05</td>
<td></td>
</tr>
<tr>
<td>Instant Messaging</td>
<td>.00</td>
<td>.00</td>
<td>.02</td>
<td></td>
</tr>
<tr>
<td>Dating Sites</td>
<td>.01</td>
<td>.01</td>
<td>.04</td>
<td></td>
</tr>
<tr>
<td>Internet Telephone</td>
<td>.01</td>
<td>.02</td>
<td>.02</td>
<td></td>
</tr>
<tr>
<td>Other Internet Use</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
<td></td>
</tr>
</tbody>
</table>

Note. * p < .05, ** p < .01, *** p < .001.
telephone, and other Internet use) were entered in the regression. Self-disclosure and the amount and type of CMC use accounted for 8.7% of the variance, $R = .58$, $\Delta R^2 = .08$, $F(13, 240) = 2.42, p < .01$ (see Table 6). The depth of self-disclosure was the only significant positive predictor. Two dispositions—UC-AA and UC-RW—retained their significance, whereas loneliness was no longer significant on this step. Self-fulfillment motivation retained its significance, whereas the affection motive was no longer significant. The interpersonal involvement motive emerged as a significant negative predictor on the last step.

The final regression accounted for 33.6% of the variance in online relationship closeness. UC-RW, self-fulfillment motivation, and the depth of self-disclosure positively predicted online relationship closeness, whereas UC-AA and interpersonal involvement motivation negatively predicted online relationship closeness.

Overall, the results suggest that those who found their face-to-face communication rewarding used CMC for self-fulfillment, and exhibited greater depth of self-disclosure were more likely to feel close to their online partners or perceived satisfaction with their online relationships than those who avoided face-to-face communication and used CMC for interpersonal involvement.

Self-disclosure Predicting Communication Satisfaction

Hypothesis 2b stated that the amount, depth, positiveness, honesty, and intent of self-disclosure would positively predict communication satisfaction. A multiple regression analysis showed that the five dimensions of self-disclosure accounted for 8.7% of the variance in communication satisfaction, $R = .30$, $R^2 = .08$, $F(5, 255) = 4.86,$
Hypothesis 2b was partially supported. Among the five dimensions, intended self-disclosure was the only significant positive predictor of communication satisfaction (see Table 7).

Table 7

*Multiple Regression Analysis for Five Dimensions of Self-disclosure Predicting Communication Satisfaction (N = 261)*

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Predictors</th>
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<th>SE B</th>
<th>β</th>
</tr>
</thead>
<tbody>
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<td>.09</td>
<td>.01</td>
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<td>Depth</td>
<td>.04</td>
<td>.07</td>
<td>.04</td>
</tr>
<tr>
<td></td>
<td>Intent</td>
<td>.24</td>
<td>.08</td>
<td>.22**</td>
</tr>
<tr>
<td></td>
<td>Positiveness</td>
<td>-.07</td>
<td>.09</td>
<td>-.06</td>
</tr>
<tr>
<td></td>
<td>Honesty</td>
<td>.15</td>
<td>.09</td>
<td>.12</td>
</tr>
</tbody>
</table>

*R² = .08***

Note. ** p < .01, *** p < .001.

Dispositions, CMC Motives, and CMC Use and Interaction Predicting Communication Satisfaction

Research Question 2b asked whether unwillingness to communicate, loneliness, CMC motives, self-disclosure, and the amount and type of use predicted communication satisfaction. I used hierarchical regression analysis to assess the contribution of the predictors to explaining communication satisfaction. UC-AA, UC-RW, and loneliness were entered on the first step. There were no significant predictors on this step, *R* = .17,

*R² = .03, F(3, 257) = 2.42, p = .06* (see Table 8).
<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Predictors</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>R² = .03</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>UC-AA</td>
<td>-.10</td>
<td>.07</td>
<td>-.09</td>
<td></td>
</tr>
<tr>
<td>UC-RW</td>
<td>.15</td>
<td>.12</td>
<td>.10</td>
<td></td>
</tr>
<tr>
<td>Loneliness</td>
<td>-.27</td>
<td>.19</td>
<td>-.11</td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td>∆R² = .04*</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>UC-AA</td>
<td>-.10</td>
<td>.07</td>
<td>-.10</td>
<td></td>
</tr>
<tr>
<td>UC-RW</td>
<td>.10</td>
<td>.12</td>
<td>.06</td>
<td></td>
</tr>
<tr>
<td>Loneliness</td>
<td>-.27</td>
<td>.19</td>
<td>-.11</td>
<td></td>
</tr>
<tr>
<td>Self-Fulfillment Motive</td>
<td>.18</td>
<td>.10</td>
<td>.14</td>
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<td>Information-Seeking Motive</td>
<td>-.04</td>
<td>.12</td>
<td>-.02</td>
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</tr>
<tr>
<td>Affection Motive</td>
<td>.24</td>
<td>.10</td>
<td>.18*</td>
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</tr>
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<td>Interpersonal Involvement Motive</td>
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<td>.07</td>
<td>-.14</td>
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</tr>
<tr>
<td>Step 3</td>
<td>∆R² = .12**</td>
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<td></td>
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<td>.07</td>
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<td>UC-RW</td>
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<td>.01</td>
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<tr>
<td>Loneliness</td>
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<td>.20</td>
<td>-.06</td>
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<td>Self-Fulfillment Motive</td>
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<td>.10</td>
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<tr>
<td>Information-Seeking Motive</td>
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<td>-.01</td>
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</tr>
<tr>
<td>Affection Motive</td>
<td>.21</td>
<td>.10</td>
<td>.16**</td>
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<td>Interpersonal Involvement Motive</td>
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<td>.09</td>
<td>-.16*</td>
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</tr>
<tr>
<td>Amount</td>
<td>.05</td>
<td>.09</td>
<td>-.04</td>
<td></td>
</tr>
<tr>
<td>Depth</td>
<td>.03</td>
<td>.07</td>
<td>-.03</td>
<td></td>
</tr>
<tr>
<td>Intent</td>
<td>.22</td>
<td>.08</td>
<td>.20**</td>
<td></td>
</tr>
<tr>
<td>Positiveness</td>
<td>-.11</td>
<td>.09</td>
<td>-.09</td>
<td></td>
</tr>
<tr>
<td>Honesty</td>
<td>.13</td>
<td>.09</td>
<td>.10</td>
<td></td>
</tr>
<tr>
<td>E-mail Use</td>
<td>-.01</td>
<td>.01</td>
<td>-.08</td>
<td></td>
</tr>
<tr>
<td>Newsgroups/ Bulletin Boards/ Listservs</td>
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<td>.00</td>
<td>.10</td>
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<tr>
<td>Chatrooms</td>
<td>-.00</td>
<td>.01</td>
<td>-.01</td>
<td></td>
</tr>
<tr>
<td>WWW Browsing</td>
<td>-.00</td>
<td>.00</td>
<td>-.08</td>
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</tr>
<tr>
<td>Instant Messaging</td>
<td>.00</td>
<td>.00</td>
<td>.10</td>
<td></td>
</tr>
<tr>
<td>Dating Sites</td>
<td>.03</td>
<td>.02</td>
<td>.14*</td>
<td></td>
</tr>
<tr>
<td>Internet Telephone</td>
<td>-.08</td>
<td>.03</td>
<td>-.17**</td>
<td></td>
</tr>
<tr>
<td>Other Internet Use</td>
<td>.00</td>
<td>.00</td>
<td>.03</td>
<td></td>
</tr>
</tbody>
</table>

Note. * p < .05, ** p < .01.
On the second step, self-fulfillment, information-seeking, affection, and interpersonal involvement motives were entered. These four CMC motives accounted for 4.3% of the variance in communication satisfaction, $R = .27$, $\Delta R^2 = .04$, $F(4, 253) = 2.95$, $p < .05$ (see Table 8). Only the affection motive positively predicted communication satisfaction. None of the dispositions was a significant predictor on this step.

On the third step, the five dimensions of self-disclosure and eight types of CMC use (e-mail, newsgroups/bulletin boards/listservs, chatrooms, instant messaging, WWW browsing, dating sites, Internet telephone, and other Internet use) were entered in the regression equation. The set of self-disclosure and types of CMC use accounted for 11.5% of the variance in communication satisfaction, $R = .43$, $\Delta R^2 = .11$, $F(13, 240) = 2.60$, $p < .01$ (see Table 8). The significant contributors to communication satisfaction were intended disclosure, dating sites, and Internet telephone. On this step, all dispositions were still not significant predictors. The affection motive retained its significance, whereas the self-fulfillment motive emerged as a positive predictor and interpersonal involvement motivation emerged as a negative predictor.

After all variables were entered, the final regression equation accounted for 18.6% of the variance in communication satisfaction. The self-fulfillment motive, the affection motive, intended disclosure, and dating site use positively predicted communication satisfaction, whereas the interpersonal involvement motive and Internet telephone use negatively predicted communication satisfaction (see Table 8).

Overall, CMC motives and CMC use and interaction, rather than dispositions, predicted communication satisfaction. The results suggest that those who used CMC for
self-fulfillment and affection, were aware of their self-disclosures, and preferred to use dating sites tended to feel satisfied with their communication in online settings. On the other hand, those who used CMC for interpersonal involvement and used Internet telephone tended not to feel satisfied with their online communication.

Differences in Motives Between Communication Avoidance Groups

High and low communication avoidance groups were formed by using a median split. The high communication avoidance group represented participants with UC-AA scores above the median (4.70), whereas the low communication avoidance group included participants with scores at the median and below. Accordingly, 51.3% of participants \( n = 134 \) were grouped in low communication avoidance, whereas 48.7% of participants \( n = 127 \) were in the high communication avoidance group.

Hypothesis 3 stated that people who experienced high levels of communication avoidance were more likely to use CMC for interpersonal communication purposes than those with low levels of communication avoidance. A Multivariate Analysis of Variance (MANOVA) was performed to assess differences in affection and interpersonal involvement motives between the high and low communication avoidance groups. The MANOVA yielded no significant differences between high and low communication avoidance groups in affection and interpersonal involvement motives, Wilks’ \( \Lambda = .99 \), \( F(2, 258) = 1.42, p = .25, \eta^2 = .01 \). Those who experienced high and low levels of communication avoidance did not differ in their motivation to use CMC to communicate interpersonally.
Differences in Motives Among Loneliness Groups

Based on their loneliness scores, participants were divided into chronically lonely, situationally lonely, and nonlonely groups (Canary & Spitzberg, 1993; Leung, 2002; Spitzberg & Canary, 1985). The mean loneliness score was 1.97 ($SD = 0.46$). The chronically lonely group included participants with scores 1 standard deviation above the mean (i.e., 2.43 and above). The situationally lonely group included participants with scores ranging from the mean to 1 standard deviation below the mean (i.e., 1.97 to 2.42). The nonlonely group included participants with scores below the mean (i.e., below 1.97). Over half the participants (55.6%) were in the nonlonely group, followed by the situationally lonely group (28.0%), and the chronically lonely group (16.5%).

Research Question 3 asked whether there were differences among chronically lonely, situationally lonely, and nonlonely people in their affection and interpersonal involvement motives to use the Internet. A MANOVA was performed to assess differences in the affection and interpersonal involvement motive mean scores among three groups of loneliness. The result showed no significant differences in the motives among the three groups, Wilks’ $\Lambda = .99$, $F(4, 514) = .74$, $p = .57$, $\eta^2 = .01$. Thus, those who were chronically lonely, situationally lonely, and nonlonely did not differ in their motivation to use the Internet for interpersonal communication reasons.

Differences in Motives Among Communication Avoidance and Loneliness Groups

Research Question 4 asked whether there were differences between high and low communication avoidance groups and chronic, situational, and nonlonely groups in affection and interpersonal involvement motives to use the Internet. A 2x3 MANOVA
indicated no significant main effects between the two communication avoidance groups, Wilks’ $\Lambda = .98$, $F(2, 254) = 2.14, p = .12, \eta^2 = .02,$ and among the three loneliness groups in affection and interpersonal involvement motives, Wilks’ $\Lambda = .99$, $F(4, 508) = .35, p = .85, \eta^2 = .00$. However, there was a significant interaction effect between communication avoidance groups and loneliness groups in their affection motives, Wilks’ $\Lambda = .96$, $F(4, 508) = 2.40, p = .05, \eta^2 = .02$.

An Analysis of Variance (ANOVA) was conducted as a follow-up test to assess differences in affection motives among the groups. The ANOVA yielded no significant differences among three loneliness groups for those who exhibited a high level of communication avoidance, $F(2, 124) = .74, p = .48$. Nevertheless, there were significant differences among the three loneliness groups for those who exhibited a low level of communication avoidance, $F(2, 131) = 5.03, p < .01$. The results indicated that the situationally lonely group and the nonlonely group had more salient affection motivation to use the Internet than did the chronically lonely group (see Table 9). Within the low communication avoidance group, participants who were chronically lonely were less likely to use CMC for affection when compared to those who were situationally lonely or nonlonely.

Differences in CMC Use and Interaction Among Types of Online Relationships

Research Question 5 asked whether there were differences among people who were in different types of online relationships (i.e., purely virtual, migratory mixed-mode, and traditional long-distance relationships) in their self-disclosure when using CMC and in the amount and type of CMC use.
Table 9

Means of Affection and Interpersonal Involvement Motives on Communication Avoidance and Loneliness

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>Low Avoidance</th>
<th></th>
<th></th>
<th>High Avoidance</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Chronic Loneliness</td>
<td>Situational Loneliness</td>
<td>Non-loneliness</td>
<td>Chronic Loneliness</td>
<td>Situational Loneliness</td>
</tr>
<tr>
<td>Affection Motive</td>
<td>2.30**</td>
<td>2.80**</td>
<td>2.82**</td>
<td>3.07</td>
<td>2.82</td>
<td>2.76</td>
</tr>
<tr>
<td>Interpersonal Involvement Motive</td>
<td>2.38</td>
<td>2.59</td>
<td>2.45</td>
<td>2.64</td>
<td>2.78</td>
<td>2.67</td>
</tr>
</tbody>
</table>

Note. **p < .01.

A descriptive analysis showed that over half the participants used the Internet to communicate with friends (57.3%), followed by romantic partners and family members (16.5%), best friend (6.9%), teacher (1.9%), and acquaintances (0.77%). The majority of participants were in traditional long-distance relationships (91.2%), followed by migratory mixed-mode relationships (6.9%), and purely virtual relationships (1.5%). Due to the small number of participants in the migratory mixed-mode and in purely virtual relationships, these two groups, representing non-traditional relationships, were combined for further analysis. Non-traditional relationships are defined as relationships in which people first know each other online and then use the Internet and other channels of communication such as face-to-face to stay in touch.

MANOVA was used to test Research Question 5. The results indicated significant differences in the amount of self-disclosure between the two online relationship groups,
Wilks’ $\Lambda = .95$, $F(5, 254) = 2.54$, $p < .05$, $\eta^2 = .05$. The non-traditional relationship group had higher scores than the traditional long-distance relationship group in the amount of self-disclosure (see Table 10). This result suggests that participants who were in non-traditional relationships disclosed more personal information when communicating through CMC than did those who were in traditional long-distance relationships.

Table 10

Means of Five Dimensions of Self-disclosure on Non-Traditional and Traditional Long-Distance Relationships

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>Non-Traditional Relationships</th>
<th>Traditional Relationships</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount</td>
<td>4.23**</td>
<td>3.67**</td>
</tr>
<tr>
<td>Depth</td>
<td>3.51</td>
<td>3.55</td>
</tr>
<tr>
<td>Positiveness</td>
<td>5.13</td>
<td>4.98</td>
</tr>
<tr>
<td>Honesty</td>
<td>5.13</td>
<td>4.98</td>
</tr>
<tr>
<td>Intent</td>
<td>5.13</td>
<td>5.06</td>
</tr>
</tbody>
</table>

Note. **$p < .01$.

The MANOVAs, though, yielded no significant differences between the traditional long-distance and non-traditional relationship groups in the amount and type of CMC use (i.e., e-mail, newsgroups/bulletin boards/listservs, chatrooms, WWW browsing, instant messaging, dating sites, Internet telephone, and other Internet use), Wilks’ $\Lambda = .96$, $F(8, 251) = 1.46$, $p = .17$, $\eta^2 = .04$. 
Overall, participants who were in different types of online relationships (e.g., non-traditional relationships and traditional long-distance relationships) did not differ in the amount of time spent on each CMC function such as e-mail, instant messaging, and WWW browsing. Rather, they did differ in the amount of self-disclosure when communicating online. Those in non-traditional relationships self-disclosed more information than did those in traditional long-distance relationships.

In sum, the findings in this study suggest the overall contribution of dispositions, CMC motives, and CMC use and interaction to predicting outcomes of CMC use. All three categories of predictors—dispositions, CMC motives, and CMC use and interaction—contributed to online relationship closeness. However, only two categories of predictors—CMC motives and CMC use and interaction—explained communication satisfaction. Moreover, the results suggest differences in CMC motives among those who tended to avoid communication and were lonely, and differences in CMC use and interaction between the online relationship groups.

In the next chapter, I discuss the main findings of the study. Then, I identify limitations and consider the implications of the results for future research.
CHAPTER IV
DISCUSSION

In this study, I proposed a model of CMC use for online relationships to explain how people’s dispositions and motives influence their CMC use for relational communication and their satisfaction with online relationships and communication. I tested three hypotheses and five research questions. Several hypotheses and research questions yielded significant results. U&G is a valuable theoretical framework to help better understand the role of individual differences, motives, and CMC use. Overall, the findings extend our knowledge of the U&G model regarding interpersonal need fulfillment in CMC settings, the role of CMC as a functional alternative to face-to-face communication, and the relationship between online interpersonal relationships and communication behavior. In this chapter, I summarize and discuss the major findings of the study. Then, I discuss limitations and directions for future research.

CMC Motives

Four motives for using CMC were identified: self-fulfillment, information seeking, affection, and interpersonal involvement. The most important reason for using CMC was information seeking (i.e., to search for information, to get information for free, for convenience), followed by self-fulfillment (i.e., for passing time, enjoyment, habit), affection (i.e., to show appreciation and caring), and interpersonal involvement (i.e., to participate in discussions, to belong to a group, to get more points of view).
Overall, only information-seeking items loaded on the intended factor in a manner similar to the original CMC Motives Scale (Papacharissi & Rubin, 2000). The other three motives—self-fulfillment, affection, and interpersonal involvement—loaded differently than expected in the factor solution. For instance, two habit items, which did not load on any factors in the original CMC Motives Scale, loaded on the self-fulfillment factor. One possible explanation of this result is that people have changed how they use CMC. CMC is no longer a new and inaccessible medium. Today, using CMC to send/receive e-mail, to send instant messages, and to check news has become a part of many people’s everyday lives, especially college students. This constant use might explain why using CMC for habitual reasons was so prominent among participants in this study.

Predictive Relationships

The major purpose of this study was to test a model of CMC use for online relationships. The model suggests relationships among dispositions, CMC motives, CMC use and interaction, and outcomes of using CMC. I proposed two hypotheses and two research questions to investigate associations among these variables. Overall, the results supported the model of CMC use for online relationships. These results suggest that people’s dispositions and motives influence their self-disclosure and CMC use, which reflects the extent to which they are satisfied with their online relationships and communication.

Predicting Self-disclosure

Past research produced inconsistent results about associations between dispositions and self-disclosure. Some studies suggest that communication avoidance and
loneliness predicted greater self-disclosure (McKenna et al., 2002; Morahan-Martin & Schumacher, 2003). However, Leung (2002) found that lonely people revealed lesser amounts of information, were less honest, and disclosed more negative things about themselves than did nonlonely people. There is no single, clear-cut conclusion about how dispositions and self-disclosure are related. According to U&G, motives to use CMC are crucial when explaining the link between dispositions and CMC use. The model of CMC use for online relationships also suggests that one’s dispositions and motives affect self-disclosure.

Thus, I posed RQ1a to examine how specific dispositions (i.e., unwillingness to communicate and loneliness) and CMC motives explained the five dimensions of self-disclosure. The results suggest that different dispositions and CMC motives influence the way people use CMC to disclose their personal and positive feelings to friends and family. Dispositions and CMC motives helped to explain self-disclosure, although no predictor contributed to all five dimensions of self-disclosure. Dispositions predicted depth, honesty, intent, and positiveness, whereas CMC motives predicted amount, depth, honesty, and intent.

People who avoid face-to-face communication disclosed less personal information but more positive feelings about themselves when interacting through CMC. Although people who avoid communication tend not to reveal their intimate information to others, this result implies it is possible that they disclose their positive sides to others in CMC settings. Perhaps the absence of physical and nonverbal cues in CMC settings allows these people to make positive and idealized attributions of their partners. As Walther
(1996) noted, without nonverbal cues, CMC users are free from social constraints and have opportunities to select their positive self-presentation.

Moreover, consistent with Leung’s (2002) findings on the relationship between loneliness and self-disclosure, the results of this study suggested that lonely people tended to reveal less personal information, fewer positive things about themselves, and were less honest in their self-disclosures when communicating online. The results imply that lonely people do not consider CMC to be nonthreatening and safe places to disclose their personal and positive feelings. Because of their social and communication deficiencies, it is possible that they may not feel comfortable communicating with others or disclosing their feelings through any channels of communication. This is consistent with past research suggesting that lonely people disclose less personal information to others when communicating through face-to-face settings (Bell & Daly, 1985; Solano et al., 1982).

Besides dispositions, certain CMC motives such as self-fulfillment, affection, and interpersonal involvement also contributed to the amount, depth, honesty, and intent of self-disclosure. Only the information-seeking motive did not explain any dimensions of self-disclosure. This finding may suggest that those who are motivated to use CMC to seek information may not be interested in expressing their personal feelings to others, seeking companionship, or building relationships with others.

Overall, affection and self-fulfillment motives helped explain self-disclosure better than did the interpersonal involvement motive. Affection motivation positively predicted the amount, depth, and intent of self-disclosure. Perhaps, those who use CMC
to express their affection intend to disclose their personal feelings to others and are aware of their self-disclosures because they may want to let others know their caring, affection, and appreciation.

Self-fulfillment motivation positively predicted the amount and depth of self-disclosure and negatively predicted honesty. This suggests that even though those who used CMC for self-fulfillment reasons tended to disclose their personal feelings to others, they were less honest in their self-disclosures. The absence of physical and nonverbal cues in CMC settings may offer people opportunities to manage their self-image, which may not reflect who they really are. The evidence shows that many people change their names and identities such as their gender when they go online for their self-fulfillment and self-presentation (Samp, Wittenberg, & Gillett, 2003).

Besides the overall relationships among dispositions, motives, and self-disclosure, I proposed H1 to investigate the contribution of affection and interpersonal involvement motives to predicting the amount and depth of self-disclosure. The interpersonal communication literature suggests relationships among motives to communicate interpersonally and breadth (i.e., amount) and depth of self-disclosure (e.g., Graham et al., 1993). Therefore, I expected that people who were motivated to use CMC to communicate interpersonally, for affection and interpersonal involvement, for example, would be likely to reveal their personal information in online settings.

I found that both affection and interpersonal involvement motives positively predicted the depth of self-disclosure. However, only affection motivation positively predicted the amount of self-disclosure. Those who used CMC to communicate
interpersonally tended to reveal more and engaged in deeper self-disclosure to others when communicating online. This result supports the literature linking interpersonal communication motives and breadth and depth of self-disclosure (Graham et al., 1993). Overall, motives to communicate interpersonally led to breadth and depth of self-disclosure in both face-to-face and CMC settings.

*Predicting Amount and Type of CMC Use*

I proposed RQ1b to test the contribution of dispositions and CMC motives to predicting eight types of CMC use: e-mail, chatrooms, WWW browsing, newsgroups/bulletin boards/listservs, instant messaging, dating sites, Internet telephone, and other Internet use. I found that people’s motives to use CMC helped to explain the amount and type of CMC use better than did their dispositions.

CMC motives—self-fulfillment, information seeking, affection, and interpersonal involvement—predicted the use of certain CMC functions. The results support the U&G premise that motives affect communication choices and behaviors (Katz et al., 1974). People have different motives that influence how they select and use each type of CMC such as e-mail, instant messaging, WWW browsing, and newsgroups discussions.

Self-fulfillment and affection motives positively predicted the use of e-mail, instant messaging, and WWW browsing, whereas information-seeking and interpersonal involvement motives positively predicted the use of newsgroups/bulletin boards/listservs. It is not surprising that e-mail and instant messaging are used to express affection and caring for others and for self-fulfillment reasons, whereas newsgroups discussions and listservs are used to seek information, to get more points of view, and to belong to a
group with the same interests. However, the relationship between self-fulfillment and affection motives and WWW browsing is interesting and surprising. This result is inconsistent with prior research, which indicated that WWW browsing was positively related to information-seeking motivation (Papacharissi & Rubin, 2000). Perhaps, there has been an increasing number of various and new web sites that serve to gratify self-fulfillment purposes in recent years such as online shopping, online interactive games, online radio, online music downloading, virtual communities, and dating. Thus, it seems reasonable that WWW browsing was used for entertainment, passing time, and affection instead of seeking information in this study.

Predicting Online Relationship Closeness

Prior research on self-disclosure and interpersonal relationships focused primarily on two dimensions of self-disclosure: amount and depth. Research indicated that the amount and depth of self-disclosure were significant predictors of relationship formation and closeness (Bargh et al., 2002; McKenna et al., 2002; Parks & Floyd, 1996; Parks & Roberts, 1998). These studies overlooked other dimensions of self-disclosure. It seems plausible that other dimensions of self-disclosure such as positiveness, honesty, and intent also may explain online relationship closeness. It is meaningful to look at the multi-dimensionality of self-disclosure because examining various types of self-disclosure should help us better understand the role of self-disclosure in interpersonal relationships. It is possible that those who are honest in their self-disclosures, intend to reveal their personal feelings to others, and disclose positive things about themselves to others will feel satisfied with their online interactions.
Therefore, I proposed H2a to examine the relationship between the five
dimensions of self-disclosure (i.e., amount, depth, positiveness, honesty, intent) and
online relationship closeness. I found that the amount, depth, and intent of self-disclosure
positively predicted online relationship closeness. As expected, not only were the amount
and depth of self-disclosure positively related to online relationship closeness, but
intended disclosure also helped to explain online relationship closeness. This suggests
that those who can reveal their true feelings to others feel good about their self-
disclosures, which, in turn, affect their interpersonal relationships. As Jourard (1971) and
Rogers (1951) noted, people who are able to disclose their true selves to others tend to
feel satisfied with their personal lives.

In addition to self-disclosure, I asked RQ2a to examine the contribution of
dispositions, CMC motives, and CMC use and interaction to predicting online
relationship closeness. I found all categories of predictors—dispositions, CMC motives,
and CMC use and interaction—contributed to online relationship closeness. The findings
indicated that UC-RW, self-fulfillment motivation, and the depth of self-disclosure
positively predicted online relationship closeness, whereas UC-AA and interpersonal
involvement motivation negatively predicted online relationship closeness. However,
dispositions were the strongest contributors to online relationship closeness when
compared to CMC motives and CMC use and interaction.

Overall, the extent to which people were satisfied with their online relationships
or felt close to their online partners depended upon their dispositions, motives, and CMC
use. Some were more likely than others to use CMC to fulfill their interpersonal needs
and felt satisfied with their online relationships. People were satisfied with their online relationships or felt close to their online partners when they perceived their face-to-face communication to be rewarding, used CMC for self-fulfillment purposes, and intimately disclosed their personal feelings to others.

These results suggest that people who prefer to communicate through face-to-face interaction also feel rewarded when communicating through CMC. Consequently, they prefer to use CMC to show their appreciation and affection for others, to maintain close relationships with their loved ones, or to develop close relationship with others. It is possible that they may use CMC to supplement their face-to-face communication. As Rosengren and Windahl (1972) noted, media supplement face-to-face interpersonal communication when people are satisfied with both individual and environmental possibilities to gratify needs.

In contrast, those who experienced communication avoidance were less satisfied with their online relationships or felt less close to their online partners. Possibly, those who avoid face-to-face communication tend to avoid communicating through any channels including CMC because they feel CMC is not rewarding and pleasurable. Accordingly, they tend not to communicate and develop close relationships with others through CMC channels.

**Predicting Communication Satisfaction**

In addition to online relationship closeness, I investigated the contribution of dispositions, CMC motives, and CMC use and interaction to predicting communication satisfaction. The result was a little surprising, because none of the dispositions predicted
communication satisfaction. Nonetheless, two categories of predictors—CMC motives and CMC use and interaction—contributed to communication satisfaction. Self-fulfillment and affection motives, intent of self-disclosure, and the use of dating sites positively predicted communication satisfaction, whereas interpersonal involvement motivation and the use of Internet telephone negatively predicted communication satisfaction.

The finding that using CMC for self-fulfillment and to express affection predicted higher levels of communication satisfaction was consistent with interpersonal communication research suggesting that interpersonal communication motives such as affection and pleasure positively relate to communication satisfaction (e.g., Martin & Anderson, 1995; R. B. Rubin et al., 1988). Nevertheless, using CMC for interpersonal involvement predicted lower levels of communication satisfaction. This suggests that those who used CMC to belong to a group, to get more points of view, and to participate in discussions were less satisfied with their online communication. Perhaps, the nature of CMC channels may affect people’s communication expectations through online interactions. Certain CMC channels may not meet people’s communication expectations. For instance, communicating through asynchronous channels generally is not immediate. People may not be able to receive immediate responses when participating in asynchronous channels such as discussion boards. Waiting for responses may cause frustration, which may lead to dissatisfaction with online communication.

Moreover, I found that using dating sites predicted higher levels of communication satisfaction. Possibly, dating sites may be used to gratify affection or
interpersonal communication needs better than other types of CMC such as Internet telephone. People may be able to express their affection, true feelings, or disclose their true selves in dating sites. This may lead to positive communication expectations. On the other hand, using Internet telephone predicted lower levels of communication satisfaction. This result seems plausible. Although communicating through Internet telephone seems to be immediate, there is, sometimes, a delayed response during conversation. This may cause frustration and may lead to negative communication expectations when using Internet telephone.

In summary, the findings support the U&G theoretical framework reflecting that people communicate to gratify their felt needs, which emanate from social and psychological conditions. These needs produce motives that affect media use and selection, which result in attitudinal and behavioral outcomes (Katz et al., 1974). The findings also support the model of CMC use for online relationships, which suggests that people’s dispositions and motives affect their self-disclosure and how they select and use each type of CMC. Their CMC use and self-disclosure predict the extent to which they feel satisfied with their relationships and communication through online interactions.

These findings help to explain how CMC is used for interpersonal and relational communication. Generally, people appear to use CMC to disclose their personal feelings, to build relationships, or to maintain close relationships with their friends, family, and loved ones. Consistent with the interpersonal communication literature on the role of self-disclosure in relationship development (e.g., Berger & Calabrese, 1975; Wheeless, 1978), the results of this study suggest that people disclose their personal feelings to seek out
information about others, to reduce uncertainty, and to develop close relationships with
someone in CMC settings. Nevertheless, people are different in their choices and uses of
CMC.

Prior interpersonal communication research has suggested that those who suffer
from social and communication deficits such as communication avoidance and loneliness
tend not to value face-to-face communication. They tend not to disclose their personal
feelings to others (e.g., Solano et al., 1982) and to be satisfied with their relationships
(e.g., Flora & Segrin, 2000). These people also show consistent patterns of
communication behavior when using CMC for relational communication. The results of
this study indicate that those who tended not to value face-to-face communication also
tended not to value CMC interaction. They disclosed less personal feelings and were less
satisfied with their relationships and communication. On the other hand, those who felt
their face-to-face communication to be rewarding and intended to disclose their personal
information to others preferred using CMC for interpersonal communication purposes
and were satisfied with their online relational communication.

Differences Among Groups

Differences in CMC Motives Among Communication Avoidance and Loneliness Groups

The second purpose of this study was to investigate differences in CMC motives
for interpersonal communication among those who had different dispositions. I proposed
one hypothesis and two research questions to examine differences in affection and
interpersonal involvement motives between low and high communication avoidance
groups and chronic, situational, and nonlonely groups.
Rosengren and Windahl (1972) suggested that media can be a substitute, a supplement, or a complement to face-to-face communication. Media supplement face-to-face communication when people are satisfied with both individual and environmental possibilities to gratify needs. In contrast, media substitute for face-to-face communication when people are not satisfied with either individual or environmental possibilities to fulfill needs. Past research indicated that people who found face-to-face communication less rewarding tended to use CMC to compensate for their felt interpersonal communication deficiencies (Papacharissi & Rubin, 2000). Therefore, I anticipated that people who experienced high levels of communication avoidance should be more likely to use CMC channels for gratifying interpersonal communication needs than those who experienced lower levels of communication avoidance.

Unexpectedly, the result from testing H3 showed that those who exhibited high levels of communication avoidance did not differ from those who experienced low levels of communication avoidance in their motives to use CMC to communicate interpersonally. Perhaps, CMC may not be a functional alternative to face-to-face interpersonal communication among those who experience communication avoidance. People with communication deficiencies may try to avoid communicating through various channels of communication. Because of their communication deficits, they may feel all channels of communication are not satisfying. It is possible that they are less influenced by media choices and prefer not to communicate with others.

In addition, prior studies have suggested differences in media motives among chronically lonely, situationally lonely, and nonlonely people (e.g., Canary & Spitzberg,
1993; Finn & Gorr, 1988). Nevertheless, little is known about how these three groups differ in their CMC motives to communicate interpersonally. Thus, I proposed RQ3 to examine the differences among the three loneliness groups. I anticipated that people who cope with loneliness for different lengths of time would be motivated to use CMC to communicate differently.

I found that the chronically lonely, situationally lonely, and nonlonely did not differ in their motives to use CMC for interpersonal affection and involvement. The results suggest that people may be motivated to use CMC for interpersonal communication similarly regardless of how long they have coped with loneliness. This result is inconsistent with past research, which indicated that lonely people preferred electronic media channels to interpersonal channels (Perse & Rubin, 1990) and were more likely than nonlonely to use CMC for social interaction (Morahan-Martin & Schumacher, 2003). In fact, similar to those with communication avoidance, lonely people generally tend not to value face-to-face communication. They do not find face-to-face communication to be rewarding and pleasurable (Hosman, 1991; Jones, 1982). It seems reasonable that lonely people also may not find CMC to be rewarding and satisfying. As a result, they are not more likely than nonlonely to use CMC for affection and belongingness.

I proposed RQ4 to examine differences in affection and interpersonal communication motives between participants based on differences in their levels of communication avoidance and loneliness. I found that among participants who experienced low levels of communication avoidance, situationally lonely and nonlonely
participants were more likely than their chronically lonely counterparts to use CMC to communicate interpersonally. Yet, there were no differences among those who experienced high levels of communication avoidance with any types of loneliness. This implies that people who experience communication avoidance are less motivated to communicate with others regardless of types of loneliness. Again, this finding provides evidence that those who tend to avoid face-to-face communication feel uncomfortable communicating through any mode of communication. CMC channels also are not alternative places for them to show affection and belongingness.

In sum, people’s dispositions such as unwillingness to communicate and loneliness influence their motives to use CMC to communicate interpersonally. The findings suggest that multiple dispositions—unwillingness to communicate and loneliness—explain why and how people use CMC to fulfill their interpersonal communication needs better than unwillingness to communicate or loneliness does alone.

* Differences in CMC Use and Interaction Among Types of Online Relationships

The third purpose of this study was to examine differences in CMC use and interpersonal interaction among participants in purely virtual, migratory mixed-mode, and traditional long-distance relationships. Fewer than 10% of participants in this study had purely virtual relationships and migratory mixed-mode relationships. For further analysis, I combined these two relationship categories and named them *non-traditional relationships*, which refers to relationships between people who meet online and stay in touch through CMC and other channels of communication such as face-to-face
interaction. *Traditional long-distance relationships* are relationships between people who meet offline and use CMC with other traditional media to stay in touch.

Stafford (2005) suggested that people who use CMC as a primary mode of communication may use CMC differently than those who use CMC as an additional channel of communication. CMC may have less impact on those who use it as an additional mode of communication. Baym et al. (2004) pointed out that types and geographical distance of relationships affected how a CMC channel is selected for social interaction. Thus, I anticipated that those who were in non-traditional and traditional long-distance relationships would differ in their self-disclosure and the amount and type of CMC use. I proposed RQ5 to investigate these differences.

Overall, the results suggest a link between online interpersonal relationships and communication behavior. Different types of online relationships influenced how CMC was used for social interaction. Those in non-traditional and traditional long-distance relationships did not differ in their CMC use such as e-mail, instant messaging, and chatrooms. However, they did differ in the amount of self-disclosure when communicating through CMC. People in non-traditional relationships revealed more information than did those in traditional long-distance relationships.

Berger and Calabrese (1975) suggested that people generally engage in information-seeking behaviors to reduce uncertainty during their first interaction. Also, self-disclosure is one of the interactive strategies that people use to seek information about others and to reduce uncertainty. Possibly, people who are in non-traditional relationships initially know their partners through CMC interactions and may have high
uncertainty about the other. Thus, they may tend to reveal greater amounts of information and seek out information about the other to reduce uncertainty. On the other hand, those in traditional long-distance relationships first know each other through face-to-face interactions. For them, CMC is just an additional mode of communication to stay in touch and maintain relationships with their friends, family, and loved ones. Hence, it is not surprising that they would reveal less personal information when communicating through CMC than those in non-traditional relationships who have no backgrounds about each other.

Previously, I discussed and provided implications of the major findings. In the next section, I identify several limitations of this study and suggest directions for future research.

Limitations

This study is not without limitations. There are several limitations that should be considered when drawing conclusions from this study. The limitations pertain to the sample of the study, types of online relationships studied, and CMC Motives Scale used. These are discussed in the following section.

Sample

College students were an appropriate sample for this study. They had regular access to the Internet, used a variety of Internet functions, and communicated through e-mail and instant messaging. However, the results from this student sample may not apply to other groups of people. Generally, college students tend to use the Internet to search for information and to do research (Charney & Greenberg, 2002). Consequently,
their motives to use CMC may not be similar to other groups of people. For example, the primary use of CMC among the sample in this study was to seek information. This result may not hold for other groups such as teenagers, older adults, and professionals. For example, the evidence from Pew Internet and American Life Project (2004) indicated that older adults were more likely than younger people to use CMC for social interaction.

Moreover, the data obtained from the student sample may not represent populations who are chronically lonely. For example, the majority of the sample in this study was in the nonlonely and situationally lonely groups, whereas the chronically lonely group represented less than 17% of the participants. Typically, college students spend most of their time interacting with their friends and classmates. They may be less likely to be chronically lonely than other groups of people such as those with stigmatized identities and limited mobility who have fewer opportunities to interact with others on a daily basis.

**Types of Online Relationships**

In this study, over 90% of participants were in traditional long-distance relationships. Fewer than 10% were in migratory mixed-mode relationships and purely virtual relationships. Due to a small proportion of migratory mixed-mode and purely virtual relationships, the data did not allow a comparison of CMC use and interaction among the three types of online relationships. As a result, only two types of online relationships—non-traditional relationships (i.e., purely virtual and migratory mixed-mode relationships) and traditional long-distance relationships—were investigated.
Although the findings suggest differences in the amount of self-disclosure between the non-traditional and traditional long-distance relationship groups, the differences in the use of each CMC function and self-disclosure among the three types of online relationships have not been fully investigated. Examining the three types of online relationships would help us understand better how people’s online interpersonal relationships affect their CMC use. People who use CMC as the only mode of communication, such as those in purely virtual relationships, may use CMC differently than those in migratory mixed-mode and traditional long-distance relationships who use CMC as an additional channel of communication (Stafford, 2005).

**CMC Motives Scale**

In this study, participants identified their reasons for using the Internet in general such as e-mail, instant messaging, chatrooms, and the like. They were not asked to focus on any particular Internet function. Factor analysis of CMC motive items yielded four factors, which were inconsistent with the original CMC Motives Scale (Papacharissi & Rubin, 2000). Only information-seeking items loaded on the intended factor in a manner similar to the original CMC Motives Scale, whereas those from affection, interpersonal involvement, and self-fulfillment dimensions loaded on the factors differently from the original. For instance, the conceptualization of CMC motives for interpersonal communication generally should be a combination of affection, inclusion, and control items. However, no control items loaded on any factors in this study. Therefore, the component structure of CMC motives was different from the original conceptualization.
and did not allow this study to examine CMC motives for interpersonal communication fully as hypothesized.

Future Directions

Research on CMC use for online relationships is in a preliminary stage. Several areas need further investigation. First, future research should explore other dispositions that may affect CMC use for relational communication. This would help us understand better the role of individual differences in online interpersonal communication and relationships and help to predict people’s communication behaviors. As Daly (2002) pointed out, people’s dispositions guide their communication choices and reflect their communication behaviors. Also, the results of this study suggest that multiple dispositions would help explain CMC motives for interpersonal communication better.

Although unwillingness to communicate and loneliness were significant predictors of CMC use and online relationships in this study, other dispositions may contribute to the study of relational communication via CMC. For example, cognitive dispositions such as locus of control may influence online relationships. People who perceive that they are able to control their own lives may use CMC to gratify interpersonal needs differently from those who perceive they have little control over their lives. Moreover, social-personal dispositions such as self-monitoring may contribute to online relational communication. Because CMC allows users to select their self-presentation, it is possible that people who have the abilities to present positive images to others, such as high self-monitors (Daly, 2002), may prefer to use CMC for relational
communication and feel more satisfied with their online communication and relationships than those with less ability to present positive images (e.g., low self-monitors).

Second, more studies are essential to test reliability and validity of the CMC Motives Scale. Because CMC is growing rapidly, the reasons people use CMC also may be changing. R. B. Rubin and Martin (1998) asserted that affection, inclusion, and control motives are primary motives, which are consistent across situations. On the other hand, they asserted that secondary motives such as relaxation, information, pleasure, and pass time are not consistent across situations. This study suggests that people may have primary motives (i.e., affection and interpersonal involvement) and secondary motives (i.e., self-fulfillment and information seeking) for using CMC. With an increase of various CMC functions such as instant messaging, online dating sites, Internet telephone, online shopping, online banking, online music, and online interactive games, CMC may be used in more ways to gratify more needs. Thus, some CMC motives may change, requiring more studies that would update the CMC Motives Scale and help researchers understand better people’s motivess to use various types of CMC.

Third, differences among the three types of online relationships—purely virtual, migratory mixed-mode, and traditional long-distance relationships—deserve further investigation. It is becoming common for people to use CMC channels of communication to stay in touch with family members, friends, colleagues, and romantic partners (Baym, 2002; Haythornthwaite, 2000; Parks & Floyd, 1996; Walther & Parks, 2002). However, little is known about the effects of CMC use on the three types of online relationships.
The data in this study did not allow an investigation of differences among the three types of online relationships. It is still not clear how people in different types of online relationships differ in their use of each CMC function and self-disclosure when communicating through CMC. Moreover, how those in purely virtual, migratory mixed-mode, and traditional long-distance relationships differ in their online relational satisfaction also needs further exploration. Such investigation would extend our knowledge of the relationship between interpersonal relationships and CMC use. Stafford (2005) pointed out that people who have purely virtual relationships use CMC as the only mode of communication, whereas those who have migratory mixed-mode and traditional long-distance relationships use CMC and other channels of communication for social interaction. CMC may have less influence on those who use it as an additional channel of communication. As A. M. Rubin and Windahl (1986) noted, “the more functional alternatives there are for an individual, the lesser is the dependency on and influence of a specific medium” (p. 193).

Fourth, future research should examine relational communication in different online environments such as MOOs, MUDs, newsgroups, and dating sites. This would provide researchers opportunities to obtain samples that use CMC as a primary means for social interaction. Also, researchers would be able to study various types of online relationships such as purely virtual relationships and migratory mixed-mode relationships. The evidence shows that a large number of MOO, MUD, and newsgroups users have formed purely virtual relationships and migratory mixed-mode relationships (Parks & Floyd, 1996; Parks & Roberts, 1998; Utz, 2000). Studying online relationships
in different online environments would extend our knowledge of interpersonal need fulfillment in synchronous and asynchronous CMC channels.

Finally, besides college students, various groups of people such as older adults, teenagers, and those with stigmatized identities should be examined to increase the generalizability of the findings. This would also help us understand better the effects of CMC use on relational and communication satisfaction among groups of people who use CMC as a primary means for relational communication. Wright (2002) suggested that people who had stigmatized identities such as those with HIV/AIDS and alcohol problems tended to use the Internet for interpersonal communication. Moreover, the evidence from Pew Internet and American Life Project (2004) indicated that older adults were more likely than younger people to use Internet for social interaction. However, younger people were more likely than older adults to have positive attitude toward using CMC for entertainment.

Conclusion

The present study had three major purposes. First, I tested a model of CMC use for online relationships by investigating the influence of dispositions and motives on CMC use for communication and relationships. Second, I examined differences in CMC motives for interpersonal communication among those who had different dispositions. Third, I investigated differences in CMC use and interaction between two types of online relationships.

The findings of the study supported the model of CMC use for online relationships and the U&G theoretical framework, and suggested the contribution of
dispositions, CMC motives, and CMC use and interaction to predicting outcomes of CMC use. Overall, participants felt close to their online partners when they perceived their face-to-face communication to be rewarding, used CMC for self-fulfillment purposes, and disclosed their personal feelings to others. Moreover, participants were satisfied with their communication in online contexts when they used CMC for self-fulfillment and affection purposes, intended to disclose their feelings to others, and used dating sites.

The results also suggest that differences in CMC motives for interpersonal communication among those with different levels of communication avoidance and loneliness. Participants who experienced high levels of communication avoidance did not differ from those who experienced low levels of communication avoidance in their motives to use CMC for interpersonal communication. Nonetheless, among those with low levels of communication avoidance, participants who were situationally lonely or nonlonely were more likely to use CMC for affection than those who were chronically lonely.

Moreover, the findings suggest that online relationships influenced how CMC was used for social interaction. Participants in non-traditional relationships revealed more information than did those in traditional long-distance relationships. However, they did not differ in their CMC use, depth, honesty, intent, and positiveness of self-disclosure.

In sum, this study contributes to the study of CMC use and online relational communication in several ways. First, the predictive relationships among the constructs in the model of CMC use for online relationships extend our knowledge of the U&G
model to understand interpersonal need fulfillment in CMC contexts or how and why people communicate interpersonally in CMC settings. These relationships also help us understand communication as a whole process and predict communication outcomes better. Second, differences in CMC motives for interpersonal communication between people who experience communication avoidance and are lonely aid our understanding of the effects of dispositions on CMC use for interpersonal communication need fulfillment. Third, differences in CMC use and interaction between people in the two online relationships help explain the association between online interpersonal relationships and communication behavior.
APPENDICES
Appendix A

Informed Consent

Internet Use and Online Relationships

I am interested in learning about Internet use and relationships. To participate in this study, you should be over the age of 18. If you decide to participate, you will be asked to complete the questionnaires, which will take about 50 minutes. You will earn two (2) research points for COMM 15000.

All your responses will be confidential. Taking part in this project is entirely up to you, and no one will hold it against you if you decide not to do it. If you take part, you may stop at any time without penalty of any kind.

If you want to know more about this study, please contact Vikanda Pornsakulvanich, the principal investigator, at (330) 676-0914 or vpornsak@kent.edu, or my advisors, Dr. Alan Rubin at arubin@kent.edu and Dr. Paul Haridakis at pharidak@kent.edu. This study has been approved by Kent State University. If you have any questions about Kent State University’s rules for research, please call Dr. John West, Vice President and Dean, Division of Research and Graduate Studies, (330) 672-2851.

Your participation is important for the study. Thank you for your support.

Sincerely,

Vikanda Pornsakulvanich
Doctoral Candidate
School of Communication Studies
Appendix B

Unwillingness-to-Communicate Scale
(Burgoon, 1976)

Below are a series of statements about communication. There are no right or wrong answers. Indicate the degree to which each statement applies to you by circling whether you (7) strongly agree, (6) agree, (5) agree somewhat, (4) are neutral, (3) disagree somewhat, (2) disagree, or (1) strongly disagree.

<table>
<thead>
<tr>
<th>Strongly Agree (7)</th>
<th>Agree (6)</th>
<th>Agree Somewhat (5)</th>
<th>Neutral (4)</th>
<th>Disagree Somewhat (3)</th>
<th>Disagree (2)</th>
<th>Strongly Disagree (1)</th>
</tr>
</thead>
</table>

Approach-Avoidance
1. I am afraid to speak up in conversation.
2. I talk less because I’m shy.
3. I like to get involved in group discussions.
4. I talk a lot because I am not shy.
5. I have no fears about expressing myself in a group.
6. I avoid group discussions.
7. I am afraid to express myself in a group.
8. During a conversation, I prefer to talk rather than listen.
9. I find it easy to make conversation with strangers.
10. I feel nervous when I have to speak to others.

Reward
11. My friends and family don’t listen to my ideas and suggestions.
12. I think my friends are truthful with me.
13. I don’t ask for advice from family or friends when I have to make decisions.
15. My family doesn’t enjoy discussing my interests and activities with me.
16. My friends seek my opinions and advice.
17. Other people are friendly only because they want something out of me.
18. My friends and family listen to my ideas and suggestions.
19. Talking to other people is just a waste of time.
20. I don’t think my friends are honest in their communication with me.

Note. Item 1, 2, 6, 7, 10, 11, 13, 15, 17, 19, and 20 are reverse-scored.
Appendix C

UCLA Loneliness Scale (Version 3)
(Russell, 1996)

The following statements describe how people sometimes feel. For each statement, please indicate how often you feel the way described in each question by circling the number that best represents your opinion. Here is an example:

How often do you feel happy?

If you never feel happy, you would respond “never”; if you always feel happy, you would respond “always.”

<table>
<thead>
<tr>
<th>Always</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>(4)</td>
<td>(3)</td>
<td>(2)</td>
<td>(1)</td>
</tr>
</tbody>
</table>

1. How often do you feel that you are “in tune” with the people around you?
2. How often do you feel that you lack companionship?
3. How often do you feel that there is no one you can turn to?
4. How often do you feel alone?
5. How often do you feel part of a group of friends?
6. How often do you feel that you have a lot in common with the people around you?
7. How often do you feel that you are no longer close to anyone?
8. How often do you feel that your interests and ideas are not shared by those around you?
9. How often do you feel outgoing and friendly?
10. How often do you feel close to people?
11. How often do you feel left out?
12. How often do you feel that your relationships with others are not meaningful?
13. How often do you feel that no one really knows you well?
14. How often do you feel isolated from others?
15. How often do you feel you can find companionship when you want it?
16. How often do you feel that there are people who really understand you?
17. How often do you feel shy?
18. How often do you feel that people are around you but not with you?
19. How often do you feel that there are people you can talk to?
20. How often do you feel that there are people you can turn to?

Note. Items 1, 5, 6, 9, 10, 15, 16, 19, 20 are reverse scored.
Appendix D

Computer-Mediated Communication Motives
(Papacharissi and Rubin, 2000)

Here are several reasons people give for using the Internet including e-mail, instant messaging, chatrooms, and the like. Please indicate how much each reason is like your own reasons for using the Internet by circling the number that best expresses your opinion.

<table>
<thead>
<tr>
<th>Reason</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entertainment</td>
<td></td>
</tr>
<tr>
<td>Because it’s enjoyable.</td>
<td>(5)</td>
</tr>
<tr>
<td>Because it’s entertaining.</td>
<td>(4)</td>
</tr>
<tr>
<td>Because it’s fun just to play around and check things out.</td>
<td>(3)</td>
</tr>
<tr>
<td>Habit</td>
<td></td>
</tr>
<tr>
<td>Just because it’s there.</td>
<td>(5)</td>
</tr>
<tr>
<td>Because I just like to use it.</td>
<td>(4)</td>
</tr>
<tr>
<td>Because it’s a habit, just something to do.</td>
<td>(3)</td>
</tr>
<tr>
<td>Information</td>
<td></td>
</tr>
<tr>
<td>To search for information.</td>
<td>(5)</td>
</tr>
<tr>
<td>Because it provides a new and interesting way to do research.</td>
<td>(4)</td>
</tr>
<tr>
<td>To keep up with current issues and events.</td>
<td>(3)</td>
</tr>
<tr>
<td>Social Interaction</td>
<td></td>
</tr>
<tr>
<td>To communicate with friends and family.</td>
<td>(5)</td>
</tr>
<tr>
<td>To meet new people.</td>
<td>(4)</td>
</tr>
<tr>
<td>To participate in discussions.</td>
<td>(3)</td>
</tr>
<tr>
<td>Escape</td>
<td></td>
</tr>
<tr>
<td>So I can get away from family, friends, or others.</td>
<td>(5)</td>
</tr>
<tr>
<td>So I can get away from what I’m doing.</td>
<td>(4)</td>
</tr>
<tr>
<td>So I can forget about school, work, or other things.</td>
<td>(3)</td>
</tr>
<tr>
<td>Convenience</td>
<td></td>
</tr>
<tr>
<td>Because it is sometimes easier to send something by e-mail than say it to the other person’s face.</td>
<td>(5)</td>
</tr>
<tr>
<td>Because it is convenient.</td>
<td>(4)</td>
</tr>
<tr>
<td>Because it’s easier to get information.</td>
<td>(3)</td>
</tr>
</tbody>
</table>

“I USE THE INTERNET…”

Entertainment
  Because it’s enjoyable.
  Because it’s entertaining.
  Because it’s fun just to play around and check things out.

Habit
  Just because it’s there.
  Because I just like to use it.
  Because it’s a habit, just something to do.

Information
  To search for information.
  Because it provides a new and interesting way to do research.
  To keep up with current issues and events.

Social Interaction
  To communicate with friends and family.
  To meet new people.
  To participate in discussions.

Escape
  So I can get away from family, friends, or others.
  So I can get away from what I’m doing.
  So I can forget about school, work, or other things.

Convenience
  Because it is sometimes easier to send something by e-mail than say it to the other person’s face.
  Because it is convenient.
  Because it’s easier to get information.
Time Control
So I can use it anytime.
Because people don’t have to be there the exact time you send the message.
So I can talk as long or as short as I want.

Economy
Because it is cheaper than calling or sending letters.
To get information for free.
So I can read magazines on-line and I don’t have to buy them.

Affection
To help others.
To let others know I care about their feelings.
To show others encouragement.

Inclusion/Companionship
When there’s no one else to talk to or be with.
To belong to a group with the same interests as mine.
Because it makes me feel less lonely.

Surveillance
To see what is out there.
To get more points of view.
Because I wonder what other people have to say.

Pass Time
When I have nothing better to do.
Because it passes the time away, particularly when I’m bored.
Because it gives me something to do to occupy my time.

Relaxation
Because it relaxes me.
Because it allows me to unwind.
Because it is a pleasant rest.

Control
Because I want someone to do something for me.
To tell others what to do.
To get something I don’t have.

Expressive Need
To give my input.
Because I enjoy answering other people’s questions.
Because I can express myself freely.
Appendix E

Amount and Types of Internet Use
(Adapted from Papacharissi and Rubin, 2000)

Think back to yesterday. Please indicate the total number of minutes you used the Internet by filling out the grid appropriately. Then think about how much you use the Internet on an average day and indicate the total number of minutes in the grid below.

<table>
<thead>
<tr>
<th></th>
<th>E-mail</th>
<th>Newsgroups/Bulletin Boards/Listservs</th>
<th>Chat rooms</th>
<th>Instant Messages (IM)</th>
<th>General WWW Browsing</th>
<th>Dating Sites (e.g., match, match maker)</th>
<th>Internet Telephone</th>
<th>Others (e.g., FTP, Telnet, etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minutes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yesterday</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minutes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix F

Types of Online Relationships

Please think about a person with whom you communicate via e-mail, instant messaging, or on the Internet.

1.) What is your relationship with this person? (e.g., acquaintance, class mate, friend, romantic partner, family member, etc.). Please be specific.

He/she is ______________________________.

2.) How would you know and stay in touch with this person? (Circle one)

a) You know each other online, and stay in touch only through the Internet.

b) You know each other online, and then engage in face-to-face meeting.

c) You know each other offline, and then use the Internet as one means to stay in touch.
Appendix G

Revised Self-Disclosure Scale
(Wheeless, 1978)

Please refer to the specific person whom you just thought about. Indicate the degree to which the following statements reflect how you communicate with this person by circling whether you (7) strongly agree, (6) agree, (5) moderately agree, (4) are undecided, (3) moderately disagree, (2) disagree, or (1) strongly disagree.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Moderately Agree</th>
<th>Undecided</th>
<th>Moderately Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>(7)</td>
<td>(6)</td>
<td>(5)</td>
<td>(4)</td>
<td>(3)</td>
<td>(2)</td>
<td>(1)</td>
</tr>
</tbody>
</table>

**Intended Disclosure**

1. When I wish, my self-disclosures are always accurate reflections of who I really am.
2. When I express my personal feelings, I am always aware of what I am doing and saying.
3. When I reveal my feelings about myself, I consciously intend to do so.
4. When I am self-disclosing, I am consciously aware of what I am revealing.

**Amount**

5. I do not often talk about myself online.
6. My statements of my feelings are usually brief online.
7. I usually talk about myself for fairly long periods at a time online.
8. My conversation lasts the least time when I am discussing myself online.
9. I often talk about myself online.
10. I often discuss my feelings about myself.
11. Only infrequently do I express my personal beliefs and opinions online.

**Positive-Negative**

12. I usually disclose positive things about myself.
13. On the whole, my disclosures about myself are more negative than positive.
14. I normally reveal “bad” feelings I have about myself.
15. I normally “express” my good feelings about myself.
16. I often reveal more undesirable things about myself than desirable things.
17. I usually disclose negative things about myself.
18. On the whole, my disclosures about myself are more positive than negative.
Control of Depth
19. I intimately disclose who I really am, openly and fully in my conversation online.
20. Once I get started, my self-disclosures last a long time online.
21. I often disclose intimate, personal things about myself without hesitation online.
22. I feel that I sometimes do not control my self-disclosure of personal or intimate things I tell about myself online.
23. Once I get started, I intimately and fully reveal myself in my self-disclosures online.

Honesty-Accuracy
24. I cannot reveal myself when I want to because I do not know myself thoroughly enough.
25. I am often not confident that my expressions of my own feelings, emotions, and experiences are true reflections of myself.
26. I always feel completely sincere when I reveal my own feelings and experiences.
27. My self-disclosures are completely accurate reflections of who I really am.
28. I am not always honest in my self-disclosures.
29. My statement about my feelings, emotions, and experiences are always accurate self-perceptions.
30. I am always honest in my self-disclosures.
31. I do not always feel completely sincere when I reveal my own feelings, emotions, behaviors or experiences

Note. Items 5, 6, 8, 11, 13, 14, 16, 17, 24, 25, 28, and 31 are reverse scored.
Appendix H

Interpersonal Solidarity Scale (ISS)
(Wheeless, 1978)

Please refer to the person whom you just thought about. Mark the following statements to indicate whether you: (7) strongly agree; (6) agree; (5) moderately agree; (4) are undecided; (3) moderately disagree; (2) disagree; or (1) strongly disagree. Circle the number that best expresses how you feel with this person.

| Strongly Agree (7) | Agree (6) | Moderately Agree (5) | Undecided (4) | Moderately Disagree (3) | Disagree (2) | Strongly Disagree (1) |

1. We are very close to each other.
2. This person has a great deal of influence over my behavior.
3. I trust this person completely.
4. We feel very differently about most things.
5. I willingly disclose a great deal of positive and negative things about myself, honestly and fully (in depth) to this person.
6. We do not really understand each other.
7. This person willingly discloses a great deal of positive and negative things about him/herself honestly and fully (in depth) to me.
8. I distrust this person.
9. I like this person much more than most people I know.
10. I seldom interact/communicate with this person.
11. I love this person.
12. I understand this person and who he/she really is.
13. I dislike this person.
14. I interact/communicate with this person much more than with most people I know.
15. We are not very close at all.
16. We share a lot in common.
17. We do a lot of helpful things for each other.
18. I have little in common with this person.
19. I feel very close to this person.
20. We share some private way(s) of communicating with each other.

*Note.* Items 4, 6, 8, 10, 13, 15, and 18 are reverse coded before items are summed.
Appendix I

Interpersonal Communication Satisfaction Inventory
(Hecht, 1978a)

The purpose of this questionnaire is to investigate your reaction to online conversations you had with the specific person you communicate online. Please refer to the person whom you just thought about and indicate the degree to which you agree or disagree that each statement describes online conversations. The 4 or middle position on the scale represents “undecided” or “neutral,” then moving out from the center, “slight” agreement or disagreement, then “moderate,” then “strong” agreement or disagreement. For example, if you strongly disagree with the following statement you would circle 1.

The other person moved around a lot

<table>
<thead>
<tr>
<th>Disagree</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>Agree</th>
</tr>
</thead>
</table>

1. The other person let me know that I was communicating effectively.
2. Nothing was accomplished.
3. I would like to have more online conversations like this one.
4. The other person genuinely wanted to get to know me.
5. I was very dissatisfied with online conversations.
6. I had something else to do.
7. I felt that during online conversations I was able to present myself as I wanted the other person to view me.
8. The other person showed me that he/she understood what I said.
9. I was very satisfied with online conversations.
10. The other person expressed a lot of interest in what I had to say.
11. I did not enjoy online conversations.
12. The other person did not provide support for what he/she was saying.
13. I felt I could talk about anything with the other person.
14. We each got to say what we wanted.
15. I felt that we could laugh easily together.
16. Online conversations flowed smoothly.
17. The other person changed the topic when his/her feelings were brought into online conversations.
18. The other person frequently said things which added little to online conversations.
19. We talked about something I was not interested in.

Note. Items 2, 5, 6, 11, 12, 17, 19 are reverse coded before items are summed.
Appendix J

Demographic Information

1. What is your gender?
   (1) Male  (2) Female

2. What is your age, as of your last birthday? _________

3. How many college credits have you successfully completed? _________

4. What best describes your ethnicity?
   1. Caucasian
   2. African American
   3. Hispanic
   4. Asian or Pacific Islander
   5. Other, please specify:___________
REFERENCES


