

SHAPING PERCEPTIONS OF TEXT MESSAGES: THE HIDDEN EFFECT OF
ATTACHMENT STYLE, RELATIONAL STABILITY,
AND NONVERBAL CUES

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AND NONVERBAL CUES

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TABLE OF CONTENTS

| | Page |
|--|-------------|
| ACKNOWLEDGEMENTS | iv |
| LIST OF TABLES | vii |
| CHAPTER | |
| I. INTRODUCTION | 1 |
| Interpersonal Communication Research Framework | 2 |
| Support for Chosen Interpersonal Communication Variables | 6 |
| Interpersonal Communication and CMC | 6 |
| Thesis Outline | 9 |
| II. REVIEW OF LITERATURE | 11 |
| Attachment Style | 11 |
| Attachment theory | 11 |
| Attachment style dimensions | 12 |
| Attachment style and perception | 14 |
| Relational Stability | 17 |
| Computer-Mediated Communication | 18 |
| CMC and Theoretical Background | 18 |
| CMC and Nonverbal Cues | 21 |
| Kinesics | 22 |
| Chronemics | 23 |
| Vocalics | 24 |
| Text Messaging | 26 |
| Interpersonal Communication Motives | 27 |
| Summary | 28 |
| III. METHODS | 31 |
| Participants | 31 |
| Procedure | 33 |
| Materials | 33 |
| Researcher designed questions and demographics | 33 |
| Attachment style | 34 |
| Relational stability | 35 |

| | |
|---|----|
| Text message manipulation | 36 |
| Manipulation check | 37 |
| Interpersonal communication motives | 38 |
| IV. RESULTS | 40 |
| V. DISCUSSION | 48 |
| Limitations and Future Research | 58 |
| Thesis Conclusion | 59 |
| APPENDIX A: CONSENT FORM | 62 |
| APPENDIX B: SURVEY | 64 |
| APPENDIX C: MANIPULATION CHECK 1 | 72 |
| APPENDIX D: MANIPULATION CHECK 2 | 73 |
| LITERATURE CITED | 75 |

LIST OF TABLES

| Table | Page |
|---|------|
| 1. Sample Characteristics..... | 32 |
| 2. Means (and Standard Deviations) for Interpersonal Communication Motives as a Function of Nonverbal Cues..... | 41 |
| 3. Results of Hierarchical Regression Analysis Examining Relationship of Attachment Style, Relational Stability, and Nonverbal Cues on Perceived Affection Interpersonal Communication Motive | 43 |
| 4. Results of Hierarchical Regression Analysis Examining Relationship of Attachment Style, Relational Stability, and Nonverbal Cues on Perceived Inclusion Interpersonal Communication Motive | 45 |
| 5. Results of Hierarchical Regression Analysis Examining Relationship of Attachment Style, Relational Stability, and Nonverbal Cues on Perceived Control Interpersonal Communication Motive | 46 |

CHAPTER I

INTRODUCTION

Over the last 30 years interpersonal communication research has made a significant contribution to the body of human communication literature (Baxter & Braithwaite, 2008; Newman, 1981). More importantly, the research has made a positive contribution in unveiling the way we communicate within the numerous and varied relationships we experience throughout our lifetime. The last 20 years have brought significant changes to the avenues available to us for communicating among those with whom we have relationships (Walther, 1992). Where the study of face-to-face (FtF) communication was the obvious choice for scholars during the early years of interpersonal study, we must now grapple with the communication complexities of the new technologies that provide vastly different ways for people to interact (Ramirez & Zhang, 2007).

This study seeks to examine select findings of relational communication research within one of the new technological mediums in order to determine whether the interpersonal research findings we have come to understand hold true in the new world of communication technology. The choices of both the interpersonal and relational communication constructs, and the technological mediums to study are abundant. However, certain modes of computer-mediated communication have been empirically

examined to a lesser extent than others. Specifically, research surrounding text messaging, the communicative aspects of this medium, and the implications of this form of technology in our relationships and society has been minimally studied (Lin & Tong, 2007; Mahatanankoon & O’Sullivan, 2008). While text messaging has become one of the most popular tools for asynchronous communication in the world, much remains unknown with regard to how different types of users perceive these messages in intimate relationships (Mahatanankoon & O’Sullivan, 2008).

In order to provide support for the suggested study, the following introduction presents:

- 1) A framework for the study of interpersonal communication
- 2) Support for the chosen interpersonal communication variables
- 3) A rationale for the study of chosen variables within a computer-mediated context

Interpersonal Communication Research Framework

Interpersonal communication serves many functions. It is through communication that people express their emotions, seek information, and shape self-concepts (Rubin, Perse, & Barbato, 1988). Wood (2000) states that communication is essential to relationships—foremost because we create meanings about our relationships and ourselves through our interpersonal communication. Those studying relational communication, then, must recognize the importance of investigating beyond *how* people communicate with others (Rubin et al., 1988). Communication scholars must also consider 1) *why* people communicate, 2) *what* individual characteristics we bring to our interactions, and 3) *how* the context of communication episodes affects the

communication of those involved (Leone, 2006; Montgomery, 1984). By considering these three communication features in tandem, communication scholars may gain new insight into unique communication interactions such as those encountered in computer-mediated communication.

Why do we communicate? Pornsakulvanich, Haridakis, and Rubin (2008) assert that people communicate to fulfill their interpersonal needs, and these needs, in turn, influence interpersonal communication. Much communication literature indicates that individuals have three basic interpersonal needs: inclusion, affection, and control (Myers & Ferry, 2001; Rubin et al., 1988; Schutz, 1966). These needs lead to goal-directed behavior within a relationship. Rubin and Rubin (1992) affirm that people communicate to gratify needs, which emanate from social and psychological conditions. Inclusion, affection, and control are commonly referred to as “interpersonal communication motives” (Paulsel & Mottet, 2004, p. 184) and it has been suggested that they greatly influence why romantic partners talk to each other, what they talk about, and how they talk (Graham, Barbato, & Perse, 1993). While verbal communication behaviors have been investigated in conjunction with interpersonal communication motives, the link between these motives and nonverbal communication has been minimally explored (Myers & Ferry, 2001). Schachner, Shaver, and Mikulincer (2005) note, “Nonverbal behavior and sensitivity to a relationship partner’s nonverbal messages have important effects on the quality of interpersonal interactions and relationships” (p. 141). Thus, it is important to understand, not only how people verbalize their needs, but also how nonverbal cues play a role in the expression of communication motives. The answer to “Why do we communicate?” suggests that the study of what motivates us to

communicate is an important interpersonal variable to consider. Moreover, attention to the nonverbal aspects of communication motivation are worthy of investigation.

A second question that addresses how we may frame interpersonal research is, “What background, experiences, or characteristics do individuals bring to interactions that affect the communication outcomes?” Research in the area of interpersonal communication has recently given considerable attention to the role individual differences play in the initiation, development, and maintenance of intimate relationships (Jones, 1993). Pornsakulvanich et al. (2008) state that background characteristics affect communication within intimate relationships—specifically the communication choices and strategies utilized within an interaction.

Research also supports the notion that the quality of one’s relationship and communication within that relationship are “strongly influenced by affective events that took place during childhood” (Collins & Read, 1990, p. 644). These findings suggest that the individual differences we bring to any communication encounter may be influenced by past experiences. Attachment style is one characteristic that often stems from the childhood “affective events” to which Collins and Read refer. Since attachment style may play a significant role in influencing the kind of communication an adult brings to interactions within a romantic relationship, it becomes an important individual characteristic to study (Punyanunt-Carter, 2007). In fact, according to Noller (2005), one’s attachment style can act as a filter in the communication process that influences how people appraise a situation and interpret communication within a relationship. Noller also stresses that, since “expression of availability and responsiveness is likely to be critical” to one’s level of attachment, nonverbal “decoding should be a primary focus

of attachment researchers” (p. 171). More recent avenues of investigation concentrate on the associations between attachment-related processes and patterns of nonverbal sensitivity in adulthood (Schachner, Shaver, & Mikulincer, 2005). This coincides with a body of research in social psychology that indicates perception is driven by how people’s existing schemas, goals, and expectations influence the way they view communication (Collins & Feeney, 2004). Within this framework then, the relationship between attachment style and how intimate couples interact becomes an important area of study. In addition to this connection, nonverbal communication may play a significant role in communication interactions influenced by attachment style.

A final question we may pose within the interpersonal research framework outlined above is, “What role does the communication context play in interpersonal relationships?” In this particular study, relational stability will be examined as the context within the romantic relationship. Montgomery (1984) argues that communication is a function of both characteristics of the individual and characteristics of the context. Thus, there is often an interaction among communication acts; that is, a relationship exists among multiple characteristics of the individual, the context, or both. The communication context surrounding a communication episode can include the physical context, the social context, the type of relationship between interactants, and/or the modality/channel used to communicate. To date, much research concentrates on relational satisfaction, closeness of relationship, and quality of relationship as important relational contexts (Dillow, Dunleavy, & Weber, 2009; Kahn, 1970; Norton, 1983). However, one of the relational contexts Montgomery suggests that is less common in research literature relational stability. Relational stability is evidenced by the ability of

the relationship to “endure through time” (Rayburn, 2007, p. 3). Relational stability can affect the quality of a relationship, perceptions, and the communication therein (Viveiros, 2006). Thus, relational stability is a key factor to consider when exploring the role of communication context.

Support for Chosen Interpersonal Communication Variables

As previously stated, the study of interpersonal communication provides a wide range of possibilities for relational research. The current framework for this interpersonal communication study allows important questions to guide the direction of study suggested for this thesis. The answers to the questions posed yield the following information: both attachment style and relational stability significantly influence communication interactions between significant others, and nonverbal communication, although a significant factor in these interactions, has been minimally addressed in previous literature with regard to attachment levels and relational stability. Motivation to communicate, or the *why* of communication, presents itself as an important variable to study in this context because attachment levels and relational stability most likely affect communication motives and perceptions of those motives. In addition, as technology becomes more important to the role of communication in relationships, more research should factor in the medium of communication technology. The role of attachment levels, relational stability, nonverbal cues, and their effect on motivation become even more complex in a computer-mediated environment.

Interpersonal Communication and CMC

A communication medium may be defined by the modality or channel of interaction partners use to communicate. People tend to choose what they consider to be

the most appropriate channel of communication when attempting to fulfill their needs (Pornsakulvanich et al., 2008). Ramirez and Zhang (2007) indicate that people use multiple communication channels in everyday life. Thus, if one's needs are not gratified through face-to-face communication, mediated channels may be selected instead.

Through the proliferation of technology in today's society, computer-mediated communication (CMC) has evolved as a significant mode of interaction in many people's lives. Computer-mediated communication may be defined as any type of communication that occurs between or among individuals through a mediated channel of communication involving technology (Walther, 1992). With the majority of adults accessing and using the Internet, CMC has become a prevalent mode of communication in close, intimate relationships (Pew Internet and American Life Project, 2007). Due to the advent and growing popularity of the Internet, people have begun to use mediated channels to supplement face-to-face interaction for text and oral based communication. Some of the varied channels employed are e-mail, instant messaging applications, social networking websites, chatting programs, text messaging, and online capable video games.

Computer-mediated communication has become a significant communication context and powerful tool for engaging in social interactions due to the many modalities the Internet provides its users. However, much research posits that CMC lacks one crucial component of communication—nonverbal cues (Culnan & Markus, 1987; Kiesler, Siegel, & McGuire, 1984; Ramirez & Broneck, 2009). These studies conclude that the absence of nonverbal displays inhibits interactants' ability to form impressions of each other. Moreover, without nonverbal cues, one's ability to feel connected with another is diminished—warmth and affection are reduced (Ramirez & Broneck, 2003). Concepts

such as social presence theory, predicted outcome value theory, and uncertainty reduction theory presume that nonverbal cues such as proxemics and vocalics are essential for achieving relational development (Byron & Baldridge, 2007; Nowak, Watt, & Walther, 2005). Therefore, those who deem CMC as incapable of conveying nonverbal communication are, in essence, dismissing it as a context in which relationships can be cultivated satisfactorily.

As previously noted, much research can be found illustrating CMC as an “inferior” mode of communication due to a supposed absence of nonverbal cues (Sarbaugh-Thompson & Feldman, 1998; Walther, 1993). It is not uncommon for researchers to assume that, without nonverbal cues, people cannot perform certain functions as in FtF interactions. Yet, a new and growing body of research is, conversely, focused on CMC as a context where interpersonal relationships can be forged (Andersen & Emmers-Sommer, 2006). This opposing view is striking and is evident in more contemporary studies. Empirical research indicates, overwhelmingly, that relationships can be initiated and developed online (Ramirez & Broneck, 2003). Moreover, CMC also plays a crucial role in maintaining relationships—whether it is with a family member, friend, or significant other (Boneva, Kraut & Frohlich, 2001). Some data also point to the possibility that relationships developed through computer-mediated means are deeper than those fostered in a face-to-face context (Walther, 1992).

Two distinct bodies of research, then, come into opposition as illustrations of the quality and value of computer-mediated communication. While previous studies conclude that CMC lacks the richness of nonverbals (Rice & Love, 1987; Sarbaugh-Thompson & Feldman, 1998), other data suggest that CMC is nearly analogous to FtF

interaction (Walther, 1992; Walther & D'Addario, 2001). One key concept throughout the literature, however, is indisputable—nonverbal cues are an essential, necessary aspect of effective communication. Given the recognized importance of nonverbal cues, one may postulate that CMC could not be as successful a vehicle for users to establish interpersonal relationships and bonds if nonverbal cues are minimal or absent. However, some previous research may have overlooked the capability of CMC to convey nonverbal messages. The paralinguistic features and nonverbal cues available for employment in CMC are potentially more prevalent than have been previously recognized.

Thesis Outline

Throughout the communication literature why one communicates, the individual characteristics one brings to an interaction, and the communication context all shape the interpersonal communication process (Leone, 2006; Montgomery, 1984; Rubin et al., 1988). First, as previously evidenced, an explanation of interpersonal communication motives can provide insight into why we communicate (Rubin et al., 1988). Second, research indicates that the attachment style an individual maintains can affect relational communication and the perception of others (Noller, 2005). Thirdly, relational stability as a relational context significantly impacts interpersonal interactions. Also important to note is that nonverbal communication is a critical component in our interpersonal interactions—even in mediated environments. Furthermore, the CMC medium has emerged as playing a significant role in affecting our relational communication and nonverbal cues are emerging as a key consideration in the research surrounding it (Walther, 1992). The aim of the current investigation, then, is to explore the relationships among why we communicate, our individual differences, and the context in which we

communicate. Specifically, this research explores people's communication motives, their attachment styles, and their relational stability through the lens of computer-mediated communication. By examining these variables in conjunction with one another, we can gain insight into how attachment style and relational stability may affect one's perception of interpersonal motives communicated through a mediated channel. Additionally, significant value should be given to the ability of nonverbal cues to embellish and give added meaning to these mediated interactions. As the Internet becomes commonplace and text messaging becomes a key communication tool in contemporary life, computer-mediated communication rises to the forefront of society. The incorporation of CMC into our daily interpersonal interactions and relational communication underscores the importance of thoroughly examining this mediated mode of communication.

CHAPTER II

REVIEW OF LITERATURE

The purpose of this literature review is to provide a theoretical foundation and a survey of pertinent research for the current investigation. In the preceding chapter, an interpersonal communication research framework and rationale were presented for the study. Chapter 2 will offer support for this framework by establishing empirical evidence of the interconnectedness of the constructs. The goal of this literature review, then, is to validate and defend the constructs chosen for this study through past research, and also to provide justification for the hypothesis and research questions posed.

Attachment Style

Researchers have established that what we bring to a communication interaction—our individual characteristics and backgrounds—greatly influences our relationships and our communication within those relationships (Jones, 1993; Pornsakulvanich et al., 2008). Bowlby (1973) argues that individual differences in attachment-system functioning are critical to examine within relationships. These individual differences in attachment style affect both early social relations and relationships across the lifespan (Collins & Read, 1990).

Attachment theory. Attachment theory was originally proposed as a developmental theory by Bowlby (1973) and has since gained attention in the field of

social psychology (Becker, Billings, Eveleth, & Gilbert, 1997). Bowlby argues that attachment systems emerge in early childhood and continuously function to provide children with a sense of perceived security. The foundation of attachment theory, then, is modeled as an evolutionary-ethological approach (Collins & Read, 1990). Bowlby's (1973) theory is also a model of social and personality development. He posits that attachment relationships have a profound impact on a child's personality. Additionally, the quality of the relationship between a child and his or her caregiver affects the child's expectations, perceptions, and behaviors (Bowlby, 1973; Collins & Read, 1990). Thus, "working models" are developed early in life that create schemas for how people interpret the world around them (Becker et al., 1997).

Since the development of attachment theory, many researchers have expanded its tenets to form a framework for understanding adult bonds and adult love relationships (Bartholomew & Horowitz, 1991; Collins & Read, 1990; Le Poire, Shepard, & Duggan, 1999; Tucker & Anders, 1998). Hazan and Shaver (1990) were the first researchers to translate the childhood attachment constructs into terms appropriate for adult relationships. The three categories or "styles" of attachment that emerged were secure, avoidant, and anxious. Adults with different styles of attachment differ "in the way they experience love" (Collins & Read, 1990, p. 645). As such, these preexisting differences may affect how adults perceive messages in their romantic relationships.

Attachment style dimensions. Each of the three attachment styles is unique in the individual differences they produce. Those with secure attachment styles are "able and willing to form close bonds with others and are comfortable in interdependent relationships" (Becker et al., 1997, p. 478). Becker et al. (1997) describe individuals with

an avoidant attachment style as “distrustful of others and afraid of intimate relationships” (p. 478). Thus, avoidants do not often foster close bonds with others. Those who have an anxious/ambivalent attachment style “desperately desire close relations with others, but suspect that other people do not truly care about them” (Becker et al., 1997, p. 478).

Although Hazan and Shaver (1990) developed the first attachment style categories, other researchers have expanded upon this model to create similar, yet new dimensions. Most noteworthy is Bartholomew and Horowitz’s (1991) four-category model of attachment. This model was formulated along two dimensions: a person’s image of the self, and a person’s image of others. These dimensions were dichotomized as positive or negative. Thus, a person who has a positive image of self would believe they are worthy of love and support. A person with a negative image of others would see them as unreliable and rejecting (Bartholomew & Horowitz, 1991). Since two dichotomous dimensions exist, four attachment styles can be conceptualized. Those who evaluate the self and others positively—having a sense of worthiness and acceptance of others—are labeled *secure*. People who feel unworthy, but have a positive view of others are labeled as *preoccupied*. Preoccupieds often want to gain the acceptance of others in a relationship. Third, the *fearful-avoidant* attachment style encompasses those who feel unworthy and are untrusting of others. Fearfuls tend to avoid close relationships as a method of protecting themselves. Lastly, those who have a positive view of self, yet a negative disposition toward others are labeled *dismissive-avoidant*. Dismissives also avoid close relationships, but do so to create a “sense of independence and invulnerability” (Bartholomew & Horowitz, 1991, p. 227).

Since attachment styles differ according to one's image of the self and others, each individual style manifests itself through relational characteristics and communication behavior in unique ways. For instance, secures are considered to have the best capacity for intimate and satisfying romantic relationships (Guerrero, 1996). Additionally, their communication reflects an "affiliative style of social interaction" (Guerrero, 1996, p. 272). Preoccupieds, on the other hand, lack self-esteem and tend to become overly dependent on their partners. While their style of communication is also affiliative, they often have overinvolved communication styles. Fearful-avoidants are characterized by their conflicting wants and needs. While they seek validation and close relationships, they also fear rejection. Thus, fearfuls avoid social interactions, communicating intimacy, and conveying emotion (Guerrero, 1996). Finally, dismissives are not motivated to initiate or maintain intimate relationships. Hence, their communication lacks intimacy and disclosure.

Attachment style and perception. While attachment theory provides personality type characteristics, it also offers a framework for how people develop "cognitive schema that guide perceptions and social behavior" (Guerrero & Bachman, 2006, p. 343). As such, attachment style is manifest, not only in one's communication, but also in how one interprets other's behavior and how they react to that behavior (Guerrero, 1996). More recently, "researchers have begun paying increased attention to communication patterns characterizing attachment styles and examining behavioral as well as perceptual differences among the styles" (Guerrero, 1996, p. 270). Thus, it is important that researchers determine the different types of message perceptions that are affected by individuals' attachment styles.

It is apparent that attachment style and communication message characteristics interact in a way that affects a person's perception of a message (Weger, 2006). Depending upon one's attachment style, people will be more or less able to represent other's needs, motivations, and intentions during message production. For instance, those with a secure attachment style perceive that friends communicate more prosocial relational maintenance behaviors than those with preoccupied, fearful, or dismissive styles (Guerrero & Bachman, 2006). This may be due to the differences that exist within each attachment dimension. Preoccupieds and fearfuls are within the anxious attachment dimension—they are anxious regarding relationships and fear rejection and abandonment. Fearfuls and dismissives fall within the avoidant attachment dimension—they are uncomfortable with intimacy and do not want to depend on others (Weger, 2006). Hence, secures are neither anxious nor avoidant with regard to romantic relationships.

Since an individual's attachment style has been proven to affect how one perceives a message, it becomes important to ask which specific aspects of a message contribute to these varied perceptions. Research suggests two message characteristics in particular contribute to perception differences moderated by attachment style: the nonverbal cues in a message, and the ambiguousness of a message (Noller, 2005). Noller and Feeney (1994) state that security of attachment affects one's ability to decode their partner's nonverbal messages. Schachner et al. (2005) similarly conclude that nonverbal encoding and decoding are critical to examine within the context of attachment relationships since nonverbal expression and responses to this expression are central to the attachment security of a romantic partner. Attachment insecurity, then, can become a filter that distorts the nonverbal behavior of a significant other. Thus, depending upon

attachment style, one's level of nonverbal sensitivity can affect how they accurately perceive and understand their partner's nonverbal expression of needs, feelings, and intentions (Schachner et al., 2005).

Several researchers have explored the interaction of attachment style and nonverbal perception (Jones, 2005; Noller, 2005; Noller & Feeney, 1994; Schachner et al., 2005). Noller and Feeney (1994) provide evidence that, during the first two years of marriage, those who have more attachment anxiety and avoidance are less accurate in decoding their spouse's facial expressions. These researchers also explored how participants' comfort with closeness and anxiety over abandonment affect nonverbal decoding. Results indicate that spouses who are more comfortable with closeness and less anxious in the relationship decode messages most accurately. Thus, there is evidence that security of attachment is related to nonverbal accuracy.

The second message feature that influences the perception of those with insecure attachment styles is the ambiguousness or neutrality of a message. Research suggests that insecure individuals are more likely to decode ambiguous messages in line with their particular biases, while secure individuals are expected to interpret these messages more accurately (Noller, 2005). Those with an anxious attachment style might also decode positive messages incorrectly due to their negative view of self. Messages promoting intimacy and closeness may be decoded more accurately by those low in avoidance since they are able to take messages at face value and do not make an effort to distort the communication (Noller, 2005). Noller and Feeney (1994) indicate that partners who are more anxious and uncomfortable with closeness tend to decode neutral messages inaccurately. Thus, attachment styles predispose us to differ in the way in which we process information

(Collins & Feeney, 2004). This is especially true in the presence of ambiguous messages. In fact, Collins and Feeney discovered that insecure adults perceived their partner's messages as less well-intended only when the message was somewhat ambiguous. When a communication attempt is ambiguous, then, there is more opportunity for subjective interpretation moderated by a person's security, or lack thereof.

Relational Stability

As noted previously, the communication context—specifically the relational context—is important to consider when examining communication in intimate relationships (Montgomery, 1984). While certain relational characteristics such as relational satisfaction and relational quality have been widely studied, relational stability has garnered less attention (Dillow et al., 2009; Kahn, 1970; Norton, 1983). Relational stability is defined as the ability of the relationship to “endure through time” (Rayburn, 2007, p. 3). Rusbult and Martz (1995) have indicated that relational stability is most determined by feelings of satisfaction in the relationship. Comparison level for alternatives—or perceived outcomes one feels they would have if not in their current relationship—has an inverse relationship with commitment, which, in turn affects relational stability. Relational stability has been proven to affect the quality of a relationship, relational communication, and perceptions of communication interactions (Viveiros, 2006). Thus, relational stability becomes a key factor to consider when exploring the role of context in communication and intimate relationships.

Gottman (1994), a prominent researcher in the area of marital stability, argues that specific behaviors can affect relational stability in a negative manner. Norton (1983) measures marital stability within his Quality Marriage Index (QMI) by presenting items

relating to commitment, thoughts of divorce, and perceived future of the relationship. Interesting to note is that secure individuals experience greater relational stability than preoccupied and avoidant individuals (Tucker & Anders, 1998). Thus, relational stability is critical when examining communication within a romantic relationship and this effect can also be influenced by attachment style differences.

Computer-Mediated Communication

As previously discussed, researchers have given attention to the critical role individual differences and context play in influencing a communication interaction. Yet, the majority of scholarly research that exists in these areas focuses on face-to-face (FtF) communication. In more recent years, though, the popularity of computer-mediated communication (CMC) has grown rapidly (Pew Internet and American Life Project, 2007). More individuals are using CMC to communicate in their close, personal relationships (Wright, 2004). Due to the proliferation of this technology in our everyday lives, it becomes important to investigate how the role of individual differences and relational context are manifested when using a computer-mediated “lens”. That is, if attachment style and relational stability influence perception, and perception is further mediated by nonverbals, does this hold true in a computer-mediated environment? In order to investigate this possibility, it is important to define CMC, explain its theoretical foundations, and interpret how nonverbal cues are conveyed within this medium of communication.

CMC and Theoretical Background

Walther (1992) has defined computer-mediated communication as “synchronous or asynchronous electronic mail and computer conferencing, by which senders encode in

text messages that are relayed from senders' computers to receivers" (p. 52). With the advent and popularity of the Internet and other forms of technologically mediated communication, a number of different communication channels are now available to consumers. Individuals have varied choices for computer-mediated communication, in particular. These newer channels include such choices as: text messaging (i.e., SMS, short messaging service), instant messaging applications (e.g., Yahoo!, ICQ, AIM), social networking websites (e.g., Myspace.com, Facebook.com), mobile phone devices, computer chatting programs (e.g., Skype, Ventrilo), web based video cameras, and online capable video games (e.g., World of Warcraft, Halo). Since CMC has emerged as a new communication format in recent years, researchers have begun to examine this mode of interaction and the effects it has on its users (Liu, Ginther, & Zelhart, 2001).

Due to this focused research on CMC as a novel mode of communication, multiple theories have been postulated over time. In fact, an "evolution" of theoretical stances has emerged throughout the years. Thus, distinct, conflicting research has appeared within communication literature regarding the role of CMC as an interaction tool. The most prevalent theory surrounding the initial research of CMC is that of social presence theory (Short, Williams, & Christie, 1976). This theory is currently known as the *cues filtered out* perspective (Culnan & Markus, 1987). Short et al. (1976) argue that the number of nonverbal cues available to CMC users is reduced when using telecommunication. This, in turn, leads to the reduction of the ability to transmit interpersonal messages such as impression and warmth (Walther, Loh, & Granka, 2005). Walther et al. (2005) also suggest relational information is conveyed solely through nonverbal cues and codes such as vocalics, physical appearance, kinesics, and facial

expressions. However, this theory also posits that these nonverbal cues are markedly absent in CMC.

Social presence theory, in its stance regarding the reduced cues in this communication medium, deems CMC as “emotionally and socially impoverished” (Doering & Poeschl, 2007, p. 3). This argument revolves around the notion that the CMC environment itself is restricted. As nonverbal cues are limited or altogether absent, “CMC tends to be task-oriented, depersonalized...preventing the development of interpersonal relationships between CMC users” (Liu et al., 2001, p. 894). Early research involving CMC, then, has focused on its task-oriented communication—the emotional content of CMC has seldom been broached due to the “cues filtered out” position. Proponents of social presence theory have indicated that CMC is not conducive to forming or maintaining close ties through online interaction. Some researchers have gone so far as to suggest that, in the chance that online relationships are formed, they were “inauthentic” (Andersen & Emmers-Sommer, 2006, p. 154). Thus, early research argues that face-to-face communication supersedes that of CMC interaction. Preliminary investigation into this medium suggests that the conveyance of nonverbal cues through CMC is unlikely or impossible, and emotional expression and forming/maintaining relationships are improbable (Walther et al., 2005).

Since the formulation of social presence theory and its application to CMC, contrasting views of communication through computer-mediated means have been posed. Concepts such as media richness theory (Daft & Lengel, 1984) and the hyperpersonal model of CMC (Walther, 1996) counter the arguments of social presence theory. Where prior research states that CMC lacks nonverbal cues and the ability to convey intimacy

and emotion, more recent research illuminates the ability of CMC to be rich in cues, and to parallel FtF interaction. No theory, however, opposes the initial research and theory behind CMC more than social information processing theory (Walther, 1992). The social information processing theory (SIP) extends previous theoretical work on CMC by focusing on the ability of CMC to convey certain cues. Walther (1992) argues that CMC is as capable as FtF communication in creating and managing impressions and relationships. Furthermore, SIP posits that CMC can, in fact, function as a medium in which interactants can communicate nonverbally.

Social information processing theory rejects the view that CMC is “inherently impersonal” and that nonverbal cues are absent. This position is supported by the argument that “users employ the verbal characteristics of CMC to convey the relational information that would normally have been expressed through nonverbal cues” (Walther et al., 2005, p. 40). Doering and Poeschl (2007) further state that those who interact via CMC actively make an effort to include nonverbal cues in their communication. Additionally, investigations conducted by Walther (1993) show that, over time, impressions made through CMC reach the levels of those made in FtF interactions. Thus, CMC users tend to adapt their communication style to this mediated context and, eventually, online and FtF systems become functionally equivalent. Since verbal cues function to substitute those nonverbal cues that are usually employed offline, it becomes apparent that the effectiveness of CMC in communication interactions is bolstered.

CMC and Nonverbal Cues

As stated above, areas of research such as social presence theory argue that computer-mediated communication is devoid of nonverbal cues (Short et al., 1976).

However, more recent studies have specifically focused on gaining insight into whether this previous notion may be invalid. In fact, some communication research has gone so far as to categorize interaction through CMC into specific nonverbal codes and cues.

Kinesics. The nonverbal code of kinesics is largely rooted in facial and body movement, and also fulfills the nonverbal communication function of emotional expression. While emotional expression is certainly observed in men and women through FtF interaction, research findings show that individuals have the need to share their emotional experiences through CMC as well (Derks, Fischer, & Bos, 2007). The primary way CMC users are able to express these emotions online is through the use of emoticons (emotion icons). Also called relational icons, these nonverbal displays are created with typographical symbols that resemble facial expressions (Walther & D'Addario, 2001). Derks et al. (2007) actually state that emoticons can serve as “nonverbal surrogates, suggestive of facial expression” (p. 2). When including emoticons while communicating through e-mail, instant messaging, or text messaging, CMC users have the ability to incorporate a “visually salient way to add expression to an otherwise strictly text-based form” (Derks et al., 2007, p. 8). Furthermore, emoticons can serve to emphasize a tone or meaning, help communicate a mood, or clarify textual messages. This is very similar to how FtF interactants use nonverbal displays while communicating.

Data also show that a sender's use of emoticons in CMC-based interactions has effects on the receiver. For instance, a study by Fullwood and Martino (2007) indicated that, when emoticons are used in a CMC conversation, the chat partner was regarded as more extroverted and agreeable. Similarly, Byron and Baldrige (2007) found that e-mail senders who included a smiley face emoticon were rated more likable than those

who did not. Furthermore, this study indicates that, when emoticons are employed, sender likability increases as emotional stability increases. These results suggest “nonverbal cues influence recipients’ impressions of senders directly through an interaction of nonverbal cues and recipient personality attributes” (Byron & Baldridge, 2007, p. 152).

Although emoticons are considered nonverbal substitutes throughout recent CMC literature, one cannot say that they have identical connotations as those in FtF nonverbal communication. Nonverbal behavior is often thought to be less controlled than verbal utterances. However, emoticons are considered more “deliberate and voluntary” (Walther & D’Addario, 2001, p. 329). Just as we may not always be aware that we are smiling, nonverbal cues are generally considered “direct and involuntary representations of internal states” (p. 329). On the other hand, it would be difficult for a CMC user to type an emoticon without any awareness of doing so. Thus, the use of emoticons usually conveys the conscious intentions of the sender—not necessarily that the individual is experiencing an emotion (Derks et al., 2007).

Chronemics. The nonverbal code of chronemics—referring to messages conveyed pertaining to time—is considered an important aspect of FtF communication. Research indicates, though, that the effect of chronemics can be observed in CMC as well. Communication frequency and duration are considered chronemic cues that can be conveyed through computer-mediated means (Doering & Poeschl, 2007). In a study conducted by Liu et al. (2001), the frequency of messaging through CMC has significant main effects on impression scores. That is, the higher the frequency of messaging through e-mail, the higher the impression scores of senders noted by the participants. In

addition, it has been found that a slow reply to a message can convey greater intimacy than a fast one (Liu et al., 2001).

The time of day that a CMC message is sent is also of importance. Specifically, nighttime emotion-oriented messages convey more intimacy than daytime ones, and indicate more equality than dominance (Liu et al., 2001). In contrast, receivers rate task-related messages sent at night as more dominant (Doering & Poeschl, 2007). Thus, time stamps on e-mails or text messages can be considered a nonverbal cue of chronemics. Another sub-dimension of chronemics in CMC is that of response time or response latency. Short response times can be interpreted as “nonverbal cues of interpersonal closeness, immediacy, care, presence, and even submissiveness” (Doering & Poeschl, 2007, pp. 4-5). Important to note is that the shortest response times are available from synchronous CMC such as online chatting or instant messaging.

An additional aspect of CMC, then, that relates to the nonverbal code of chronemics is the synchronicity of the communication. Where oral conversations are linear, CMC conversations are multidimensional (Garcia & Jacobs, 2000). As in instant messaging programs, users can be senders and receivers at the same time—they cannot control where their message is placed relative to its intended referent. Although messages can seem disjointed or confusing to some users, CMC has been proven to be beneficial even with its non-linear characteristics (Garcia & Jacobs, 2000). For instance, access to all previously posted messages is possible, and they can be responded to in any order.

Vocalics. The nonverbal code of vocalics is central to FtF communication. Vocalic cues can include tone of voice, loudness of voice, shouting, and vocal pauses

(Hall, 2006). Le Poire, Shepard, Duggan, and Burgoon (2002) indicate that the vocalic code can also include vocal expressiveness and vocal involvement cues. Although data regarding vocal tones and inflections are primarily gathered in a FtF context, research suggests that users can also communicate nonverbal vocalic cues via CMC. For instance, use of all capital letters (i.e., incorrect capitalization) and repeated punctuation (i.e., hyperbolic punctuation) has proven to be effective in instant messaging when a user is compensating for lack of nonverbal cues (Walther, 2005). This capitalization and punctuation often serve to emphasize CMC text; however, recipients often perceive this type of message as a form of shouting or yelling (Wilson & Zigurs, 2001). Because of this, whereas use of all capital letters can be used to indicate joy, it can also be interpreted as an expression of anger. Thus, messages sent via CMC in all caps often carry a negative connotation (Byron & Baldrige, 2007). Moreover, when “e-mail content is emotionally ambiguous, the use of all capital letters leads to more negative impressions of senders” (Byron & Baldrige, 2007, p. 152). Also, capital letters can lead to uncertainty regarding a sender’s intent. Use of repeated punctuation in a CMC environment can serve a similar function (Walther, 2005). Senders often use repeated punctuation such as multiple exclamation points or question marks to emphasize a point or to create greater effect. Depending on the content of the message, a positive or a negative connotation could be perceived by the receiver.

Through discussion of the role nonverbal cues can take on in a computer-mediated context, it becomes apparent they can impact CMC interactions. CMC, then, not only has verbal cues, “but also has nonverbal cues available that can be manipulated to develop interpersonal relationships among CMC users” (Liu et al., 2001, p. 896).

Additionally, research indicates that a receiver's personality attributes influence how they perceive nonverbal cues in a mediated environment (Byron & Baldrige, 2007). As newer modes of computer-mediated communication are developed, fewer norms are firmly established; thus, individual characteristics have a greater impact on the perception of particular cues.

Text Messaging

As previously mentioned, multiple CMC channels are available to users. However, most research in the area of mediated communication has focused on e-mail and instant messaging as the communication channel examined (Boneva et al., 2001; Byron & Baldrige, 2007; Colley & Todd, 2002; Walther & D'Addario, 2001). One particular CMC channel that appears to have been overlooked in much communication literature is text messaging. With the wide accessibility of text messaging, it is now one of the world's most popular mobile applications (Mahatanankoon & O'Sullivan, 2008).

As of June 2007, there were over 243 million text messaging subscribers in the United States (Mahatanankoon & O'Sullivan, 2008). Additionally, text messaging usage exceeded 241 billion messages in the year 2007 alone. Text messaging is deemed the "most mobile and ubiquitous of CMC modes" in popular use (Herring, 2004, p. 31). Also referred to as SMS (short message service), text messaging is a primarily text-based form of CMC (Doering & Poeschl, 2007). Text messaging capability is available on most all cellular phones. Users can send text messages online or to other mobile phone users by typing a message on the phone number pad or keyboard. Data indicate that text messages usually average 7.7 words per transmission (Ling, 2007). Thus, Lin & Tong (2007) specify that text messaging is used to maintain lightweight contact and to establish

co-presence with another, even though some adults reportedly use it as a form of control. Although text messaging has become pervasive within CMC, scant research has unveiled the nuances of this form of mediated communication. Due to this, text messaging is a vital context and the focus of the current investigation.

Interpersonal Communication Motives

As discussed throughout this literature review, the individual characteristics we bring to an interaction as well as the context of that interaction shape the communication episode. Rubin et al. (1988) stress that scholars must look beyond *how* we communicate in order to establish *why* we communicate as well. Researchers assert that people communicate to fulfill their interpersonal needs (Pornsakulvanich et al., 2008) and communication literature suggests three basic interpersonal needs exist: inclusion, affection, and control (Myers & Ferry, 2001; Rubin et al., 1988; Schutz, 1966). People, then, use interpersonal communication to “express affection, seek inclusion, and to express control” (Rubin et al., 1988, p. 620).

The “why” of communication can be understood through the theory of interpersonal communication motives (Myers & Ferry, 2001). This theory is rooted in the notion that individuals engage in communication with others as one way to satisfy specific needs (Myers, Brann, & Rittenour, 2008). Individuals who communicate for inclusion do so to fulfill needs of companionship—they like to be with others (Myers & Ferry, 2001). Those who communicate for affection need to love and/or be loved by others—they express caring and appreciation (Myers & Ferry, 2001; Rubin et al., 1988). People who communicate for control have a need to “exert power and/or gain compliance from others”—they have dominance needs (Myers & Ferry, 2001, p. 183).

As individuals have varied motives for communicating, these motives can influence the type of communication that occurs in an interaction. The affection and inclusion motives are considered more relationally-oriented; thus, this type of communication becomes more facilitative. Since these two motives are also considered more personal, the communication itself becomes more intimate (Barbato et al., 2003). The control motive, on the other hand, is an influence motive, thus more strategic communication emerges (Barbato et al., 2003; Hullman, 2004). It is also necessary to consider nonverbal communication when examining interpersonal communication motives as research indicates those who communicate to fulfill different interpersonal motives also differ in their expression of nonverbal cues (Myers & Ferry, 2001). In particular, nonverbally immediate individuals are more likely to communicate for affection, and less likely to communicate for control (Paulsel & Mottet, 2004). In general, though, nonverbal behaviors can function to control communication and also to express affection (Rubin et al., 1988). As people differ in their expression of motives, one can postulate that people might also differ in their perception of motives. Certainly, every individual has a unique cognitive schema that influences how one perceives (Guerrero & Bachman, 2006).

Summary

The above literature review establishes support for a particular framework surrounding the study of interpersonal communication and computer-mediated communication. Empirical evidence supports the notion that our individual differences, the communication context, and why we communicate are critical to the communication discipline. Specifically, an individual's attachment style and relational stability may

interact as factors that shape one's perception of communication (Guerrero, 1996; Tucker & Anders, 1998). In addition, interpersonal communication motives provide a foundation and explanation for why people communicate (Rubin et al., 1988). Nonverbal communication is inherently significant in each of these three constructs in our interactions throughout our relationships.

With the advent and proliferation of new technology, it becomes important to determine if established communication patterns in FtF communication hold true in a CMC environment. The infiltration of CMC into homes, schools, and businesses demands that we take notice of this mediated mode of communication. Many individuals are impacted greatly by CMC in everyday interactions. Indeed, significant value should also be given to the role of nonverbal cues to embellish and provide added meaning to these mediated interactions. With a more comprehensive understanding of how our individual and relational characteristics affect our perceptions of these nonverbal messages in this context, the field of interpersonal communication will gain insight into a novel area of interaction with which we have only begun to grapple. Therefore, the following hypothesis and research questions were posed for this study:

H1: The mean perceptions of interpersonal communication motives (affection, inclusion, and control) for sending a text message will differ significantly according to nonverbal cues (absence of, emoticon, incorrect capitalization, daytime/nighttime messages).

RQ1: To what extent do degree of attachment, degree of relational stability, and nonverbal cues in a text message (absence of, emoticon, incorrect capitalization, daytime/nighttime messages) predict the variance in perceptions of affection

(interpersonal communication motive)?

RQ2: To what extent do degree of attachment, degree of relational stability, and nonverbal cues in a text message (absence of, emoticon, incorrect capitalization, daytime/nighttime messages) predict the variance in perceptions of inclusion

(interpersonal communication motive)?

RQ3: To what extent do degree of attachment, degree of relational stability, and nonverbal cues in a text message (absence of, emoticon, incorrect capitalization, daytime/nighttime messages) predict the variance in perceptions of control

(interpersonal communication motive)?

CHAPTER III

METHODS

A quasi-experiment was conducted in order to gather data regarding the hypothesis and research questions posed above. This research utilized a control group and eight treatment groups formed according to participants' exposure to manipulated nonverbal cues present in a text message. Additional independent variables included participant attachment style and perceived relational stability. The dependent variable in this study was perception of interpersonal communication motives (inclusion, control, affection) for sending a text message.

Participants

Participants included 803 undergraduate students enrolled in a core curriculum Communication Studies course at a large Southwestern university (see Table 1). This sample consisted of 291 (36%) males and 512 (63%) females ranging in age from 17 to 52 ($M = 19.2$, $SD 2.6$). After obtaining the necessary IRB approval, participants were recruited to complete a voluntary 54-item survey. In order for these students to be considered viable participants, they must have adequately met one of two criteria: 1) the participant was currently in a romantic relationship, or 2) the participant was not currently in a relationship, but they had been involved romantically with someone in the past year. It was appropriate to establish the relationship status of each participant

(included as a survey item) because this study specifically explored interpersonal communication via CMC between romantic partners/significant others. Of the participants, 58.8 % were currently involved in a romantic relationship, and 41.2% had been involved in the past year.

Table 1

Sample Characteristics

| Demographic Variables | N | % | <i>M</i> | <i>SD</i> |
|---------------------------------|-----|------|----------|-----------|
| Sex | | | | |
| Male | 291 | 36.2 | | |
| Female | 512 | 63.8 | | |
| Age | 803 | | 19.2 | 2.6 |
| Classification | | | | |
| Freshman | 558 | 69.5 | | |
| Sophomore | 151 | 18.8 | | |
| Junior | 64 | 8.0 | | |
| Senior | 30 | 3.7 | | |
| Relationship Status | | | | |
| Currently Involved | 472 | 58.8 | | |
| Involved in Past Year | 331 | 41.2 | | |
| Length of Relationship (months) | 803 | | 15.7 | 17.7 |
| Type of Relationship | | | | |
| Casual Dating | 135 | 16.8 | | |
| Exclusive Dating | 586 | 73.0 | | |
| Engaged | 23 | 2.9 | | |
| Married | 16 | 2.0 | | |
| Other | 43 | 5.4 | | |

Procedure

At the beginning of each class, participants were briefly informed as to the nature of the study and purpose of the survey. All students were notified that their participation was entirely voluntary and that they could choose to discontinue the survey at any time. All survey responses remained anonymous. Additionally, all participants signed a consent form indicating their willingness to be a part of the study (see Appendix A). Extra credit was offered to the participants in specific sections of the Communication 1310 course as determined by the instructor. Each participant was randomly assigned to the control group or one of the eight treatment groups through the distribution of the various surveys.

Materials

A combination of instruments was utilized to investigate the proposed hypothesis and research questions. These instruments were included in a 54-item survey created for all participants to complete (see Appendix B). This survey also included demographic questions developed by the researcher. The following established scales were incorporated into the survey: Attachment Style Measure (Becker et al., 1997), the Quality Marriage Index (Norton, 1983), and the short version of the Interpersonal Communication Motives (ICM) scale (Rubin et al., 1988).

Researcher designed questions and demographics. The first section of the measurement instrument contained questions relating to information about the participants and their romantic relationships. Demographic items such as sex, age, and classification were placed at the beginning of the survey. Participants were then asked if they were currently involved in a romantic relationship. If they answered “no”, these

participants were asked if they had ever been involved in a romantic relationship. If the participant answered “no” once more, the survey indicated that they should not proceed to the subsequent sections. This was to ensure that the proper survey sample was obtained. The next section of survey items included questions pertaining to the participant’s significant other and their relationship. For example, the survey prompted the participants to answer the question, “How would you characterize your relationship with your significant other?” Participant options for relationship type were casual dating (16.8%), exclusive dating (73%), engaged (2.9%), married (2%), and other (5.4%). Additionally, participants were instructed to insert their significant other’s initials at different points throughout the survey. This was to ensure that the participant kept the same person in mind when completing the survey items, and it forced them to attend to the items that related to their current significant other.

Attachment style. Attachment style data was collected using the Becker et al. (1997) attachment style measure. Although multiple attachment style measures exist, Becker et al. (1997) developed a multi-item measure that incorporates items from other existing scales in order to produce a scale that encompasses all levels and dimensions of attachment. This measure is proven to be internally consistent, and is useful for assessing romantic attachments.

Becker et al. (1997) first examined items developed by Hazan and Shaver (1987) in order to develop their attachment measure. Ultimately, 11 of Hazan and Shaver’s items were incorporated and were meant to assess secure, avoidant, and anxious/ambivalent attachment styles. The second group of seven items developed by Bartholomew and Horowitz (1991) were meant to measure secure, fearful, and

preoccupied attachment styles. Finally, Collins and Read's (1990) items assessing dependability were added. Furthermore, Becker et al. (1997) chose to create four items of their own which pertained to assessing the preoccupied style, and evaluation of the extent to which respondents are confident that others will accept them as they are and will not let them down.

Ultimately, Becker et al. (1997) incorporated 22 of the 25 items into their final attachment measure. Three items were eventually eliminated due to their high loadings on more than one factor. The final 22 items were employed in the current study as the measure of attachment style. Responses are given to each item on a Likert-type scale from 1 (*strongly disagree*) to 7 (*strongly agree*). The ordering of the items in the survey was randomly determined. After completing an exploratory factor analysis, Becker et al. (1997) determined the items had factor loadings on the preoccupied, fearful, or secure attachment style with .84, .81, and .80 alpha reliabilities, respectively. Thus, items referring to each of the three attachment styles are scored separately and summed across all items in that dimension. The preoccupied attachment style (7 items, $\alpha = .74$), fearful attachment style (6 items, $\alpha = .81$), and the secure attachment style (9 items, $\alpha = .74$) all had a possible score range of 1 to 7.

Relational stability. Relational stability was measured by incorporating items from Norton's (1983) Quality Marriage Index (Rayburn, 2007). Seven items were used in the survey that pertain to the duration of the participant's relationship, the perceived stability, and perceived future of the relationship. These items were measured using a Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). For this study, each participant's relational stability score was determined by summing across all 7

items, where higher scores indicated greater relational stability ($\alpha = .90$). As such, the range of scores for stability was 7 to 49. Items were counter-balanced so that they were not all worded in a “positive” direction.

Text message manipulation. Manipulation of the text message in this study occurred within the survey itself. This manipulation was accomplished by exposing participants to a text message with different nonverbal cues. This section of the survey informed participants “Your significant other has sent you the following text message:” After completing the attachment and stability measures, participants were shown a clip art graphic of a cellular phone (see Appendix B). All graphics contained the text message, “What are you doing?” The question, “What are you doing?” has been employed in previous studies as an ambiguous message used to test nonverbal accuracy (Kahn, 1970; Noller & Feeney, 1994). Researchers confirmed that, depending on how one encodes this ambiguous message with nonverbal cues, the message can be decoded in different ways. Thus, participants may perceive different intentions conveyed in this message (Noller & Feeney, 1994).

In order to adapt this concept to the CMC environment, “What are you doing?” was converted from a FtF verbal message to a mediated text message within the survey. Furthermore, in order to encode the text message in different ways, various nonverbal cues were added to the cellular phone graphic. The first treatment group encountered a text message with a smiley face emoticon: “What are you doing? :-)” The second treatment group’s text message was typed in all capital letters (incorrect capitalization): “WHAT ARE YOU DOING?” The third and fourth treatment groups were presented with a text message that included a daytime or nighttime message. As such, the

participants were prompted with, "You have received the following text message at 11:00 a.m. (p.m.)." The final four treatment groups were presented with a daytime or nighttime message with an emoticon or incorrect capitalization. The text message shown to the control group contained no nonverbal cues: "What are you doing?" Participants were randomly assigned to either the control group or one of the treatment groups at the time of completion of the survey.

Manipulation check. In order to test the text message manipulation in this study, two separate manipulation checks were completed prior to the distribution of the actual survey. First, it was important that the participants viewed the text message chosen as "ambiguous" or "neutral." That is, the message should not already be emotionally laden. Thus, one manipulation check presented respondents with the text message, "What are you doing?" (see Appendix C). They rated this message on a 7-point negative/positive semantic differential scale. Of 24 participants, 100% indicated they perceived this message as a 4 or 5 on this scale, indicating that all participants believed that this was a neither a positive or negative message. Respondents ($N = 24$) also rated whether the wording in the text message was neutral on a 5-point Likert-type scale. All participants (100%) indicated that they either agreed or strongly agreed that the message was neutral.

The second manipulation check was conducted in order to determine if participants, in fact, noticed the different nonverbal cues that accompanied some of the text messages in the study (see Appendix D). If participants did not recognize that the nonverbal cues were present, then this particular manipulation would not produce accurate data. Thus, respondents were presented with one of eight text messages with the previously mentioned "What are you doing?" including an emoticon, incorrect

capitalization, daytime/nighttime message, or a combination of cues. In order to have the respondent attend to the text message, but not directly cue them to look at the nonverbal cues (as in the actual survey), several questions regarding the text message and text messaging habits were asked following the presentation of the cell phone graphic with text. Then the respondent was instructed to turn over the page. They were asked to recall the text message and to rewrite it exactly as it appeared without looking back to the previous page. This method tested whether the respondents ($N = 67$) noticed and replicated the nonverbal cues included in the text messages. Eighty-five percent of the participants were able to correctly rewrite the text message with all nonverbal cues. Ninety-four percent of participants were able to identify at least one cue (i.e., time of day message was sent, but not all capital letters). Follow-up qualitative questions at the time of the manipulation check solidified that more participants recognized the nonverbal cues even though they failed to replicate them on the form. Overall it was determined that a majority of participants attended to and noticed the eight different nonverbal manipulations in the text messages.

Interpersonal communication motives. After exposure to the experimental manipulation in the survey, participants completed items that measured perceptions of their significant other's motive for sending the presented text message. In order to assess these perceived motives, the short version of the Interpersonal Communication Motives (ICM) scale was used (Rubin et al., 1988). This version of the ICM includes the three basic interpersonal needs: affection, inclusion, and control (Schutz, 1966). The ICM is comprised of 5 items for affection, 4 items for inclusion, and 3 items for control. These items are assessed on a 5-point Likert-type scale from 1 (*strongly disagree*) to 5 (*strongly*

agree). Thus, scores for affection ($\alpha = .78$), inclusion ($\alpha = .64$), and control ($\alpha = .70$) were calculated separately and ranged from 1 to 5 for each motive. Cronbach's alphas for each factor have ranged from .75 to .89 (Rubin et al., 1988). Some of the wordings of the items in this measure were minimally changed to better fit the CMC context and to direct participants to report on their partner's motives instead of their own. For example, the inclusion motive item, "Because it makes me feel less lonely" was altered to read that their significant other sent them the text message "To make him/her feel less lonely." Item order of the three motives was randomized.

CHAPTER IV

RESULTS

The first hypothesis predicted that perceived interpersonal communication motives for sending a text message will differ according to nonverbal cues present. To assess whether participants' reported perception of interpersonal communication motives (affection, inclusion, control) for their partner's sent text message differed according to the nonverbals present in the text message (emoticon, all caps, daytime/nighttime message, interactions between time of day and emoticon/caps), a one-way multivariate analysis of variance (MANOVA) was conducted (see Table 2). A significant difference was found (Wilk's $\Lambda = .951$, $F(781, 2283) = 1.670$, $p < .05$, multivariate $\eta^2 = .017$). This result indicates that the participants' perceived interpersonal communication motives differ according to the nonverbal cues present in the text message. Examination of the coefficients for the linear combinations distinguishing communication motives indicates that the participants' level of perceived inclusion contributed most to distinguishing the nonverbal manipulation groups. In particular, the inclusion motive ($B = -.386$) contributed significantly toward distinguishing the smiley face emoticon nonverbal cue from the other 8 groups ($p < .001$). Additionally, the effect of an emoticon manipulation was significant for the perceived inclusion motive reported by participants.

Follow-up univariate ANOVAs indicate that perception of the inclusion motive for sending the text message was significantly different according to the presence of specific nonverbal cues ($F(8, 789) = 2.737, p < .05$). Post hoc Bonferroni tests indicate that differences among the groups exist within the perceived inclusion motive for sending a text message. Specifically, significant differences occurred between the presence of a smiley face emoticon in the text message and a text message sent at 11:00 p.m. at night ($M_D = -.436, p < .01$). Significant differences also occurred between the presence of an emoticon in a text message and a message sent with all capital letters at 11:00pm ($M_D = -.386, p < .05$). Participants who encountered a text message with a smiley face emoticon perceived the least amount of inclusion motive for their partners' sent texts ($M = 3.313, SD = .785$). On the other hand, participants presented with a text message sent at night or an all caps message at night perceived the highest amount of inclusion motive ($M = 3.750, SD = .582; M = 3.370, SD = .696$) from their partners.

Table 2

Means (and Standard Deviations) for Interpersonal Communication Motives as a Function of Nonverbal Cues

| Nonverbal Cue | Affection <i>M(SD)</i> | Inclusion <i>M(SD)</i> | Control <i>M(SD)</i> |
|------------------------|---------------------------|---------------------------|-------------------------|
| None | 2.97(.71) | 3.49(.71) | 2.62(.88) |
| Smiley Face Emoticon | 2.91(.74) | 3.31(.78) ^{ab} | 2.50(.76) |
| All Caps | 2.96(.79) | 3.52(.75) | 2.71(.85) |
| 11:00 a.m. | 2.84(.67) | 3.54(.85) | 2.78(.83) |
| 11:00 p.m. | 2.93(.82) | 3.75(.58) ^a | 2.71(.86) |
| Emoticon at 11:00 a.m. | 3.10(.68) | 3.51(.72) | 2.48(.92) |

Table 2-Continued

| Nonverbal Cue | Affection <i>M(SD)</i> | Inclusion <i>M(SD)</i> | Control <i>M(SD)</i> |
|------------------------|---------------------------|---------------------------|-------------------------|
| Emoticon at 11:00 p.m. | 2.90(.73) | 3.60(.77) | 2.64(.86) |
| All Caps at 11:00 a.m. | 2.83(.78) | 3.58(.77) | 2.65(.85) |
| All Caps at 11:00 p.m. | 2.93(.75) | 3.70(.70) ^b | 2.59(.86) |

Note: Measure of Interpersonal Communication Motives used a 5-point scale; higher means indicate higher levels of each variable. Means with the same superscripts are significantly different from each other at the $p < .01$ (a) or the $p < .05$ (b) level.

Research question 1 sought to determine the extent degree of attachment, degree of relational stability, and nonverbal cues in an ambiguous text message predict the perception of affection as a motive for sending a text message. To answer this question, a hierarchical regression was conducted (see Table 3). Model 1 included degree of attachment (preoccupied, fearful, secure) and relational stability as predictor variables, while model 2 additionally included the 8 nonverbal cue manipulations in the text message. Results indicate that degree of attachment style, stability, and nonverbal cues are predictive of the variance in perceived affection for both models ($R^2 = .122$, $F(4, 788) = 27.441$, $p < .001$); ($R^2 = .127$, $F(12, 780) = 9.494$, $p < .001$). Participants' relational stability is predictive of the variance in perceived affection ($t = 9.464$, $p < .001$). So, as relational stability increases, perception of the affection motive for a romantic partner sending a text message increases ($B = .324$). Additionally, participants' scores on all three attachment styles were predictive of the variance in perceived affection as well [preoccupied ($t = 3.317$, $p < .01$); fearful ($t = -2.612$, $p < .01$); secure ($t = -2.645$, $p < .01$)]. That is, the more preoccupied one is in their attachment style, the more they will

perceive affection as a motive for sending a text message ($B = .114$). On the other hand, participants higher in their degree of fearful and secure attachment styles perceived less motivation for affection [$(B = -.112)$, $(B = -.116)$].

Table 3

Results of Hierarchical Regression Analysis Examining Relationship of Attachment Style, Relational Stability, and Nonverbal Cues on Perceived Affection Interpersonal Communication Motive

| Independent Variable | B | SE | β | t |
|----------------------|------|-----|---------|----------|
| Model 1 | | | | |
| Stability | .02 | .01 | .32 | 9.46*** |
| Preoccupied | .09 | .01 | .11 | 3.32*** |
| Fearful | -.07 | .03 | -.11 | -2.61*** |
| Secure | -.10 | .03 | -.11 | -2.65*** |
| Model 2 | | | | |
| Stability | .02 | .01 | .32 | 9.27*** |
| Preoccupied | .09 | .03 | .11 | 3.28** |
| Fearful | -.07 | .03 | -.11 | -2.54** |
| Secure | -.09 | .04 | -.11 | -2.56** |
| Emoticon | -.03 | .10 | -.01 | -.29 |
| All Caps | .03 | .11 | .01 | .24 |
| 11:00 a.m. | -.06 | .10 | -.03 | -.60 |
| 11:00 p.m. | .02 | .11 | .01 | .22 |
| Emoticon/11:00 a.m. | .12 | .11 | .05 | 1.15 |
| Emoticon/11:00 p.m. | -.01 | .11 | -.01 | -.03 |
| All Caps/11:00 a.m. | -.07 | .10 | -.03 | -.68 |
| All Caps/11:00 p.m. | .04 | .10 | .02 | .43 |

** $p < .05$. *** $p < .001$.

Research question 2 asked to what extent degree of attachment, degree of relational stability, and nonverbal cues in an ambiguous text message predict the perception of inclusion as a motive for sending a text message. To answer this question, a second hierarchical regression was conducted (see Table 4). Model 1 included degree of attachment (preoccupied, fearful, secure) and relational stability as predictor variables, while model 2 additionally included the 8 nonverbal cue manipulations in the text message. Results indicate that degree of attachment style, stability, and nonverbal cues are predictive of the variance in perceived inclusion for both models ($R^2 = .032$, $F(4, 785) = 6.429$, $p < .001$); ($R^2 = .056$, $F(12, 777) = 3.855$, $p < .001$). Participants' relational stability is predictive of the variance in perceived inclusion ($t = -2.098$, $p < .05$). As relational stability increases, the perception of inclusion as a motivation decreases for a romantic partner sending a text message ($B = -.076$). Additionally, participants' levels within the preoccupied attachment style was predictive of the variance in perceived inclusion ($t = 2.900$, $p < .01$). That is, the more preoccupied one is in his or her attachment style, the more they will perceive inclusion as a motive for sending a text message ($B = .105$). Furthermore, the presence of an emoticon in a text message was predictive of the variance in inclusion ($t = -2.042$, $p < .05$). In particular the presence of a smiley face emoticon in an ambiguous text message decreased the perception of inclusion for sending the message ($B = -.096$).

The third research question focused on the extent to which degree of attachment, degree of relational stability, and nonverbal cues in an ambiguous text message predict the perception of control as a motive for sending a text message. A third hierarchical regression was conducted to address this (see Table 5). As previously reported, model 1

included degree of attachment (preoccupied, fearful, secure) and relational stability as predictor variables, while model 2 additionally included the 8 nonverbal cue manipulations in the text message. Results indicated that degree of attachment style, stability, and nonverbal cues are also predictive of the variance in perceived control for both models ($R^2 = .066$, $F(4, 789) = 15.032$, $p < .001$); ($R^2 = .068$, $F(12, 781) = 5.803$, $p < .001$). Participants' relational stability is predictive of the variance in perceived control ($t = -5.934$, $p < .001$). As relational stability increases, the perception of control as a motivation for a romantic partner sending a text message decreases ($B = -.209$). Additionally, participants' level within the preoccupied attachment style was predictive of the variance in perceived control ($t = 3.758$, $p < .001$). That is, the more preoccupied one is in their attachment style, the more they will perceive control as a motive for sending a text message ($B = .133$).

Table 4

Results of Hierarchical Regression Analysis Examining Relationship of Attachment Style, Relational Stability, and Nonverbal Cues on Perceived Inclusion Interpersonal Communication Motive

| Independent Variable | B | SE | β | t |
|----------------------|------|-----|---------|--------|
| Model 1 | | | | |
| Stability | -.01 | .01 | -.08 | -2.10* |
| Preoccupied | .08 | .03 | .11 | 2.90** |
| Fearful | .04 | .03 | .06 | 1.30 |
| Secure | -.03 | .04 | -.03 | -.72 |
| Model 2 | | | | |
| Stability | -.01 | .01 | -.08 | -2.08* |
| Preoccupied | .09 | .03 | .11 | 3.12** |
| Fearful | .03 | .03 | .05 | 1.04 |

Table 4-Continued

| Independent Variable | B | SE | β | t |
|----------------------|------|-----|---------|--------|
| Secure | -.03 | .04 | -.04 | -.80 |
| Emoticon | -.21 | .10 | -.10 | -2.04* |
| All Caps | .02 | .11 | .10 | .20 |
| 11:00 a.m. | .10 | .11 | .01 | .08 |
| 11:00 p.m. | .19 | .11 | .07 | 1.64 |
| Emoticon/11:00 a.m. | -.02 | .11 | -.01 | -.14 |
| Emoticon/11:00 p.m. | .10 | .11 | .04 | .83 |
| All Caps/11:00 a.m. | .06 | .10 | .03 | .63 |
| All Caps/11:00 p.m. | .19 | .11 | .08 | 1.79 |

* $p < .05$. ** $p < .01$.

Table 5

Results of Hierarchical Regression Analysis Examining Relationship of Attachment Style, Relational Stability, and Nonverbal Cues on Perceived Control Interpersonal Communication Motive

| Independent Variable | B | SE | β | t |
|----------------------|------|-----|---------|---------|
| Model 1 | | | | |
| Stability | -.02 | .01 | -.21 | 5.93*** |
| Preoccupied | .12 | .03 | .13 | 3.76*** |
| Fearful | .01 | .03 | .01 | .19 |
| Secure | -.02 | .04 | -.02 | -.39 |
| Model 2 | | | | |
| Stability | -.02 | .01 | -.21 | 5.89*** |
| Preoccupied | .12 | .03 | .14 | 3.90*** |
| Fearful | .01 | .03 | .01 | .03 |

Table 5-Continued

| Independent Variable | B | SE | β | t |
|----------------------|------|-----|---------|-------|
| Secure | -.02 | .04 | -.02 | -.44 |
| Emoticon | -.17 | .11 | -.07 | -1.54 |
| All Caps | .08 | .12 | -.03 | .64 |
| 11:00 a.m. | .09 | .12 | .03 | .77 |
| 11:00 p.m. | -.02 | .13 | -.01 | -.17 |
| Emoticon/11:00 a.m. | -.18 | .12 | -.06 | -1.44 |
| Emoticon/11:00 p.m. | -.02 | .13 | -.01 | -.15 |
| All Caps/11:00 a.m. | -.03 | .11 | -.01 | -.27 |
| All Caps/11:00 p.m. | -.07 | .12 | -.02 | -.55 |

*** $p < .001$.

CHAPTER V

DISCUSSION

The present study provides insight into interpersonal communication through exploring how individual differences, relational context, and nonverbal cues manifest and affect perceptions in a computer-mediated context. The asynchronous technological medium of text messaging was chosen in this investigation due to the scant research currently available in this area of CMC. Extant literature supports the notion that an individual's attachment style, relational stability, and nonverbal cues affect perception in face-to-face communication (Guerrero, 1996; Noller & Feeney, 1994; Viveiros, 2006; Weger, 2006). The following discussion presents explanations of how these constructs translate into a computer-mediated environment. Additionally, new insight is gained for presentational effects of nonverbal cues within CMC and the role attachment style plays in influencing our perceptions in this medium.

The hypothesis in this study predicted that the mean perception of interpersonal communication motives for sending a text message would differ according to nonverbal cues. That is, one member of a romantic dyad would differ in his or her perceived affection, inclusion, and/or control for their partner's sent text message depending upon

the nonverbal cues present in that message. In this case, eight different nonverbal cues were manipulated and exposed to participants: smiley face emoticon, incorrect capitalization (all caps), nighttime message (11:00 p.m.), daytime message (11:00 a.m.), emoticon message sent at night, emoticon message sent during the day, all caps message sent at night, all caps message sent during the day. Results indicate that nonverbal cues are significant predictors of the variance in perceived motives. That is, participants' perceived motives for their partner sending a text message was dependent upon the nonverbal cues present in that message. This finding is supported by previous literature that explains the vast importance of the role of nonverbal communication in FtF interactions. Nonverbal cues are critical in interpreting and perceiving interpersonal communication (Carter, 2003). Donaghy's (1997) research confirms that nonverbal kinesic, proxemic, and vocalic cues are perceived differently and, as such, create divergent perceptions of messages. Furthermore, literature reveals similar findings with regard to nonverbal cues in CMC that support the results for this hypothesis. Previous studies have not only established that nonverbal cues can be conveyed through CMC, but also that these cues greatly affect perceptions of mediated messages (Doering & Poeschl, 2007; Walther et al., 2005). Fullwood and Martino (2007) argue that, specifically, nonverbal cues such as emoticons affect perceptions of senders and messages in a chat room environment. The present study, then, reveals text messaging as another computer-mediated mode of communication in which nonverbal cues play a crucial role.

Several theoretical implications can also be drawn from the results of this study's hypothesis, which predicted that nonverbal cues present in text messages would affect participants' perceived motives behind these messages. Since findings indicate

nonverbal cues contribute to the differences in motive perceptions for text messages, this bolsters the actual presence and distinguishing characteristics of nonverbals in CMC. The presence of nonverbal cues in computer-mediated communication is supported in large part through Walther's (1992) social information processing theory (SIP). SIP states that individuals can, in fact, communicate nonverbally via CMC. CMC is rich in cues and can be practically analogous to FtF interaction. SIP also explains how individuals can convey relational information through the substitution of nonverbals with verbal cues in this context. Since text messaging has been minimally studied in communication literature, these theoretical implications demand attention in the area of interpersonal communication and in this particular mode of CMC. In essence, given that nonverbal cues can be conveyed and perceived through text messaging, this mode of CMC has characteristics that are comparable to FtF communication. Then, as nonverbal cues play a critical role in relational communication, scholars must consider that text messaging, and the nonverbals therein, also offer users a more complex interaction tool with which to initiate, forge, and maintain romantic relationships.

Uncertainty Reduction Theory (Berger & Calabrese, 1975) is another theory that can provide insight into nonverbal perception in CMC. URT posits that individuals are uncomfortable with uncertainty and, thus, are motivated to seek out cues and information about others. While this theory has been applied mainly to FtF interactions, literature supports the theoretical implications of URT in a computer-mediated context as well. Byron and Baldrige (2007) argue that the "reduced availability of cues in e-mail and their often equivocal meaning makes recipients especially motivated" to interpret all nonverbal cues present in a CMC message (p. 139). The characteristic that may lead to

uncertainty reduction in CMC is the variety of verbal and paralinguistic cues that are present to interpret (Walther & Tidwell, 2002). Specifically, emoticons have been shown to reduce uncertainty regarding a sender's intent when coupled with a non-negative message (Byron & Baldridge, 2007). This finding can be extended to the present study in that perceived motives for sending text messages can be influenced by the nonverbal cues present. Individuals display nonverbal behaviors that correlate with their interpersonal communication motives of affection, inclusion, and control in FtF interactions (Myers & Ferry, 2001). The present study extends this notion not only to perceptions of senders, but also the text-messaging environment. These findings, then, bolster the importance of continued research into text messaging as an interaction tool within romantic relationships. While this study takes the first step into unveiling how text messages can be perceived, we must gain more insight into how this medium can guide and alter communication patterns throughout all stages of the relationship. Furthermore, scholars must examine the new social norms emerging through use of text messaging, and the ways that we may make this novel mode of CMC an effective communication tool within intimate relationships.

The hypothesis results in the present study indicate that the composite of perceived interpersonal communication motives for sending a text message differ according to nonverbal cues. A closer look at these results provides insight into where these differences lie. The differences among the eight nonverbal manipulations were most significant within the inclusion motive. That is, participants perceived that their romantic partner had different inclusion motives for sending the text message depending upon whether an emoticon was present, the message was sent at nighttime, etc. People

communicate to fulfill inclusion motives to overcome feelings of loneliness and/or isolation (Barbato et al., 2003). In this instance, individuals communicate to be a part of a group or to feel linked to another person. Those participants who were presented with a text message sent at 11:00 p.m. or a message sent with all capital letters at 11:00 p.m. (“WHAT ARE YOU DOING?”) perceived that partners were most highly motivated to communicate inclusion. Social e-mail messages sent at night have proven to be perceived as more intimate than those sent during the daytime (Walther & Tidwell, 2005). As such, it could be assumed that the perceived motive for sending a text message at 11:00 p.m. would be affection. However, an argument could be made that romantic couples who are not together at this time of night could be reaching out through text messaging so they can be with their loved one—to be included in their lives. Yet, the fact that a nighttime message including all capital letters was perceived as inclusion is curious. CMC messages sent with all capital letters can have a negative connotation such as anger—it is often perceived as shouting (Byron & Baldrige, 2007). Therefore, these possible “domineering” all caps messages may convey a control motive, rather than an inclusion motive. On the other hand, research shows that use of all capital letters can lead to uncertainty regarding the sender’s intent (Byron & Baldrige, 2007). This may explain why the inclusion motive (rather than affection or control) was perceived most frequently by participants.

Additional results indicate that text messages with a smiley face emoticon were perceived as having the least amount of inclusion motive. Emoticons also did not contribute to differences in the affection or control motive. This contradicts research that found e-mails including emoticons were perceived as conveying more affection than e-

mails without emoticons (Yoo, 2007). Yet, Walther and D'Addario's (2001) research supports the finding that emoticons can have a non-significant effect on perception. These researchers argue that the "artificiality and constructed nature of emoticons suggest they would have weak effects" on message perception (p. 329). Additionally, they revealed that verbal messages account for the predominance of meaning in e-mail even when emoticons are present. This conclusion may also hold true in a text-messaging environment, as indicated by the present findings. The fact that the present study's results conflict with existing research surrounding CMC bolsters the need to examine text messaging more closely and in different relational contexts. As distinct bodies of research come into opposition, text messaging surfaces as a unique interaction tool that is markedly different than other forms of CMC as we utilize them within our relationships. More insight must be gained into this area of CMC as it impacts how we perceive the presence of nonverbals, and possibly how we choose to convey them.

The first research question sought to find if degree of attachment style, relational stability, and nonverbal cues predict the variance in perceived affection for sending a text message. Results indicate that attachment style, relational stability, and nonverbal cues do, in fact, provide a significant model that predicts the variance in the perceived affection motive. These results are supported by research that argues communication is a function of both characteristics of the individual and characteristics of the context (Montgomery, 1984). In this instance, attachment style is the key individual characteristic examined with perception. Noller (2005) suggests that an individual's attachment style plays a critical role in how one decodes messages and also how one interprets communication in relationships. Results of the current study extend these

findings to the CMC context. The relational context explored in this study was the stability of the relationship. Relational stability has most often been studied among married couples, and is related to marital quality, marital satisfaction, and marital adjustment (Noller, 1980; Viveiros, 2006). Extant literature indicates that factors such as relationship history, preconceived prejudices, and intimacy can greatly influence decoding of messages (Noller, 1980). Present findings extend this notion to the text-messaging mode of CMC. Not only, then, do we perceive text messages in differing ways, but we must also consider what an individual brings to the text-messaging interaction, and the current status of the relationship. These factors, in tandem, influence text-messaging interactions in romantic relationships and how individual partners can perceive the motives of those messages.

Closer examination of the regression for research question 1 reveals that those with a higher degree of the preoccupied attachment style perceive the greatest amount of affection motive from their partner's text message. Preoccupied individuals desire closeness and intimacy, depend on the approval of others, and fear rejection (Collins & Feeney, 2004). As preoccupied attachment is considered one of the insecure attachment styles, prior investigations note that these individuals have difficulty identifying positive messages due to anxiety over abandonment (Noller & Feeney, 1994). This contradicts the current study's findings that preoccupied participants perceived affection—a positive motive—for sending the text message. This may be explained by the ambiguous nature of the text message used in the present investigation which could have influenced the subsequent perceptions. However, Collins and Feeney (2004) reveal that when messages are ambiguous and open to subjective interpretation insecure adults tend to perceive the

messages as less well intended. This is a direct contradiction to the current findings in which insecure participants rated text messages high in the affection motive. This contradictory finding is ground breaking in that text messaging may prove to be a medium in which the effect of attachment styles may emerge in a markedly different way than in FtF communication or other forms of CMC. By extension, other psychological or personality differences we bring to text-messaging interactions should be explored as unique and distinct from other ways in which we communicate with romantic partners. Furthermore, research question 1 findings indicate that those with a higher degree of relational stability perceive the highest degree of affection motive. Romantic partners who are the most stable are also happier and have a higher degree of relational satisfaction. As such, these individuals rate messages more positively than others—even to the extent of rating intentions more positively than they actually are (Noller, 1980). A cyclical effect tends to occur whereby these “positive illusions” contribute to relationship stability and satisfaction (Sternglanz & DePaulo, 2004, p. 247). The current study extends these findings to communication via CMC where those high in relational stability perceive the motive behind text messages as more affectionate and positive—even when the message is ambiguous.

The second research question inquired if degree of attachment style, relational stability, and nonverbal cues predict the variance in perceived inclusion for sending a text message. Similar to research question 1, research question 2 results indicate that degree of attachment style, relational stability, and nonverbal cues provide a significant model that predicts the variance in perceived *inclusion* for sending a text message. In particular, participants reporting a higher degree of the preoccupied attachment style perceived the

highest amount of inclusion in their partner's text message. Those who communicate for inclusion do so to fulfill companionship needs and want to be with others (Myers & Ferry, 2001). Preoccupied individuals fear abandonment and are concerned that others will not be available when they need them (Weger, 2006). Thus, it is surprising that individuals with this attachment style would perceive inclusion as a motive for their partner sending a text message. This would imply that preoccupied participants in this sample are confident that their partner is communicating for the purpose of wanting to share and be with them and the finding contradicts prior research (Schachner et al., 2005). One explanation for this may be found in the model of motivated inaccuracy (Sternglanz & DePaulo, 2004). Motivated inaccuracy can occur when messages and cues are ambiguous; ambiguity causes the receiver to entertain a wide range of interpretations. When an accurate interpretation of cues is threatening—such as a preoccupied individual having their abandonment fear realized—these individuals may be motivated to misinterpret the message. As such, in the present study, preoccupied participants may have perceived high amounts of inclusion in their partner's text message due to a motivated inaccuracy in perception.

Results for research question 2 also indicate that participants exposed to the smiley face emoticon text message perceived the least amount of inclusion motive from their romantic partner. This finding is supported by Walther and D'Addario's (2001) research that claims emoticons may function as "phatic communication"—ritualized expressions that do not convey meaning, but rather a social function (p. 342). Additionally, verbal message content may outweigh the effect of emoticons simply because receivers perceive them as fleeting and requiring little effort. Current findings

also specify that those with a higher degree of relational stability perceive a lesser degree of inclusion motive. Individuals who are involved in a stable relationship are also more secure and are not likely motivated to inaccurately interpret messages (Sternglanz & DePaulo, 2004). Therefore, participants who reported the most relational stability may have taken the ambiguous text message at face value. That is, the “What are you doing?” text message could have been interpreted as a request for information—not an indication that their partner wanted to be with them.

Research question 3 results indicate that degree of attachment style, relational stability, and nonverbal cues provide a significant model that predicts the variance in perceived *control* for sending a text message. In particular, participants reporting a higher degree of the preoccupied attachment style perceived the highest amount of control in their partner’s text message. Individuals who communicate for control do so to exert power, show dominance, and/or to gain compliance of others (Myers & Ferry, 2001), which are often considered a negative form of communication. Collins and Feeney (2004) argue that preoccupied individuals tend to perceive messages as unsupportive or inconsiderate—they construe messages more pessimistically. Thus, current findings portraying preoccupied individuals perceiving ambiguous text messages as controlling support the findings of prior research. Furthermore, results reveal that those who report higher degrees of relational stability perceive less control in their partner’s text message. Conversely, participants with low degrees of relational stability felt their partner communicated more for control motives. This finding is substantiated by Kahn’s (1970) argument that dissatisfied couples are more inclined to misinterpret messages and to attribute negative connotations to communication attempts. As

relational satisfaction relates to relational stability, this explains why partners in unstable relationships perceive text messaging motives in a more negative and controlling manner. This finding indicates that the effects of relational stability in FtF interactions can be translated to a text-messaging environment. Thus, it becomes important to explore other relational characteristics and contexts that may also influence how text messages are perceived.

Limitations and Future Research

It is a limitation of the current study that it did not use actual text messages directed to the participants as real recipients. Although the survey directed the participants to read and interpret the text message as if their romantic partner sent it, in actuality it was contrived. Participants reading text messages from a true romantic partner may have had a more vested interest in the message or more profound cognitive perceptions. In addition, participants were not able to read the text message from an actual cellular phone. Instead, text messages were printed on a clip art graphic of a text messaging capable phone. This reduced the authenticity of the text messages; thus, perceptions of the motive for sending the texts could have possibly been skewed. In addition, only one ambiguous text message was used in the study (“What are you doing?”). Other various statements or emotionally laden messages may have resulted in different effects in conjunction with nonverbal cues and perceived motives. Finally, the types of romantic relationships that the participants experienced may have affected how they perceived the nonverbals and motivations behind the text messages. For instance, those who have never been in a controlling relationship may have perceived incorrect

capitalization messages as having added intensity as opposed to interpreting a control motive.

Future research should explore how attachment style and relational stability also affect the *encoding* of CMC messages. Future studies would also benefit from investigating other individual differences that influence the perception and construction of text messages. Moreover, future investigations should examine these concepts across many various modes of computer-mediated communication. All CMC mediums should not be lumped into one large category of technological communication. As CMC becomes a crucial component of communication within relationships, more research needs to factor in different technological mediums. The study of attachment levels, relational stability, nonverbal cues, and their effect on motivation becomes even more complex in a computer-mediated environment. Although text messaging is often utilized by a younger generation, scholars should investigate how this type of CMC affects the communication of varying age groups. Finally, we could benefit from determining what gender differences may surface in the encoding and decoding of messages sent via texting.

Thesis Conclusion

The aim of the current research was to reveal how multiple interpersonal communication variables impact romantic relationship interactions in a computer-mediated environment. This study examined the relationships among our communication motives, our individual differences, and the relational contexts in which we interact. By examining these variables in tandem, we gain insight into how attachment style and relational stability may affect one's perception of interpersonal motives communicated

through a mediated channel. Specifically, this study illustrates the impact that text messaging can have as a mediated form of interaction within romantic relationships. Additionally, significant value should be given to the ability of nonverbal cues to embellish and provide added meaning to interactions via CMC.

Findings in this study support, first, that CMC-users are not completely lacking in their capability to convey nonverbal cues through this medium. Thus, as nonverbals are present in this mode of communication, people are able to forge relationships via CMC—some of which can become deeper and more intimate than those initiated through FtF interaction. The presence of nonverbal cues in CMC bolsters the importance of this type of communication in our romantic relationships. In fact, results of this investigation reveal that we can perceive text messages differently according to the varying nonverbal cues present with the message itself. Second, the current study also provides insight into how individual attachment styles and stability within a relationship can play a significant role in how we perceive text messages sent by our significant others. Scholars, then, must look beyond simply *how* CMC messages are interpreted. It becomes critical to additionally determine *what* we bring to an interaction, and also the relational context surrounding the communication episode, in order to fully understand perceptions of text messaging.

With the proliferation of new technology in our society, computer-mediated communication is not only becoming a practical necessity in our lives, but it is also a widely popular mode of communication used in different aspects of daily life. In particular, text messaging is becoming one of the most popular types of CMC in the world. However, communication scholars have barely begun to uncover all the ways in

which text messaging may play a role in interpersonal interactions. The present investigation, then, provides novel insight into a form of CMC that clearly impacts relational communication and perception. It is apparent that even small nuances in text messages such as emoticons and capitalization can create such vast differences in meaning. Furthermore, results of this study indicate how communication via text messaging often contradicts the information we currently know about other forms of mediated communication. Thus, this particular type of CMC demands attention in the area of interpersonal communication. Hopefully we will continue to unveil the unique features and complexities of text messaging in order to better understand how it guides, alters, and drives the communication interactions in our romantic relationships.

APPENDIX A

CONSENT FORM

Texas State University-San Marcos and the Department of Communication Studies support the practice of the protection of human rights of research participants. The following information is provided so that you can decide whether or not to participate in this study. You should be advised that if you decide to participate, you are free to withdraw from the study at any time. If you do, it will in no way affect your relationship with the department, the services the department may provide you, or Texas State University-San Marcos. The purpose of this study is to collect data for a graduate thesis project focusing on how people interpret computer-mediated communication. If you have any questions regarding this research project, you may contact Christina Fleuriet (IRB# 1293760) at cf27@txstate.edu or call 512.245.2142.

Data will be collected through a paper questionnaire given to you by your instructor or the researcher. The time to complete the 52-item questionnaire is estimated to be between 10 and 15 minutes. Two sample items are “I am not sure that I can always depend on others to be there when I need them,” and “My significant other is committed to making our relationship last.” Data gathered about you, your interpersonal relationship, and computer-mediated communication is anonymous. Survey data will be collected on a one time basis only. You will be asked to briefly respond to questions about yourself, your view of relationships, and your perception of text messaging. All participants will be given the same survey with slight modifications on some of the questions.

You have been asked to be a participant in this research study due to your enrollment in a specific core curriculum course at Texas State University. All survey responses are anonymous. This consent form will be kept confidential and will not be linked to your survey in any way. You may withdraw your consent to participate at any time by notifying the researcher or by simply ceasing your completion of the survey. You may also choose to not answer any question(s) for any reason. Some questions asked may be sensitive to some and may result in one questioning oneself or one’s competence in relationships. There are no foreseen physical risks. If this survey causes any type of distress, the Texas State Counseling Center (LBJSC 5-4.1, 512.245.2208) is free and available to all registered students, yet the number of sessions allowed may be limited.

Research data will be kept in the possession of the researcher for a period of approximately one year until the conclusion of data analysis and writing of research report. All surveys and consent forms will be kept in a secured filing cabinet in the researcher's staff office on campus to which only the researcher has access. If requested, a summary of the findings of this research will be provided to participants at the completion of the study--please email cf27@txstate.edu. Pertinent questions about this research, your participant rights, and/or research-related injuries may be directed to the IRB chair, Dr. Jon Lasser (512-245-3413 – lasser@txstate.edu), or to Ms. Becky Northcut, Compliance Specialist (512-245-2102).

Participant Certification

I have read the Consent Form. I am currently at least 18 years of age. I understand that all information will be kept confidential and anonymous. I have had the opportunity to ask questions and receive answers to any questions I may have had regarding the use and disclosure of my information. I understand that if I have any additional questions, I may contact Christina Fleuriet at 512.245.2142.

I agree to take part in this study as a research participant.

Participant's Printed Name

Date

Participant's Signature

Researcher's Signature

Christina Fleuriet

IRB# 1293760

APPENDIX B

SURVEY

INSTRUCTIONS: Please read carefully as you respond to the following items. You will be asked to answer questions about yourself and questions about the person with whom you have a romantic relationship as you complete different sections of the survey. Thank you for your participation.

Thinking about yourself...

1. Are you male or female?
☐ Male
☐ Female
2. What is your age (in years)? _____
3. What is your classification?
☐ Freshman ☐ Sophomore ☐ Junior ☐ Senior
4. *Are you *currently* involved in a romantic relationship?
☐ Yes
☐ No

*If you answered “**Yes**” to question 4, please skip to question 6.

5. **Have you been involved in a romantic relationship within the past year?
☐ Yes
☐ No

If you answered “Yes**” to question 5, please keep in mind your most *recent* romantic relationship when answering the following questions. If you answered “**No**” to question 5, you have completed your portion of this survey.

Thinking about your romantic relationship with _____ (insert initials)...

6. Is this person male or female?
☐ Male
☐ Female

7. How long have you been in a relationship with this person? (Please indicate a numerical value for years, months, days and/or weeks.)

_____ Years _____ Months _____ Days _____ Weeks

8. How would you characterize your relationship with this person? (check one)

_____ Casual Dating

_____ Exclusive Dating

_____ Engaged

_____ Married

_____ Other (please specify) _____

Thinking about yourself...

For items 9 through 33, please indicate the extent to which you agree or disagree with the following statements about yourself. Circle the appropriate number according to the following scale:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----------------------|----------|----------------------|-------------------------------|-------------------|-------|-------------------|
| Strongly Disagree | Disagree | Slightly Disagree | Neither Agree nor Disagree | Slightly Agree | Agree | Strongly Agree |

9. I am relatively confident that other people will accept me as I am.

1 2 3 4 5 6 7

10. I do not worry about being alone.

1 2 3 4 5 6 7

11. I find others are reluctant to get as close as I would like.

1 2 3 4 5 6 7

12. I am not sure that I can always depend on others to be there when I need them.

1 2 3 4 5 6 7

13. Sometimes people do not want to get close to me because I want so much to be close to them.

1 2 3 4 5 6 7

14. I find it difficult to allow myself to depend on others.

1 2 3 4 5 6 7

15. I want to merge completely with another person.

1 2 3 4 5 6 7

Thinking about yourself...

| | | | | | | |
|------------------------------|-----------------|------------------------------|---------------------------------------|---------------------------|--------------|---------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Strongly Disagree | Disagree | Slightly Disagree | Neither Agree nor Disagree | Slightly Agree | Agree | Strongly Agree |

16. I do not worry about having others not accept me.

1 2 3 4 5 6 7

17. I am nervous when anyone gets close to me.

1 2 3 4 5 6 7

18. It is easy for me to get emotionally close to others.

1 2 3 4 5 6 7

19. I am uncomfortable being without close relationships, but I sometimes worry that others do not value me as much as I value them.

1 2 3 4 5 6 7

20. I worry that I will be hurt if I allow myself to become too close with others.

1 2 3 4 5 6 7

21. I want emotionally close relationships, but I find it difficult to trust others completely.

1 2 3 4 5 6 7

22. I am comfortable depending on others.

1 2 3 4 5 6 7

23. I often want to get closer to others than they want to get with me.

1 2 3 4 5 6 7

24. People are never there when you need them.

1 2 3 4 5 6 7

25. I find it difficult to trust others completely.

1 2 3 4 5 6 7

Thinking about yourself...

| | | | | | | |
|------------------------------|-----------------|------------------------------|---------------------------------------|---------------------------|--------------|---------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Strongly Disagree | Disagree | Slightly Disagree | Neither Agree nor Disagree | Slightly Agree | Agree | Strongly Agree |

26. I do not often worry about someone getting too close to me.

1 2 3 4 5 6 7

27. I do not often worry about people letting me down.

1 2 3 4 5 6 7

28. I want to be completely emotionally intimate with others, but I often find that others are reluctant to get as close as I would like.

1 2 3 4 5 6 7

29. I do not often worry about being abandoned.

1 2 3 4 5 6 7

30. I know that others will be there when I need them.

1 2 3 4 5 6 7

31. I find it relatively easy to get close to others.

1 2 3 4 5 6 7

32. My desire to merge sometimes scares people away.

1 2 3 4 5 6 7

33. I am somewhat uncomfortable being close to others.

1 2 3 4 5 6 7

Thinking about your romantic relationship with _____ (insert initials)...

For items 34 through 40, please indicate the extent to which you agree or disagree with the following statements when considering your current romantic relationship (If you are not in a relationship, please recall your most recent relationship). Circle the appropriate number according to the following scale:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|------------------------------|-----------------|------------------------------|---------------------------------------|---------------------------|--------------|---------------------------|
| Strongly Disagree | Disagree | Slightly Disagree | Neither Agree nor Disagree | Slightly Agree | Agree | Strongly Agree |

34. My relationship with this person is stable.

| | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----------|----------|----------|----------|----------|----------|----------|

35. Our relationship is strong.

| | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----------|----------|----------|----------|----------|----------|----------|

36. I have seriously considered ending my relationship with this person.

| | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----------|----------|----------|----------|----------|----------|----------|

37. I wish I had not started a relationship with this person.

| | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----------|----------|----------|----------|----------|----------|----------|

38. This person and I will probably still be together in one year.

| | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----------|----------|----------|----------|----------|----------|----------|

39. I am committed to making our relationship last.

| | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----------|----------|----------|----------|----------|----------|----------|

40. My romantic partner is committed to making our relationship last.

| | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----------|----------|----------|----------|----------|----------|----------|

Thinking about your romantic relationship with _____ (insert initials). (Please look at the screen below carefully.)

This person has sent you the following text message:



Please indicate the extent to which you agree or disagree that the following statements (items 41-52) describe the **motive (reason)** this person has for sending the above text message.

My romantic partner's motive for sending the above text message is:

| 1 Strongly Disagree | 2 Disagree | 3 Neither Agree nor Disagree | 4 Agree | 5 Strongly Agree |
|---|---------------|------------------------------------|------------|------------------------|
| <hr/> | | | | |
| 41. To help me. | | | | |
| 1 | 2 | 3 | 4 | 5 |
| 42. To show me encouragement. | | | | |
| 1 | 2 | 3 | 4 | 5 |
| 43. Because he/she needs someone to talk to. | | | | |
| 1 | 2 | 3 | 4 | 5 |
| 44. To thank me. | | | | |
| 1 | 2 | 3 | 4 | 5 |
| 45. Because he/she just needs to talk about their problems sometimes. | | | | |
| 1 | 2 | 3 | 4 | 5 |

Thinking about your romantic relationship with _____ (insert initials). (Please look at the screen below carefully.)

This person has sent you the following text message:



My significant other's motive for sending the above text message is:

| 1 Strongly Disagree | 2 Disagree | 3 Neither Agree nor Disagree | 4 Agree | 5 Strongly Agree |
|---|---------------|------------------------------------|------------|------------------------|
| <hr/> | | | | |
| 46. To get something he/she doesn't have. | | | | |
| 1 | 2 | 3 | 4 | 5 |
| 47. To make him/her feel less lonely. | | | | |
| 1 | 2 | 3 | 4 | 5 |
| 48. Because he/she wants me to do something for him/her. | | | | |
| 1 | 2 | 3 | 4 | 5 |
| 49. To let me know he/she cares about my feelings. | | | | |
| 1 | 2 | 3 | 4 | 5 |
| 50. Because he/she is reassuring them self that someone is there. | | | | |
| 1 | 2 | 3 | 4 | 5 |

51. Because he/she is concerned about me.

1 2 3 4 5

52. To tell me what to do.

1 2 3 4 5

Thinking about yourself...

53. Do you own a cell phone with text messaging capability?

Yes _____ No _____

54. How often do you text message? (circle one)

1 2 3 4 5 6
Never Very Rarely Rarely Occasionally Frequently Very Frequently

APPENDIX C

MANIPULATION CHECK 1

You have received the following *text message*:



Please put an "X" on one of the 7 spaces below.

The above text message is:

Negative _____ : _____ : _____ : _____ : _____ : _____ : _____ Positive

Please indicate the extent of your agreement/disagreement with the following statement by circling the appropriate number on the scale below.

The above text message is neutral.

| | | | | |
|----------------------|----------|-------------------------------|----------|-------------------|
| 1 | 2 | 3 | 4 | 5 |
| Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |

APPENDIX D

MANIPULATION CHECK 2

You have received the following *text message* at 11:00AM in the morning:



1) Consider the above text message and when it was sent. Who would send you a text message like the one shown above?

2) Have you ever sent a text message to someone like the one shown above?

Yes _____ No _____

3) Do you own a cell phone with text messaging capability?

Yes _____ No _____

4) How often do you text message? (circle one)

| | | | | | |
|-------|-------------|--------|--------------|------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 |
| Never | Very Rarely | Rarely | Occasionally | Frequently | Very Frequently |

Please continue to the back of this questionnaire.

Do NOT look back at the previous page.

Answer the following item:

Please recall the phone image and text message that was shown at the top of the front page of this questionnaire. In the screen below, duplicate the contents of the ENTIRE phone screen *exactly* as you saw it on the previous page:



What time of day did you receive this text message? (check one)

Morning _____

Night _____

Would the time this text message was sent matter to you? *Why or why not?*

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