The Pennsylvania State University

The Graduate School

College of the Liberal Arts

THE PRODUCTION AND RECEPTION OF VERBAL PERSON-CENTERED

SOCIAL SUPPORT IN FACE-TO-FACE AND COMPUTER-MEDIATED DYADIC

CONVERSATOINS

A Dissertation in

Communication Arts and Sciences

by

Andrew C. High

Submitted in Partial Fulfillment

of the Requirements

for the Degree of

Doctor of Philosophy

May 2011

The dissertation of Andrew C. High was reviewed and approved* by the following:

Denise Haunani Solomon
Professor of Communication Arts and Sciences
Dissertation Advisor
Chair of Committee

James P. Dillard
Professor of Communication Arts and Sciences

Jon Nussbaum
Professor of Communication Arts and Sciences

Chip Gerfen
Associate Professor of Spanish, Italian, and Portuguese

Thomas Benson
Head of the Department of Communication Arts and Sciences

*Signatures are on file in the Graduate School

ABSTRACT

This dissertation is founded on the assumption that social support is a valuable interpersonal resource that can vary in terms of its quality and efficacy for both support providers and receivers. The goal of this study is to obtain a more comprehensive understanding of the social support process by investigating the manner in which personal, relational, and contextual qualities influence the production and reception of different social support messages.

As a starting point, Chapter 1 defines some of the key concepts in this dissertation. Namely, social support is introduced and reasons are established for its continued study. The remainder of this chapter discusses computer-mediated communication as a distinct communication channel with implications for the study and process of social support.

Chapter 2 provides a more detailed conceptualization and review of research on social support with a concentration on verbal person-centeredness. Verbal person-centered (VPC) messages exist within a theoretical hierarchy that describes message features that are likely to produce more or less beneficial supportive outcomes. This dissertation concentrates on the three main levels of the VPC hierarchy: low person-centered, medium person-centered, and highly person-centered messages. Given their pervasiveness in published research, this chapter also examines sex differences in the provision and reception of social support messages.

In Chapter 3, computer-mediated communication (CMC) is considered as a novel channel for the enactment of comforting interactions. This chapter reviews the research that has been conducted related to social support online and makes predictions about how social support is expected to unfold in CMC given the assumptions of several theories of

mediated interpersonal communication. This chapter also describes a preference for online social interaction as an individual difference thought to influence people's experiences of interpersonal CMC. Consistent with the research, theory, and variables reviewed to this point, hypotheses specify the influence of personal, relational, and contextual variables on support providers', receivers', and third party observers' impressions of supportive interactions.

Chapter 4 describes an experiment designed to test the influence of several moderating variables on people's perceptions of supportive interactions. This chapter begins by describing the procedures, participants, and research design of this experiment. This project involved randomly assigning male and female participants to dyads that engaged in conversations about a personal stressor experienced by one of the participants. One participant identified a personally distressing topic to talk about, and the other participant was designated the support provider. Support providers were trained to provide one of the three main levels of person-centered support. Participants then enacted a conversation via an online or face-to-face channel. Research participants completed Internet-based surveys before and after their interactions to measure a number of personal qualities and perceptions of their conversations. Finally, this chapter summarizes the self-reported and rated variables used to test the hypotheses proposed in Chapter 3.

The results of this study are described in Chapter 5. Results provide support for the hyperpersonal perspective of mediated interaction because participants were able to create effective interactions online. I also observed gender differences in message production and reception. Men assigned to the highly person-centered condition experienced the greatest benefit from conducting their supportive interactions online, such that they perceived

greater communicative efficacy producing comforting messages online than face-to-face. In contrast, a preference for online social interaction exerted little influence on people's perceptions of supportive interactions.

Finally, Chapter 6 reviews the results presented in Chapter 5 and articulates the implications of this study for a theory of verbal person-centered social support and the continued study of social support in mediated contexts. Limitations of this study and benefits of using an experimental research design to study verbal person-centered social support are also discussed. The chapter concludes by proposing some directions for future research in the study of social support across face-to-face and CMC communication channels.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ACKNOWLEDGEMENTS

There are numerous people who have assisted in the completion of this dissertation, and I would like to devote some space to thanking them. I would first like to express my deepest thanks and appreciation to my advisor, Dr. Denise Solomon. Without her support and nurturance for my scholarship, I would not have been able to complete this project with such a high level of quality. Her ability to be an advisor, mentor, colleague, and even friend when I needed it is unparalleled. The extra effort she devotes to mentoring has shaped me as a scholar and person. It does not go unnoticed.

I would also like to thank my committee members, Dr. Jim Dillard, Dr. Jon Nussbaum, Dr. Shyam Sundar, and Dr. Chip Gerfen. I have learned much from these individuals through their classes, work on this dissertation, and casual conversations. It was an honor to work with such a distinguished, yet approachable, group of scholars. I would be lucky to emulate their scholarly passion in my future work. Dr. Scott Caplan, a mentor, also deserves recognition. His interest in my academic development and passion for teaching sparked my desire to earn a doctoral degree.

My family, Lynn and Bert High, Beverley Chipola, and Kevin High, also deserve a tremendous deal of thanks. I could not have asked for a more supportive and encouraging family. I always believed that I had the confidence of my family regardless of my path in life. I do not possess the vocabulary to adequately convey my appreciation, but for your support and love, I am extremely grateful. I also want to thank Mary Haman for her love, support, and encouragement throughout my graduate career. Her skill at helping me find the sun during even the darkest days is unequalled. She has always and will always believe

in me and my work, even when I'm not so sure. She deserves more love and thanks than I have words to express.

To my fellow Solomon-advisees, Keli Steuber, Mandy Goodwin, Rachel, McLaren, Jen Priem, Kirsten Weber, Victoria Jennings-Kelsall, and Lindsey Aloia, thank you for not only being some of the best people I've ever had the pleasure of knowing but also for inspiring me. I'm proud to be a member of this strong, supportive, and tight-knit advisee family. We are all strong braches that combine to form a pretty impressive tree.

I also need to thank my friends, Dan Weber, Kurt Braddock, Adam Perry, John Rubright, and Kristin West, for their patience and ability to ground me during the dissertation process. I have known some of these people for most of my life and others for only a few years, but they have all made a tremendous impression on me. They deserve thanks for helping me remember what is truly important in life and for making me smile.

To my research assistants, Megan Christopher, Kate DeLuca, Michele Weiss, Eric Meczkowski, Alan Mars, Emma Biedler, Paul Downey, Elana Schnall, and Kendall Melonas, thank you for your help and assistance throughout many phases of this dissertation process. A few of these students have worked with me for several semesters and played the role of research assistant, sounding board, and friend. Thank you for all your help. Your diligence and hard work made this project a reality.

DEDICATION

This dissertation is dedicated to my family, however broadly or narrowly that term can be applied, especially to Joseph Chipola. I wish he could see this accomplishment, but somehow I think maybe he has. And, to discovery.

CHAPTER ONE

Social support is a complex interpersonal communication phenomenon. Social support episodes involve two or more participants whose actions are critical to an interaction's success. To begin, one person must initiate the supportive exchange by revealing his or her distress and requesting some form of support. A support provider must unpack these statements and decide upon the best or most efficient means of support provision. In so doing, this person is charged with producing supportive messages that will be interpreted as such by the support seeker. This task is complicated by the fact that social support can take a variety of forms and reflect diverse strategies. The support seeker must then perceive, understand, and evaluate the messages he or she receives. It is this person's subjective evaluation that ultimately determines the success or failure of any given supportive message. Moreover, each role within a supportive interaction must be competently completed to achieve success. Any error or lack of effort in any part of a supportive conversation can derail the exchange and lead to increased negativity for both the support provider and recipient. The general aim of this dissertation is to clarify how qualities of support providers, receivers, and the communication context shape people's experiences of social support interactions.

Consider the following interaction in which a person attempts to seek support for her daughter-in-law and son who are suffering from post-traumatic stress disorder.

Person 1: My son, has ptsd. [My daughter-in-law] is living with us, has a small baby and he is cutting himself off from us all, she is out of her mind with worry/frustration/desperation............

Person 2: We're so glad to see you. This is just the best place to find encouragement, info, support, and ideas to help you and your Marine. I am sorry that your son is having such a difficult time.

Person 3: I'm really sorry to hear about your son. I also have a baby on the way and have been here off and on throughout my husband's marine career. It has been an awesome source of information and place to go for support.

Person 4: I am a wife with a baby on the way. My husband has been through two deployments and have dealt with my own share of troubles. You're not alone. There are always those who are in similar situations.

Person 5: Sending prayers her way. Dealing with someone who's suffering from PTSD cannot be easy but with love and persistence and understanding hopefully he'll pull through it. She may find comfort and advice from others who have gone through a similar situation.

This interaction provides an instructive look into the issues associated with supportive interactions. Notably, each person in this exchange needed to work together to successfully accomplish supportive goals. The support seeker stated her stressor in a way that she thought was both approachable and effective. In response to this call for help, four different support providers attempted to produce what they thought was an appropriate or effective message. Interestingly, there are notable differences among their contributions, with participants variously addressing emotional concerns, social network issues, self-esteem, situational similarities, or information surrounding the particular problem of post-traumatic stress disorder. Were these messages supportive in the eyes of the recipient? To answer that question, we must consider a number of factors.

Lakey, Drew, and Sirl (1999) acknowledged that there exists "little in the way of objectively supportive persons or actions. What will be seen as supportive by some persons will be seen as obnoxious by others" (p. 531). Contributing to this confusion, there is variability introduced by both ends of the social support process. People vary in their skill as support providers, and several factors can influence the production of support messages in a particular instance (Applegate & Delia, 1980; Burleson & Samter, 1985; Jones & Guerrero, 2001). On the receiver's end, even objectively effective (or ineffective) messages are subject to interpretation in ways that influence evaluations of supportiveness (Burleson, Holmstrom, & Gilstrap, 2005; Collins & Feeney, 2000; Cutrona & Russell, 1990). Communication scholars need to look beyond isolated instances of message production and reception and consider dyadic qualities when examining the success of supportive interactions. To that end, this dissertation seeks a more comprehensive understanding of the social support process by investigating the manner in which personal and relational qualities influence both the production and reception of different types of social support messages.

A less obvious quality of supportive interactions is the medium for communication. Most extant social support research examines how the process of social support unfolds in face-to-face (FtF) settings. Yet, not all social support occurs FtF. Would the reader be surprised to know that the previously excerpted exchange actually transpired in an online discussion board for families with soldiers in the Marine Corps? These affectionate, comforting sentiments were provided by people who probably never met each other FtF and may have had no prior contact with each other. With advances in computing technology, people are frequently turning to computer-mediated communication (CMC)

channels to both communicate with their pre-existing social networks and to expand their social circles. Because of its commonality and the assistance people gain from online interactions, CMC is a medium for social support that merits scholarly attention.

Although the previously presented supportive interaction appears positive, affiliative, and successful, many questions still remain. For example, how did the support providers feel when creating these messages? Were they comfortable doing so? Were they confident that their support would be effective? On the other hand, how were the messages evaluated by the person who requested the support? Was the interaction sensitive enough? Were the messages effective at relieving some of the worry, frustration, and desperation the person was feeling? Even more, how did communicating online influence this interaction? What would happen if the exchange occurred face-to-face instead? Would the support providers be more or less comfortable or assured of their messages? Would the support seeker evaluate the messages more or less positively if they were received face-to-face? Understanding people's experiences of social support episodes requires attention to the provision of support, the reception of supportive messages, and the context for social support interaction.

The goal of this dissertation is to understand people's experience of producing supportive messages and receiving these messages as a function of the communicated messages, individual differences, and channels of communication. More specifically, I examine how personal and relational qualities influence the production and evaluation of person-centered support messages in both FtF and CMC contexts. Prior research has uncovered several personal or relational qualities that influence social support in FtF situations (see Burleson & MacGeorge, 2002; Collins & Feeney, 2000; Holmstrom,

Burleson, & Jones, 2005; Kunkel & Burleson, 1999). Yet, because analogous research has not been conducted in CMC contexts, we know comparably little about how support unfolds online. Hence, this dissertation builds upon extant scholarship by juxtaposing CMC technologies against traditional FtF contexts to clarify the factors that influence support message production and reception.

This chapter previews the topics that are discussed in more detail throughout this dissertation. To begin, the next section defines social support and discusses important theoretical issues and empirical regularities within research on social support. Then, I define CMC and review its evolution from a channel that was disparaged for its inability to transmit interpersonal interactions to a venue that rivals the communicative capabilities of FtF exchanges. I then propose instant messaging as a CMC channel that is particularly similar to FtF interaction and, thus, comprises the CMC context of interest in this dissertation. This chapter concludes with an examination of several features of mediated venues that both distinguish CMC from FtF channels and shape the interactions that occur therein.

<div align="center">Defining Social Support</div>

Burleson and MacGeorge (2002) defined social support as "verbal and nonverbal behavior produced with the intention of providing assistance to others perceived as needing that aid' (p. 374). These behaviors are among the most complex interpersonal processes in which people regularly engage, and a single supportive interaction likely involves several goals (Cutrona & Russell, 1990). For example, support includes goals related to emotional improvement, cognitive reappraisal, provision of advice, bolstered self-esteem, and social network enhancement (Burleson & Goldsmith, 1998; Burleson &

MacGeorge, 2002; Xu & Burleson, 2001). Further adding to this complexity, people enact various roles in the social support process. In some situations, people are predominantly support providers, lending advice and comfort to distressed others. In other circumstances, people are chiefly receivers of social support. People can enact a variety of different types, mechanisms, or processes of support in any given interaction to most effectively address these factors. Although no means of social support is likely to be universally effective, working to understand the impact of potential moderating variables should increase the efficacy of support provision.

There are many important reasons to study social support interactions. At a pragmatic level, social support has benefits for personal health, stress levels, and well-being. Social support helps people manage physical, mental, social, and personal stressors, which arise in a multitude of situations, thereby yielding profound physical, psychological, and health benefits (Cohen & Wills, 1985; Pennebaker, 1993, 1997). Scholars have determined that social support improves people's ability to cope with stressful events, facilitates psychological adjustment, and promotes self-efficacy (Cunningham & Barbee, 2000; Krause, Liang, & Yatomi, 1989). Similarly, sophisticated support is positively related to long-term reports of relational satisfaction (see Burleson, 1994, for a review). Some scholars have even asserted that effective social support prolongs life (Berkman, 1995). Thus, effective social support can have several tangible benefits in people's lives.

Research on social support interactions has theoretical importance, as well. On one hand, existing theory and research offers explanations for varied message production. For example, prior scholarship notes that people with higher levels of social skill often produce the best supportive messages (Burleson, 1982; Burleson & MacGeorge, 2002). Similarly,

other researchers assert that support knowledge is a cognitive variable that determines people's support message production capacity (Johnson, Hobfoll, & Zalchbertg-Linetzy, 1993). On the other hand, perceptions of support messages have also been the subject of theory and research. This body of work shows that participants frequently report emotional support messages as the most sensitive and effective type of support they receive in numerous situations (Barbee, Derlega, Sherburne, & Grimshaw, 1998; Burleson & MacGeorge, 2002; Sullivan, 1996). In addition, the most sophisticated social support messages are theorized to be those that satisfy a variety of support goals (Burleson & Samter, 1985; Goldsmith & MacGeorge, 2000; Jones & Burleson, 1997). By integrating personal, relational, and contextual variables with the processes of message production and interpretation, this dissertation attempts to contribute to the theory used to explain supportive interactions.

Burleson and MacGeorge (2002) also proposed a moral warrant for studying social support. These authors contended that social support showcases "the highest expressions of the human spirit, so by studying this behavior we better acquaint ourselves with the nature and practice of virtue in everyday life" (Burleson & MacGeorge, 2002, p. 375). In other words, social support represents a fundamentally good or wholesome enterprise in which people attempt to ease the troubles of other individuals. Despite being strangers, the members of the online support community quoted at the outset of this chapter were compelled to assist a person in need without coercion or the enticement of reward. Because many efforts at social support are initiated out of a desire to help others, scholars and the general public alike can benefit by learning how to improve the efficiency or effectiveness of these interactions.

Broadly speaking, scholarship on social support is divided by a focus on the social support within stressful situations versus the supportive value of more mundane interactions. Some scholars focus their research on the situational exigencies of social support, and they highlight stressful situations as ideal for studying support (Pierce, Sarason, & Sarason, 1996). According to these scholars, social support functions by buffering people against the stresses of traumatic events (Cohen & Wills, 1985; Schwarzer & Leppin, 1992). Other researchers have countered that more mundane interactions are appropriate for investigating social support (Barnes & Duck, 1994). By examining everyday speech and interaction, scholars can understand the ordinary messages and strategies that people employ to comfort others. Because casual conversations about personal problems can be instrumental in preventing elevated distress, I borrow from both of these perspectives and focus on interpersonal interactions about non-traumatic but upsetting situations.

Research on social support can also be characterized by the research method it employs. In some studies, participants read hypothetical situations in which one social actor experiences distress. Then, participants provide open-ended descriptions of what they would say to comfort that individual. The resulting data are frequently coded for their level of effectiveness or sensitivity (e.g., Burleson & Samter, 1985; Jones, 2005; Servaty-Seib & Burleson, 2007). In a variation on this hypothetical scenario paradigm, participants evaluate pre-formulated supportive sentiments provided by researchers. Burleson (2003) referred to this methodology as the message perception paradigm. An alternative, labeled the experimental paradigm, requires participants to interact with another person (often a confederate) in an experimentally manipulated support situation (Burleson & MacGeorge,

2002). Third parties then code the conversational content produced in these discussions for its degree of supportiveness (e.g., Jones, 2004; Jones & Burleson, 2003; Jones & Guerrero, 2001). There is reason to believe that these different research methodologies yield different conclusions about the process of social support. In fact, Burleson and MacGeorge (2002) suggested, "there is obviously a difference (of unknown magnitude) between actually experiencing a supportive message when upset and making judgments about messages directed at hypothetical others" (p. 391). Because this dissertation seeks to examine processes related to message production and reception in concert, I integrate these paradigms in a research design that manipulates aspects of messages while allowing social support to unfold during an interaction.

A final characteristic of research on social support that shapes the current project is a focus on personal or contextual qualities that influence supportive interactions. For example, numerous studies document differences in the social support skills and preferences of males and females (Holmstrom et al., 2005; Kunkle & Burleson, 1999). This scholarship frequently concludes that there are significant differences between the expertise or experience that males and females bring to social support interactions. Other researchers assert that we should contrast how social support unfolds across different communication channels (Walther & Boyd, 2001). To this end, scholars commonly compare FtF conversations with discussions that occur in online venues dedicated to social support (Braithwaite, Waldron, & Finn, 1999; Robinson & Turner, 2003; Walther & Boyd, 2001). Thus, juxtaposing different features of the social support context identifies variables that moderate the processes of support provision and reception.

As this brief discussion illustrates, social support is a varied interpersonal process that has been approached through numerous empirical and theoretical lenses. Each research agenda adds a layer of complexity to the study of social support. Besides contributing to the collection of social support knowledge, these research traditions highlight the considerable nuance that exists in the support process. Accordingly, researchers should attempt to combine several of these research foci to accurately capture the nature of social support. Main effects rarely tell the entire story in social support scholarship. Instead, personal, relational, or contextual factors often moderate the association between support message production and interpretation. In the following section, I describe CMC as one contextual factor with the potential to influence people's experience of supportive interactions.

<div align="center">Defining Computer-mediated Communication</div>

CMC refers generally to interpersonal conversation or interaction that is transmitted by a variety of electronic channels. Prior research has highlighted several important differences between CMC and FtF contexts; however, research about channel differences reveals a lack of uniform main effects. For example, Ramirez and Burgoon (2004) observed a significant main effect of communication channel on impressions of mutuality. Conversely, Walther, Loh, and Granka (2005) reported that communication medium has no effect on the impression qualities of immediacy or affection. Adams, Roch, and Ayman (2005) concluded that CMC users were less satisfied with their interactions than were FtF participants; however, McKenna, Green, and Gleason (2002) found that people liked their partners significantly more after online conversations than FtF chats. Whereas some experimental scholars contended CMC is "less friendly, emotional, or

personal, and more businesslike, or task oriented" (Rice & Love, 1987, p. 88), field-based

reports draw opposing conclusions (Kerr & Hiltz, 1982). Researchers have distinguished

people's CMC interactions as psychologically distinct from both FtF exchanges (Sundar,

2004) and human-computer interaction (Sundar & Nass, 2000). This prior research

indicates that communication channels influence interpersonal processes; however, it does

not provide much guidance for theorizing about computer-mediated social support

(CMSS). The ultimate success of CMSS is likely dependent upon a combination of

mediated features, support messages, relational characteristics, and personal qualities.

Despite its potential as a novel, practical, and fruitful supportive environment,

theorists have not historically regarded CMC as conducive to social support. Instead, early

CMC researchers reported that heightened Internet use leads to greater loneliness, social

isolation, and depression. Online contexts were presumed to lack the sophistication needed

to sustain supportive interactions (Culnan & Markus, 1987; Kraut et al., 1998). These

scholars thought CMC was only applicable for impersonal, task-oriented communication

(Hiltz, Johnson, & Turoff, 1986; Parks & Floyd, 1996). It is only in recent years that

scholars have begun to realize the interpersonal and supportive potential of mediated

contexts. Such insights have yielded a wave of theoretical and empirical scholarship that

decries the supportive benefits of CMC. Some scholars have even documented that certain

CMC venues provide more supportive communication than comparable FtF groups

(Strauss, 1997). At the very least, online channels and their associated features add an

additional layer of complexity to the study of social support. CMC is not a universally

inhospitable medium (i.e., Parks & Floyd, 1996; Walther & Burgoon, 1992); however, it is

also not the most effective medium for every social exchange. The body of CMC research

is divided as to whether mediated interactions are more or less beneficial, effective, or satisfying than FtF exchanges.

As Davison, Pennebaker, and Dickerson (2000) asserted, "The social connections enabled by the advent of the Internet constitute a new forum of social support that has unknown, and largely unstudied, potential" (p. 210). Some scholars believe that CMC's potential lies in the presence of varying amounts of mediated features (e.g., Sundar, 2008). Because of its unique combination of features, IM is the CMC channel on which this dissertation focuses. Its features allow IM to closely resemble FtF communication while still being computer-mediated. Scholars have traditionally been hesitant to conduct sophisticated interpersonal communication online because they felt that CMC is inferior to FtF. These concerns are increasingly becoming less of an issue as mediated channels, such as IM, approximate FtF channels. Beyond that, IM might even have interpersonal benefits that FtF channels lack. In other words, the traditionally espoused differences between CMC and FtF are less prominent if we examine dynamic CMC venues like IM.

IM is a strictly text-based communication medium that allows users to send and receive messages via specialized chat programs. IM use is steadily increasing with 42% of Internet users, or 53 million adults, conversing via IM. More precisely, on a typical day, 12% of Internet users, representing 13 million people, log on to IM programs (Shiu & Lenhart, 2004). People from younger age groups are actually more likely to use IM programs than e-mail (Shiu & Lenhart, 2004). There is similar evidence that some people employ IM as a supplement to their normal FtF conversations (Shiu & Lenhart, 2004). Researchers have determined that people's IM networks are relatively modest with 66% of people regularly IMing only between one and five people (Shiu & Lenhart, 2004). Thus,

IM is a fairly common means of CMC that encompasses a unique set of features that people employ to accomplish their social and relational goals.

One point of similarity between IM and FtF communication is the synchronicity of message exchange. *Synchronicity* refers to the degree to which message exchange is immediate rather than delayed. Synchronous CMC environments provide real-time communication with immediate feedback that mirrors the pacing of FtF interaction. For example, chat rooms, IM programs, and virtual communities all enable people to synchronously communicate with others. On the other hand, e-mail and public discussion boards are environments in which time elapses between message exchange. IM and FtF interactions have almost identical levels of synchronicity; however, a time delay is more acceptable in IM conversation than FtF interaction. Although synchronous communication is more immediate, asynchronous channels aid people in developing and editing their messages. IM and FtF channels both maintain rapid communication; therefore, they exhibit largely equivalent levels of synchronicity relative to other CMC channels.

IM and FtF can also be equated by the level of *anonymity* they offer. Anonymity represents the level of personal, individuating information transmitted by a given channel. Reduced anonymity fosters detailed interpersonal impressions, but heightened anonymity allows people to do or say things they might not attempt in more public contexts. Public discussion boards represent an especially anonymous mode of online communication in which users interact with relative strangers. On the other hand, social networking sites, wherein users post an abundance of personal information, have low anonymity. Certain CMC venues allow users to input personal content; however, other venues do not possess this capability. IM could be an anonymous mode of communication; however, people need

to accept others as IM partners and commonly only IM with people they know (Shiu & Lenhart, 2004). Hence, the familiarity and relational knowledge present in most IM conversations reduces the anonymity experienced therein. Whereas IM conversants reduce anonymity through prior relational knowledge and synchronous message exchange, FtF interactants lower anonymity by employing a wide range of communicative cues. Thus, IM and FtF conversations typically entail similar levels of anonymity.

A final dimension of CMC relevant to a focus on IM and FtF communication is the degree to which the communication medium allows *processual interactivity*. Stromer-Galley (2004, p. 392) defined this type of interactivity as "interaction that occurs between two or more people communicating with each other, in which subsequent messages consist of responses to prior messages in a contingent fashion" (see also Bucy, 2004). FtF contexts are often heralded as the pinnacle of processual interactivity because their messages are frequently contingent upon a partner's previous remarks. Yet, because IM also promotes reciprocal conversation, this medium contains levels of processual interactivity that are similar to those observed FtF. Processual interactivity can have beneficial social effects, such as increased gregariousness and civic participation (Bucy, 2004; Shah, Cho, Eveland, & Kwak, 2005). Conversely, extreme interactivity can be detrimental if it results in fragmentation, individualization, selfishness, and a lack of shared experiences (Bucy, 2004). Whereas moderate to high levels of interactivity should benefit social support conversations, extreme interactivity runs counter to positive support outcomes. Because their conversations are both based on a reciprocal exchange of information, IM and FtF channels have similar levels of processual interactivity.

As this review illustrates, CMC was initially characterized as a poor substitute for FtF communication. Yet, the development of dynamic interaction tools, such as IM, has closed the gap between CMC and FtF. Because IM mirrors the synchronicity, level of anonymity, and processual interactivity of FtF communication, it affords a venue for evaluating how messages of support conveyed FtF are altered within the medium of CMC.

This dissertation attempts to synthesize the two research domains previewed in this chapter. Specifically, I examine how the process of social support unfolds across FtF and CMC contexts. To consider both members of a supportive dyad, I concentrate on support provision and support message reception as distinct, yet intertwined processes. Moreover, I examine the extent to which various personal, relational, and contextual qualities influence these processes. In particular, I propose communication channel as a moderating variable with the potential to either augment or diminish the influence of certain qualities on the social support process. The research domains of CMC and social support have remained largely independent; combining these literatures provides insight into improving the provision and reception of social support messages, and also advances our understanding of how technology shapes communication. Chapters two and three provide more detail about the prior research that has been conducted in the domains of social support and CMC, respectively. Chapter three also advances the hypotheses that are tested within this dissertation. In chapter four, I describe a study I propose to test the predictions derived from my review of the literature. Chapter five will report the results of this study, and a final chapter will describe the findings and their implications.

CHAPTER TWO

Enacting an effective social support interaction is a complex endeavor (see Burleson, 2003; Burleson & MacGeorge, 2002). On one end of a supportive exchange, support providers have numerous types, mechanisms, or strategies of support at their disposal that could be applicable in various contexts (Barbee & Cunningham, 1995; Xu & Burleson, 2001). Due in part to the options available in a support provider's toolbox, producing effective support messages is not an easy task. Although many options exist, support interactions are not unlike a carpentry job: there is often one approach or tool that is best. The challenge for a support provider lies in selecting the tool that will be perceived as the most sensitive or effective option by the support receiver. Adding to this complexity, numerous personal, relational, and contextual factors influence the way recipients of support process and evaluate the messages they receive. As Burleson (2003) acknowledged, "all phases of supportive interactions are filled with perils, pitfalls, paradoxes, and predicaments for both helpers and their targets" (p. 578).

Due to the complexity inherent in social support interactions, this chapter reviews major themes within the social support literature. To being, I discuss the ways social support has been conceptualized through different disciplinary and theoretical lenses. Then, I review research that describes different types of social support messages, identifies distinct social support strategies, and explores how people produce and evaluate person-centered messages. Because previous research has identified important sex differences in the social support process, a final section examines gender as an individual difference with the potential to influence the course of support interactions.

Approaches to the Study of Social Support

Social support was originally theorized and investigated within the fields of sociology and psychology. Moreover, this early body of work embraced key assumptions about social support that still guide contemporary scholarship. Early social support researchers all agreed that stressful situations place individuals at a heightened risk for psychological disorders, interpersonal stressors, and physical ailments. In addition, they concluded it is possible to protect people from these risks through various agents of social support, such as robust social networks or healthy cognitions. Communication-based social support researchers molded these concepts to focus on interactions and types of support messages. Their scholarship incorporated the centrality of communication, an emphasis on interaction, and a focus on relational outcomes (Burleson & MacGeorge, 2002). Because contemporary research was founded upon prior scholarship, the following sections review these research traditions.

A Sociological Perspective on Social Support

Within sociology, social support is conceptualized as participation in social networks. Sociologists commonly operationalize social support in terms of how integrated an individual is in a variety of personal, relational, and social groupings. Accordingly, most sociological definitions of social support acknowledge an individual's role differentiation, social participation, and feelings of social connection as operationalizations of supportive relationships (Burleson & MacGeorge, 2002). For example, Stroebe and Stroebe (1996, p. 589) measured support as "the extent to which individuals belong to different groups (e.g., marital status, church membership, friendship) and the actual use they make of these group memberships." Berkman and Syme (1979) employed several

measures of social integration in their conceptualization of social support, including whether a person was married, contacted extended family members, had many friends, attended church, or participated in various formal and informal social groups. Other researchers have employed similar indices of familial, friendship, social, cultural, political, or recreational associations in conceptualizations of social support (i.e., Caplan, 1974). In turn, these measures of social integration are examined with respect to indices of well-being, such as depression and physiological functioning (Biegel, McCardle, & Mendelson, 1985; Uchino, Cacioppo, & Kiecolt-Glaser, 1996). Thus, a sociological account of social support focuses on group membership.

Researchers within the sociological tradition grapple with several theoretical concerns surrounding the notion of social support. Notably, they are interested in whether support enacts its positive influences via direct effects or by buffering stressful life events (Cohen & Wills, 1985). Whereas some individuals believe social support is helpful regardless of stress levels, other individuals feel that support is effective because it buffers people against the stresses of a traumatic event (Cohen & Wills, 1985; Schwarzer & Leppin, 1992). To support the buffering view of social support, some scholars have reported that people who are more socially integrated have increased social control, more social resources, or greater positive affect to shield them from the consequences of stress (Uchino et al., 1996). Additionally, sociologists have questioned whether increases in social integration uniformly produce supportive benefits. For example, some sociologists have posited that the mere existence of social connections does not necessarily yield helpful support (Antonucci, 1990) and some supportive relationships can be quite stressful

to maintain (Rook, 1984, 1990). Thus, sociological support research questions how social integration enhances well-being.

Social network integration was considered an operationalization of social support for early social support scholars. These researchers conducted rigorous empirical scholarship in which both large, representative samples and longitudinal data were common. For example, Berkman and Syme (1979) observed that people who were more socially integrated at the beginning of their study experienced lower mortality nine years later, even after controlling for numerous potential confounds. Through studies such as this, sociologists documented a connection between social integration and well-being.

A Psychological Perspective on Social Support

Just as sociologists consider social support in light of their disciplinary traditions, psychologists' conceptualizations of social support commonly focus on the notions of cognition and perception that dominate the psychological landscape. In fact, psychologists have asserted that the central element of social support is a person's belief that support is available when needed or desired (Cohen & Wills, 1985). In support of this viewpoint, Lakey and Cohen (2000) noted that people who perceive they have adequate and available support are buffered against stress and its health consequences. Some psychologists even theorized that stress is not actually caused by a traumatic event; rather, it results from a negative evaluation regarding the perceived availability of support resources (Lazarus & Folkman, 1984). Thus, a psychological conceptualization of social support centers on people's perceptions, cognitions, and appraisals.

In accordance with this conceptualization, some psychologists have questioned where perceptions of support availability originate. Many researchers operate under the

assumption that past instances of support serve as catalysts for future perceptions of support availability (Kessler, 1992). Conversely, others have argued for the existence of a stable personality trait that acts as a prerequisite for perceiving support (Lakey & Cassady, 1990; Sarason, Sarason, & Pierce, 1990). Alternatively, some researchers have suggested that the relationship between perceived support and well-being is mediated by factors, such as appraisal processes, self-esteem, or self-conceptions (Lakey & Cohen, 2000; Stroebe & Stroebe, 1996). Whatever the nature of its effect, psychologists have worked to understand how perceived support availability influences positive support outcomes.

Psychologists have accumulated empirical findings by focusing on support receivers' cognitions and perceptions. For example, Barrera (1981) documented that people who experience a stressful event and perceive high levels of assistance from their social networks are happier and healthier than people who do not perceive comparable support resources. Perceived support availability has also been found to explain more variance in physical and mental health outcomes than do competing measures of received support (Antonucci & Israel, 1986). As Burleson and MacGeorge (2002) summarized, "taken together, the findings overwhelmingly support the positive influence of perceived support availability on physical and mental health" (pp. 382).

A Communication Perspective on Social Support

Both sociological and psychological interpretations of social support imply that interpersonal or social interaction contributes to social support. For example, sociological research emphasizes social networks, which are formed and maintained through communication. Likewise, a psychological perspective suggests that perceptions of support availability are founded in and sustained by communication. The role of communication is

made explicit by communication scholars who stress the importance of message exchange and interpersonal interaction, and who assume a relatively direct relationship between the communication of social support and well-being (Burleson & MacGeorge, 2002).

Burleson, Albrecht, Goldsmith, and Sarason (1994, p. xviii) claimed that "social support should be studied as communication because it is ultimately conveyed through messages directed by one individual to another in the context of a relationship that is created and sustained through interaction" (see also Sullivan, 1996). The manner in which communication scholars study social support differs from sociological and psychological perspectives in a number of ways, including the centrality of communication, the emphasis on interaction, and the focus on relational outcomes (Burleson & MacGeorge, 2002; Cunningham & Barbee, 2000; Cutrona & Russell, 1987). As Burleson et al. (1994) observed, investigating social support from a communication perspective involves, "studying the messages through which people seek and express support; studying the interactions in which supportive messages are produced and interpreted; and studying the relationships that are created by and contextualize the supportive interactions in which people engage" (pp. xviii).

Communication scholars have emphasized the importance of message types and interactional dynamics in their research. For example, some communication scientists have developed classifications of supportive messages depending on the functional content conveyed therein (Xu & Burleson, 2001). Some researchers have expanded this theorizing to assert that support receivers will experience optimal support outcomes only when the type of support they receive matches their feelings, context, and source of distress (Cutrona & Russell, 1990). Communication scientists have also worked to identify the personal

qualities or social skills that impart the ability to produce successful social support messages (Burleson & Samter, 1985; Jones & Guerrero, 2001). In general, cognitively complex individuals have greater ability to produce effective support than do people with lower aptitude (Burleson, 1982; Burleson & Samter, 1985). Another domain of research within the communication discipline centers around understanding how various types or styles of social support are interpreted during interactions (Burleson, Holmstrom, & Gilstrap, 2005; Holmstrom, Burleson, & Jones, 2005). For example, some scholars seek to determine how communicated messages influence people's physical (Floyd et al., 2007a, 2007b) or mental well-being (Jones & Burleson, 1997; Jones & Wirtz, 2006; Samter, Whaley, Mortenson, & Burleson, 1997). Through such research endeavors, communication scholars work to understand how communicating comforting messages leads to favorable perceptions and enhanced well-being.

The foundations of social support scholarship were dominated by research stemming from sociology and psychology. These research traditions initiated the discussion linking social support to well-being. Whereas sociologists contended that social integration reduces stress and promotes coping abilities, psychologists countered that perceived support availability is essential for effective social support. Communication scholars have adapted these concepts to explain the processes of supportive interaction and message exchange. From a communication perspective, the dynamic support interactions that occur between support providers and receivers build social networks, create perceptions of support availability, and promote well-being. In the following section, I examine prominent conceptions of social support studied within the communication discipline.

Conceptualizations of Communicated Support

To understand a communication-based definition of social support, it is useful to

examine the construct in light of established research foci. Extant communication research

has examined how social support occurs through three processes. Supporters can employ

different types of supportive messages, attempting to match these messages to a person's

problems; they can enact different social support strategies during support episodes; and

they can produce person-centered messages to comfort distressed individuals.

Communication scholars have examined the message production and interpretation

processes within each of these research domains.

Types of Social Support Messages

The types of social support recognized in previous research range from sharing

thoughts (Hildingh, Fridlund, & Segesten, 1995, p. 225) to promoting healthy habits

(Callaghan & Morrissey, 1993). These types of social support are distinguished by their

focal content and are each functional in response to different stressors. Ideally, these

different support types should match a distressed individual's needs; however, research

indicates that there are frequent discrepancies between the types of social support that are

desired versus received (Burleson, 2003; Coyne, Wortman, & Lehman, 1988; Holmstrom

et al., 2005). Hence, some researchers find it useful to conceptualize support satisfaction as

the discrepancy between the types of support that are desired and what is actually received

(Xu & Burleson, 2001). The following paragraphs review six types of social support that

emerge in this research domain.

Emotional support is probably the most widely studied support type, and different

theorists' definitions highlight slightly distinct, yet related, components. For example,

Kohn (1996) described this type of support as any effort at ventilating, managing, or suppressing an emotional reaction to an incident. Burleson and Goldsmith (1998) explicitly recognized the centrality of care, concern, and acceptance in any conceptualization of emotional support. Still other definitions simply highlight understanding or empathizing with others' emotions (Albrecht & Adelman, 1987). In general, emotional support involves improving the affective experience of a distressed individual.

Whereas emotional support addresses affect, *informational support* focuses on providing factual advice (Burleson & MacGeorge, 2002). Cobb (1976, p. 300) conceptualized this support type as information leading a person to believe that he or she is "a member of a network of mutual obligation." Informational support is operationalized as attempts to provide people with practical facts, advice, or opinions that will help remedy their problems. Although informational support might not directly solve a problem, its content should enable distressed individuals to become self-sufficient problem solvers (Burleson & MacGeorge, 2002). Thus, informational support focuses on factual advice.

Although emotional and informational support receive the most research attention, other support types merit mention. For example, Xu and Burleson's (2001) typology of social support also includes *esteem*, *tangible*, and *network support*. Providers of esteem support reaffirm people's identities and remind targets of support that they are valuable and worthwhile individuals. On the other hand, tangible support involves lending practical, material aid, which allows a distressed person to concentrate on more troubling aspects of his or her life. Network support expands a distressed individual's supportive options, by either initiating social contacts or providing novel support resources (Xu & Burleson, 2001). Thus, any given social support encounter could call for a variety of support types.

Cognitive reappraisal is another type of social support that has received significant theoretical attention. Some scholars believe that people's experienced stress can only be altered by shifting their internal appraisals of the event. As such, cognitive reappraisal is conceptualized as a process of enabling a distressed individual to express, elaborate, and clarify his or her thoughts and feelings related to a stressor. Burleson and Goldsmith (1998) suggested three conditions that are required for effective reappraisal. First, participants must be willing to enter a conversation that involves discussing stressful matters. As Burleson and Goldsmith (1998, p. 263) indicated, "The willingness and ability to express and explore negative feelings will be enhanced if participants feel safe and secure about doing so." The second requirement for effective reappraisal involves focusing on the thoughts and feelings of an upsetting experience. Accordingly, empathy and a concern for feelings are prominent features of most effective support environments (Burleson, 2003; Caplan & Turner, 2007). Third, support providers should facilitate reappraisal through narratives. Pennebaker's (1993, 1997) research has provided compelling evidence about the physical and psychological benefits of having distressed people establish a beginning, middle, and end to their problems through personal narratives. The process of narrative construction helps people reappraise a traumatic event by assembling, clarifying, organizing, and working through the thoughts and feelings associated with the stressor (Burleson & Goldsmith, 1998). Through cognitive reappraisal, people are able to develop more satisfying interpretations of stressful events.

Optimal matching theory contends that social support types are interpreted most effectively when they match the desires of a support recipient. For any given support interaction, there could be several effective approaches but likely only one optimal support

type. In fact, Cutrona and Russell (1990, p. 319) asserted, "The discovery of optimal stress – support combinations may help us understand better both how adverse life events threaten and how social support protects or enhances well-being." More specifically, proponents of optimal matching theory contend that social support is a multi-faceted construct and that particular types of support are most successful in certain situations. For example, controllable events are thought to be most effectively solved with informational support; however, uncontrollable events necessitate emotional support (Cutrona & Russell, 1990; McRae, 1984). Receivers should be most satisfied with support types that match their needs, emotions, and desires. As Barbee and Cunningham (1995) concluded, "the number of helpful behaviors that a person receives after a stressful event may not matter as much as specific fit of the helpful behavior to the problem or emotion at hand" (pp. 408).

Based on the premises of optimal matching theory, scholars should expect distinct support types to be perceived differently in certain situations or with certain receivers. For example, participants frequently report that emotional support messages are the most sensitive and effective type of support they receive (Barbee, Derlega, Sherburne, & Grimshaw, 1998; Burleson & MacGeorge, 2002; Dakof & Taylor, 1990; Sullivan, 1996), but this general pattern is qualified by gender differences surrounding emotional support. Whereas males report experiencing more emotional support than they desire, females often believe their interactions lack sufficient affect (Xu & Burleson, 2001). Scholars have also confirmed that informational support is well-received in some circumstances (Cutrona, Suhr, & MacFarlane, 1990; Sullivan, 1996). This is especially true when providers of informational support possess some expertise (Dakof & Taylor, 1990) or when they exert control over a situation (Cutrona & Suhr, 1994). Additional research has found favorable

evaluations of tangible support in stressful situations (Dunkel-Schetter, Blasband, Feinstein, & Herbert, 1992). Likewise, High and Solomon (2008) observed that esteem and network support are particularly beneficial for students during their transition to college. Thus, distinct types of social support are interpreted as optimally effective in specific situations.

To review, types of social support are distinguished by the content or focus of their messages. Such content-based distinctions have provided scholars with a relatively nuanced conceptualization of social support types. More specifically, this section identified emotional, informational, esteem, tangible, network, and cognitive reappraisal as distinct types of social support. Importantly, scholars are realizing that messages with different content often lead to divergent support experiences and are differentially effective in particular situations (Burleson & MacGeorge, 2002; Burleson & Samter, 1990; Cutrona & Russell, 1990; Hale, Tighe, & Mongeau, 1997).

Social Support Strategies

Barbee and Cunningham (1995) developed a typology to describe four different strategies of social support that might be preferred by different individuals. Whereas the aforementioned support types center on functional content-based differences, this typology of support strategies represents more general means of support provision that do not focus on message form or content. Guided by extant research (i.e., Roth & Cohen, 1986), Barbee and Cunningham (1995) developed a typology of social support strategies that reflects approach or avoidance actions and a focus on either the problem or the emotions it generates. *Solve* behaviors, which involve approach actions and a problem focus, include making suggestions, clarifying a problem, and providing solutions to a stressor. Approach

and emotion-focused behaviors constitute *solace*, which involves eliciting positive emotions and expressing interpersonal closeness. *Dismiss* support represents avoidant and problem-focused action, such as minimizing the significance or severity of a problem. Lastly, *escape* behaviors, which are avoidant and emotion-focused actions, include distracting the support seeker or discouraging the expression of negative affect.

Different support seeking behaviors are likely associated with the production of different social support strategies. Direct support seeking involves disclosing information about a support seeker's needs, desires, and urgency; therefore, these behaviors should be met with relatively involving approach support strategies. On the other hand, indirect support seeking behaviors contain less information, include equivocal content, and give a support provider fewer clues on which to base effective support. These support seeking behaviors should elicit avoidant support strategies (Barbee & Cunningham, 1995; Derlega, Winstead, Oldfield, & Barbee, 2003). Consistent with this reasoning, researchers have reported that indirect support seeking yields dismiss and escape support strategies (Derlega et al., 2003). Thus, the manner in which people request support influences the support strategies they receive.

Some scholars have argued that support seekers appraise the severity and controllability of a problem, as well as the availability, cost, and likelihood of receiving social support, when evaluating support strategies (Derlega et al., 2003). In general, most people find the approach behaviors of solve and solace more desirable than avoidant behaviors (Barbee & Cunningham, 1995; Derlega et al., 2003; Yankeelov, Barbee, Cunningham, Druen, & Berry, 1993). For example, Dakoff and Taylor (1990) reported that cancer patients view approach strategies as the most helpful and avoidant strategies as the

most unhelpful supportive behaviors provided by members of their social networks. Similarly, Smith, High, and Fink (2008) observed that people prefer receiving approach support strategies after an interpersonal influence attempt in a hypothetical social network. Conversely, avoidance support strategies received from friends, intimate partners, or parents exhibit a positive association with self-reported depressive symptomology (Derlega et al., 2003), and dismiss support strategies have been found to predict romantic relationship dissolution (Barbee & Yankeelov, 2002, as cited in Barbee & Cunningham, 1995, p. 403). Thus, people generally interpret approach support strategies more positively than avoidant support.

Person-centered Social Support

To achieve the most favorable support outcomes, people need messages that are capable of simultaneously addressing several support needs. Along these lines, high person-centered (HPC) messages are theorized to be sophisticated support messages capable of effectively satisfying multiple goals (Applegate, 1980; Burleson, 1982). For example, HPC messages are associated with improved functioning (Burleson & MacGeorge, 2002), reduced anxiety (Sgoutas-Emch & Johnson, 1998), lower physical stress (Cohen & Wills, 1985; Smyth & Pennebaker, 1999), and improved psychosocial well-being (Pennebaker, 1993). Person-centered messages are a well-theorized mechanism of social support that retain positive associations with many indices of well-being.

Burleson (1987, p. 305) conceptualized person-centeredness as the extent to which a message "reflects an awareness of and adaptation to the affective, subjective, and relational aspects of communication contexts." Moreover, he developed a nine-level hierarchy to operationalize the manner in which messages vary in person-centeredness

(Burleson, 1982). The person-centered hierarchy contains three main levels, each of which has three sub-levels. The lowest main level of the hierarchy contains messages that condemn or deny people's feelings by ignoring their emotions or challenging their legitimacy (Burleson, 1982; MacGeorge, Gillihan, Samter, & Clark, 2003). Moderately person-centered (MPC) messages implicitly recognize people's feelings and attempt to reframe a stressful situation, perhaps by diverting their attention away from stress or offering compensatory action. Person-centered messages that explicitly acknowledge and elaborate another's feelings represent the third level of the person-centered hierarchy. As supporters progress upward through the hierarchy to more theoretically sophisticated messages, the likelihood of achieving positive support outcomes increases.

Research has established that certain individual differences influence the production of person-centered messages. A constructivist perspective contends that some people do not regularly produce complex comforting messages because they lack the requisite cognitive resources (Applegate & Delia, 1980). Specifically, researchers have noted that people who lack a person-centered orientation perceive others in terms of relatively static qualities, such as physical features, demographics, and social roles. Conversely, people who hold person-centered beliefs envision others as having unique intentions, feelings, and outlooks that can be elaborated and discovered through conversation (Applegate, 1980; Jones & Guerrero, 2001). Comforters with high levels of social skill can effectively integrate multiple situational factors to create HPC messages that non-evaluatively comfort distressed individuals (Burleson, 1982). Similarly, Burleson and Samter (1985) posited that the elaboration and legitimation of another person's affect inherent in HPC messages requires "more advanced cognitive abilities, through which the

other's perspective can be reorganized, internally represented, coordinated with other relevant perspectives, and integrated with a speaker's understanding of a situation" (pp. 104). Skills such as responsiveness, caring, sympathy, and information processing capacity also contribute to the ability to produce HPC messages (Burleson & Samter, 1985; O'Keefe & Delia, 1982). Because high levels of social skill are required to produce HPC messages, scholars have noted that the ability to produce such messages increases throughout adolescence (Hoffner & Haefner, 1997). Thus, producing HPC messages utilizes several social skills and requires advanced cognitive abilities.

A majority of the published scholarship on person-centered messages focuses on receiver's perceptions of HPC messages. HPC messages accept people's emotional and cognitive states, inquire into the nature of people's problems, and express compassion and understanding to help people improve their perceptions of a distressing event (Burleson & MacGeorge, 2002). These messages are theorized to be sophisticated utterances because they acknowledge the distressed person, the social situation, the communication process, the nature of a target's problems, and people's emotional and cognitive states. As such, these messages help distressed people gain perspective on their feelings by legitimizing and explaining their affect in relation to contextual and personal qualities (Burleson, 1982; MacGeorge et al., 2003). Moreover, the uncritical, receiver-focused content that defines HPC messages conveys a greater degree of involvement with and acceptance of a distressed person than other supportive mechanisms (Burleson, 1994; Burleson & Samter, 1985). According to the person-centered research paradigm, person-centered messages at the pinnacle of the hierarchy not only require higher levels of social skill to produce, but

also result in more effective or satisfying perceptions of support than messages low in person-centeredness.

Receivers of social support tend to attribute positive qualities to HPC messages. In general, messages at the top of the person-centered hierarchy are perceived as containing more favorable qualities than messages at the bottom of the hierarchy (Burleson, 1982; MacGeorge et al., 2003). Scholars have observed that HPC messages exhibit positive associations with measures of engagement and involvement (Burleson, Delia, & Applegate, 1992; Samter & Burleson, 1990). In addition, research indicates positive associations between HPC messages and appropriateness, sensitivity, and quality (i.e., Burleson & Samter, 1985; Jones, 2005; Jones & Burleson, 1997; Jones & Guerrero, 2001; Samter et al., 1997). Similarly, HPC messages are positively related to perceptions of helpfulness, comforting quality, responsiveness, care, and sympathy (Burleson & Samter, 1985; Jones & Burleson, 2003; Servaty-Seib & Burleson, 2007). This body of work concludes that people interpret HPC messages as possessing a variety of favorable, affective message qualities.

Receiving HPC messages has been linked to many indices of well-being (Burleson & MacGeorge, 2002). These messages frequently yield positive support outcomes because comforters who use such messages have the skills necessary to accommodate others as unique individuals (Applegate, 1980; Burleson & Samter, 1985). For example, HPC messages promote communicative competence, improve coping skills, lessen emotional distress, and produce more positive affect (Jones & Burleson, 1997; Jones & Guerrero, 2001; Jones & Wirtz, 2006). Other scholars have observed that HPC messages help people manage emotional reactions to disturbing events (Burleson & Samter, 1985; Samter,

Burleson, & Murphy, 1987). Moreover, these messages assist distressed individuals in accepting losses and discovering novel means of living with challenges (Burleson & MacGeorge, 2002). Likewise, Jones and Guerrero (2001) concluded that HPC messages enable people to reframe distressing events to arrive at more satisfying interpretations of stressors. In sum, several scholars have concluded that HPC messages elicit a wide variety of positive social support outcomes.

Scholars have also documented both immediate and long-term relational benefits from using HPC messages. For example, support recipients like comforters more when they provide them with HPC messages. Samter et al. (1987) observed that helpers who employ HPC messages receive more liking and are thought to be more attractive than helpers who use less person-centered messages. HPC messages also exhibit a positive linear association with several indices of perceived helper competence, including sensitivity, engagement, normativeness, and peer acceptance (Burleson et al., 1992; Samter & Burleson, 1990). In fact, sophisticated forms of support are positively related to long-term reports of relational satisfaction (see Burleson, 1994, for a review). On the other hand, people experience relational consequences and view comforters, especially females, as less competent when they provide low person-centered messages (LPC; Holmstrom et al., 2005; Jones & Burleson, 2003). Thus, high levels of person-centeredness not only convey more support, but they also promote relational satisfaction.

Although most research has highlighted that HPC messages are normally viewed in a positive light, messages that are low in person-centeredness also have important consequences. In fact, LPC messages are actually more common in social support episodes than their HPC counterparts (Coyne, Wortman, & Lehman, 1988; Lehman & Hemphill,

1990). Some scholars have contended that support failures occur when support providers can not recognize appropriate supportive behaviors in specific circumstances (Peters-Golden, 1982). Other researchers have asserted that people know what to do and say in support situations; however, the anxiety in such situations makes appropriate support difficult to produce (Lehman, Ellard, & Wortman, 1986). In either case, LPC messages can enhance personal stressors and contribute to the deterioration of a relationship. Thus, it is important to consider and examine the effects of both high and low levels of person-centeredness in social support interactions.

Poor quality social support is an important communicative phenomenon because it intensifies an already stressful situation and can lead to a variety of psychological, relational, and physical traumas (Burleson, 2003). Ineffective support, or "cold comfort," is quite prominent in personal relationships (Coyne et al., 1988; Lehman & Hemphill, 1990). In fact, one of the most common complaints of people in unhappy marriages or discontented friendships is that they feel unsupported by their partners (Baxter, 1986). Recipients of unhelpful support commonly believe the support provider was trying to be helpful but simply did not know what to say (Sullivan, 1996). Although the negative effects of social support are often unintended, they are nevertheless both tangible and undesirable (Coyne et al., 1988; Dakoff & Taylor, 1990). As Burleson (2003) concluded, "seeking support does not guarantee the receipt of sensitive, effective support. Indeed, the quality of the emotional support people receive from others in their network varies widely, ranging from the sensitive and helpful to the insensitive and aggravating, and this has important consequences" (pp. 551).

Burleson (2003) enumerated several reasons behind people's frequent inability to provide HPC support. To begin, he emphasized that the prospect of providing sensitive and effective support to a distressed individual is a complicated and demanding endeavor. The complexities inherent in a social support situation can easily overwhelm a support provider's cognitive facilities, especially if the provider recognizes that saying the wrong thing can worsen an already stressful situation. Adding to this complexity, messages that are perceived to be helpful by one support recipient can be viewed as unhelpful by others (Sullivan, 1996). Social norms, threats to both positive and negative face, and self-presentational difficulties can also stymie the production of HPC messages (Goldsmith, 1994). Furthermore, a reliance on insensitive or ineffective support exemplars can perpetuate negative social support and the production of LPC messages (Burleson & Kunkle, 1996). Because social support interactions are among the most cognitively demanding and interpersonally difficult situations people encounter, support providers need both experience and facility to effectively interpret the situation, their partner, and emotions to develop HPC messages (Burleson, 2003). Otherwise, support receivers are left with comparatively ineffective and consequential LPC messages.

Overall, this section discussed many different aspects of person-centered messages. Specifically, this section explicated person-centered messages and described HPC messages as affectively-oriented statements that consider both the distressed individual and his or her circumstances. Research on person-centered message production and interpretation was highlighted. In particular, I reviewed the variety of psychological, physical, emotional, and relational benefits people experience after receiving HPC messages. Although HPC messages are more effective, their LPC counterparts are

probably more common in normal supportive discourse. Moreover, LPC messages can exacerbate stressful situations and damage interpersonal relationships. Thus, the extent to which communicated support exhibits high versus low person-centeredness is an especially important quality of social support messages.

<div align="center">Gender Differences in Social Support</div>

If HPC messages are universally appealing mechanisms of social support, as they are theorized to be, they should be desired by all support receivers. In support of this claim, research has shown that both younger and older people value HPC messages more than messages that lack person-centered qualities (Caplan & Samter, 1999). In a study of comforting messages in the context of death, Servaty-Seib and Burleson (2007) also observed no moderating effects on the preference for HPC messages due to either closeness to the deceased or time since death. Other studies have also concluded that the perceived effectiveness of HPC messages does not vary by demographic characteristics, such as age (Marwit & Carusa, 1998; Servaty-Seib & Burleson, 2007). Despite the general preference for HPC support, one individual difference that has emerged as especially relevant to social support interactions is gender. Generally speaking, gender differences are pervasive within empirical research on social support (i.e., Hale, Tighe, & Mongeau, 1997; Jones & Burleson, 2003; Kunkel & Burleson, 1999). In the paragraphs that follow, I describe these findings as well as the theoretical explanations that have been offered to account for the influence of gender on social support communication.

Both men and women prefer HPC messages over other forms of social support (Jones & Burleson, 1997). Specifically, Kunkel and Burleson (1999) observed that both men and women rate HPC messages as more appropriate, sensitive, and effective than

messages with less person-centeredness. These researchers also documented that the sexes do not differ in the goals they emphasize in comforting situations; instead, both genders regard affective goals as more important than instrumental goals. This consistent pattern of effects implies wide-spread consensus concerning the utility, preference, and favorable interpretation of HPC messages.

Although men and women both prefer HPC messages over less person-centered support, prior research has uncovered pronounced gender differences concerning the provision of person-centered messages. Despite the fact that males rate themselves as more skilled supporters than women (Sarason, Sarason, Hacker, & Basham, 1985), scholars have concluded that females are more sensitive comforters for most stressors (Hale et al., 1997). In fact, men are significantly less likely than females to undertake the task of support provision when confronted with a distressed target (Burda, Vaux, & Schill, 1984). Compared to men, women exhibit an enhanced likelihood to provide emotional support (Trobst, Collins, & Embree, 1994), seek support (Ashton & Fuehrer, 1993), employ numerous strategies, and produce HPC messages (Burleson, 1982; Samter, 2002). Thus, there are between-sex differences in the provision and interpretation of person-centered messages.

The gender composition of the dyad can also influence the production and evaluation of person-centered messages. Studies have noted that men feel more at ease with female comforters, believe females are more supportive than other men are, and exhibit a proclivity to receiving emotional support from women (Holmstrom et al., 2005; Kunkel & Burleson, 1999). Burleson et al. (2005) provided convincing evidence of ineffective social support in male – male dyads. As demonstrated by these authors, men

view situations involving a male HPC comforter as unrealistic; however, females do not share this opinion. On the other hand, evaluations of the realism of LPC interactions do not differ as a function of helper sex. Burleson et al. (2005) also reported that males actually dislike HPC messages when another male produces them; in these situations, HPC comfort violates norms of gendered message use. Whereas the affect-oriented goal of solace becomes less important, expected, and effective, perceptions of escape are enhanced in male – male dyads. Male helpers paired with male targets have also indicated a significantly lower likelihood of using HPC messages and a correspondingly greater likelihood of using LPC messages. Similar differences in likelihood-of-use ratings were not observed when male helpers were paired with female targets (Burleson et al., 2005). On the other hand, females are particularly likely to experience negative outcomes with support providers who employ low levels of person-centeredness, especially if the support provider is another female. Specifically, Holmstrom et al. (2005) reported that female partners rated "masculine" comforting strategies as less supportive and effective when female comforters employed them than when males used them. Some female support receivers even dislike female comforters when they provide LPC social support (Holmstrom et al., 2005). Thus, males' and females' interpretations of person-centered messages change depending on the sex of the support provider.

One explanation that has been offered to explain gender differences in the provision of HPC messages, the skills specialization account, posits that women are more skilled than men at providing support. The skills specialization account rests on the assumption that differences in the societal distribution of knowledge and specialization privileges women's support skills. Although men and women experience vast similarities maturing in

a common culture, socialization enhances women's emotional support skills while discouraging the same skills in men. In other words, providing effective, nurturing, emotional support is one area in which females receive more skill and knowledge than men do (Kunkel & Burleson, 1999). Because of this, the skills specialization account specifies that both men and women should prefer female support providers (Burleson & Kunkel, 1996; Kunkel & Burleson, 1999). As Holmstrom et al. (2005, p. 155) observed, "More than just being better than men at providing emotional support, women are expected to be ready and willing providers of warm, nurturing, support."

Consistent with the skills specialization account, researchers have observed greater support facility in females than males. For example, several scholars have found that, compared to men, women possess more skills relevant to HPC message production (MacGeorge et al., 2003; Samter, 2002). Whereas men produce more messages than expected at the bottom of the person-centered hierarchy, women produce more messages than expected at the higher levels of the hierarchy. These results remain consistent and significant after statistically controlling for several relevant variables. Research has also documented that men prefer receiving support from females than other men (Burleson et al., 2005). Indeed, Reisman (1990) reported that men disclose more personal feelings to female friends than they do to their male counterparts. This line of research concludes that despite males' best efforts, females are simply more effective at producing HPC social support. Perhaps Kunkel and Burleson (1999) summarized this point best when they asserted, "men lack the competence to perform comforting behaviors as sensitively and effectively as women (i.e. they are not as skilled), regardless of motivation" (pp. 335).

Conclusion

This chapter examined the prominent research traditions within the subject of social support. In discussing disciplinary approaches to social support scholarship, I reviewed work from sociology, psychology, and communication. Beginning in the early 1980s, communication scientists emphasized the messages, interactions, and relational dynamics that occur within and result from social support exchanges. This body of work generally addresses three main ways of conceptualizing support. Many communication scientists study specific types of support messages based on message content. Other scholars investigate social support strategies that guide people in approaching or avoiding a stressful problem or its emotions. Research on social support communication has also highlighted person-centered messages, such that HPC messages are conceptualized to be sophisticated, affective messages and LPC messages lack sensitive and effective supportive content. Consistent with this conception of person-centered messages, the research I reviewed shows that HPC messages yield numerous benefits to both support providers and receivers. I also discussed gender as an individual difference variable relevant to social support interactions. Previous research has found that women possess more social support skills than men and that gender is related to differences in support message interpretation

People will always look to others for support, advice, and comfort when they experience stressful situations; however, not every support exchange will be effective. The uncertainties, strong emotions, and social intricacies involved make any social support encounter a complex interaction. Indeed, the level of person-centeredness, the relationship context, the genders of the support provider and receiver, and the communication

environment all influence the production and interpretation of messages intended to convey support. Contributing to a more thorough understanding of the enactment of person-centered social support not only builds extant theoretical and empirical knowledge bases, but also evokes the real possibility of improving the support people experiences in their lives.

CHAPTER THREE

As noted previously, the majority of extant social support research has been conducted in FtF settings. This chapter focuses on computer-mediated communication (CMC) as another channel in which social support occurs. A single relationship likely spans multiple communication modalities throughout its lifetime (Walther & Parks, 2002), creating circumstances when mediated discourse is preferred or required. Because of this, CMC is becoming a ubiquitous channel for interpersonal communication. People conduct interactions online that run the gamut of interpersonal processes. For example, people commonly shop online, meet dating partners online, conduct business online, search for information online, and seek or receive various forms of comfort and advice online. In fact, a report published by the Pew Internet and American Life project noted that "more people use email than any other online activity" (Madden & Rainie, 2003, p. ii). This report documented the prevalence of interpersonal communication online and also observed that instant messaging and chat room use increase each year. As Hannemyr (2003) concluded, "the adoption rate of the Internet has exceeded that of earlier mass communication technologies by several magnitudes," making it an "irreversible" innovation (p. 111). Similarly, scholars have claimed that the Internet is becoming indispensable for social communication (Hoffman, Novak, & Venkatesh, 2004). Thus, people frequently employ CMC as a means for interpersonal communication.

The Internet is also becoming a ubiquitous channel for social support. Walther and Parks (2002) asserted that "The Internet must be judged as a fabulously successful medium for social support. Understanding, reassurance, and advice flow out through literally thousands of online support groups" (p. 545). These authors also claimed that the Internet

changes two fundamental aspects of the support process: the cues/channels of communication and the sociometric relationships of the participants. In particular, people can seek or receive social support through traditional means of CMC that were not designed with supportive goals in mind, such as e-mail or chat rooms; they can also employ CMC venues that were specifically designed for social support, such as online support groups. In addition, scholars have reported that the Internet makes it easier to engage in supportive interactions with both pre-established relational partners (Kraut et al., 1998; LaRose, Mastro, & Eastin, 2001) and relative strangers (Walther & Boyd, 2001; Wright, 2000a). Walther and Parks (2002) theorized that "CMC expands the range of competent choices rather than simply extending opportunities to communicate with the same old partners in the same old ways" (p. 547). Some scholars attribute the Internet's ubiquity for social support to the fact that mediation makes it easier to communicate about some situations. Thus, the Internet is a popular channel for enacting social support.

Although social support is regular fare in CMC, social support scholarship and CMC research have remained largely independent to date. Bridging the gap between social support and CMC scholarship is a worthwhile endeavor for both theoretical and empirical reasons. Not only would researchers interested in social support expand their understanding of how people employ technology in the support process, but scholars interested in CMC could also examine how technological features moderate the production and interpretation of comforting messages. To provide a foundation for research on computer-mediated social support (CMSS), this chapter examines how social support empirically and theoretically unfolds in CMC.

Computer-mediated Social Support

Perhaps because of CMC's novelty and relative infancy as a medium for social

support, the majority of CMSS literature focuses on observational findings that describe

the content of online support venues. Few CMSS studies have yet to expand theory or

examine the influence of contextual, personal, or relational variables on the production or

interpretation of social support messages. CMSS research is subsequently reviewed to

clarify what is known about online social support, and to provide insight into how

mediated contexts can moderate the processes of social support message production and

evaluation.

Scholars have noted that CMC support occurs in a variety of ways in many

different contexts. CMC support occurs both synchronously through live chat programs

and asynchronously through e-mail or discussion boards (Winzelberg, 1997). Researchers

have also cataloged a wide variety of CMC support groups helping people cope with

everything from AIDS, to multiple sclerosis, to alcoholism, to diabetes (Davison,

Pennebaker, & Dickerson, 2000). Another advantage of CMSS is that these venues allow

relational partners to be separated by geographical and temporal constraints that would be

difficult, if not impossible, to traverse using traditional communication channels. As such,

some scholars question not *whether* CMC is a supportive environment but rather *why* it

might be such an effective medium for social support (Walther & Parks, 2002).

Scholars have observed several common types of social support in online venues.

In particular, Robinson and Turner (2003) listed emotional, esteem, tangible,

informational, and social integration as common types of CMSS. Likewise, research

conducted in electronic support groups concluded that people employ emotional support,

informational support, feedback, and advice to achieve their support goals (Winzelberg, 1997). Braithwaite, Waldron, and Finn (1999) observed that emotional support messages are the most common type of support conveyed online, representing 40% of all support messages. Informational and esteem support (comprising 31.7% and 18.6% of all support messages, respectively) are also commonly observed online. Similarly, other researchers have documented that over 31 million users have employed the Internet as a resource for health-related information (Robinson & Turner, 2003). People also experience network support (7.1% of all messages) and tangible assistance (2.7% of all messages) online; however, these support types are less frequent (Braithwaite et al., 1999). Although scholars have identified the types of support people experience online, few other support mechanisms enjoy similar research attention. For example, there are few, if any, studies that document the prevalence, production, or evaluation of person-centered messages online.

Prior research has indicated that CMC channels hold numerous advantages over traditional FtF support contexts. For example, researchers tout the large number of people using CMC support, its unlimited temporal availability, its lack of geographic constraints, and its heightened anonymity as important benefits of CMSS (Turner, Grube, & Meyers, 2001; Wright, 2000a, 2000b). The sheer number of people involved in CMSS increases a user's ability to find someone with a similar problem to share advice, empathy, or resources. In particular, when people experience low levels of FtF support and cannot find a suitable support provider, they increase their time reading and contributing to electronic listservs (Turner et al., 2001). Whereas FtF networks contain a finite number of contacts, CMC support venues globally connect people to millions of other users. Furthermore, each

user brings a unique set of resources to a supportive interaction that could be valuable for other users. Robinson and Turner (2003) contended, "Given the value of finding others with similar experiences, illnesses, or treatments as well as similar demographic characteristics, few social opportunities offer so much for so little" (p. 233).

Other research has documented several normative motivations behind people's behavior in CMSS contexts. For example, Walther and Boyd (2001) highlighted anonymity, access, interaction management, and social distance as reasons people enact online support. More specifically, these scholars stated that anonymity allows users to avoid embarrassment or face threats in requesting social support or describing a stressor. People might be hesitant or feel awkward requesting support or communicating sensitive messages FtF; however, they could feel more comfort and confidence doing so in a relatively anonymous IM exchange. Furthermore, the continuous access of online support, where sources of support are almost always available attracts users to CMSS. CMC support seekers do not need to worry about lacking access to support providers. In addition, interaction management involves both carefully designing messages for effective self-expression and allowing relational partners to read and respond to messages at their convenience. Simply turning to an IM channel gives message senders a greater ability to craft, edit, and control the support messages they send to others. Finally, social distance assumes that people attribute more expertise to online sources than they do to the assistance offered by their FtF social networks. People often perceive that CMC support providers possess competencies that normal FtF contacts lack. Because of these unique channel norms, scholars have noted that CMSS involves an enhanced level of comfort compared to FtF exchanges (Caplan, 2003). People can exploit this comfort to seek and

receive support in ways that might normally be uncomfortable or face threatening in FtF

interactions (Caplan & Turner, 2007). Thus, several channel norms motivate people to

employ CMC as a social support venue.

Extant research also indicates that people are satisfied with their mediated support

experiences. For example, people who receive mediated informational or emotional

support have conveyed that they are more satisfied with their CMSS than their FtF support

(Wright, 1999). Turner et al. (2001) also documented that time spent reading a support

listserv yields deeper, more satisfying relationships with the group members. Furthermore,

Wright (1999, 2000b) noted that the number of hours participants converse and the number

of supportive messages they receive in CMC support groups are positively associated with

the size of their mediated support networks and their support satisfaction. In turn, people's

CMC network size is negatively related to perceived life stress and exhibits positive

associations with CMSS satisfaction (Wright, 2000a). More specifically, Wright (2002)

observed a negative correlation between cancer patients' perceptions of CMC emotional

support and their life stress.

People also report socioemotional advantages to CMSS. For example, Sussman and

Sproull (1999) documented that people exhibit greater satisfaction, comfort, and liking of

CMC conversational partners than phone or FtF partners. Similarly, Preese (1999)

observed that empathy is a prominent shared value between mediated support partners.

Henderson and Gilding (2004) even reported that CMC "fast-tracked" relationship

development through higher amounts of self-disclosure. In particular, Bargh, McKenna,

and Fitzsimons (2002) reported that people like conversational partners better online than

FtF. The same effect occurs even when people unknowingly meet the same person in both

communication channels (McKenna, Green, & Gleason, 2002). Thus, people experience

socioemotional and personal benefits by interacting in CMC.

This section reviewed empirical research findings in the domain of CMSS. I

established that online venues are capable of providing the same types of support that

people commonly receive in FtF interactions. Furthermore, the norms of anonymity,

access, interaction management, and social distance are common attractions of CMSS. By

enacting support in mediated venues, people can enhance personal well-being,

socioemotional states, and relational ties. Although this body of research does an adequate

job of cataloging CMSS, we know comparatively little about the processes of support

message production and interpretation online. As a foundation for thinking about how

CMSS occurs, I turn next to theories of computer-mediated interpersonal communication.

Interpersonal CMC Theories with Supportive Implications

Several theories have been advanced to describe interpersonal and relational

communication in CMC; however, none of them explicitly discuss social support. To

address this lack of CMSS theory, this section reviews interpersonal theories of CMC that

offer insights into the social support process. Cues filtered out theories denote a collection

of theories that emphasize the lack of nonverbal cues online and the corresponding

detriment to interpersonal interaction (Culnan & Markus, 1987). Conversely, cues filtered

in theories that contend that CMC is not inherently damaging to interpersonal or relational

processes (Walther & Parks, 2002). Thus, the subsequent discussion of CMC theory is

divided between cues filtered out and cues filtered in theories.

Cues Filtered Out Theories

All theories under the cues filtered out heading share a few common assumptions. For example, they all assume that there is a one-to-one correspondence between communication cues and communication functions. In other words, channels with more cues can accomplish more communicative goals than channels with fewer cues. Cues filtered out theorists contend that because CMC lacks several nonverbal cues, it is necessarily a limited channel that is incapable of matching the communicative dexterity of FtF contexts (Culnan & Markus, 1987; Walther & Parks, 2002). Nonverbal cues often convey personal and emotional content in FtF conversations; their absence in CMC hampers people's socioemotional capabilities. Accordingly, cues filtered out scholars assume CMC channels are more task-oriented than FtF channels. Because of this, most CMC interactions should be relatively anonymous and impersonal.

Cues filtered out theories also imply that CMC is not a suitable environment for social support. Instead of comforting, supportive interactions, these theories predict CMC is more likely to produce either impersonal relationships or uninhibited behavior rife with obscenity, insults, and hostility. Proponents of cues filtered out research generally claim that CMC's superficiality is not suitable for disclosing personal information, creating sensitive messages, or producing any other comforting behavior commonly involved in providing effective support (Daft, Lengel, & Trevino, 1987; Rice & Case, 1983). More specifically, CMC's impersonality would make it difficult to create HPC messages (Kiesler, Siegel, & McGuire, 1984). Each theory in the cues filtered out paradigm specifies different mechanisms through which limited nonverbal cues restrict intimate discourse and

socially supportive communication. The following sections review social presence theory and media richness theory as two exemplar cues filtered out theories.

    Social presence theory. Theorists conceptualize social presence as the salience of other interactants or the extent to which people perceive others as jointly involved in conversation (Short, Williams, & Christie, 1976; Walther, 1992). Whereas channels high in social presence provide a salient impression of other interactants, channels low in social presence transmit only superficial impressions. Contexts that enable people to communicate in real-time, in shared spaces, through a variety of media, typically yield high levels of social presence. Conversely, channels that limit fluid interaction between communicators yield correspondingly limited perceptions of social presence. In other words, high presence exists when a mediated interaction does not seem mediated (Lombard & Ditton, 1997). Accordingly, FtF contexts always contain the highest levels of social presence because these channels contain cues of copresence, physical appearance, and vocalics that are absent online.

    As perceptions of presence decline, messages become increasingly impersonal (Ramirez & Zhang, 2007). For instance, Kiesler (1986) asserted that communicators are unable to transmit impressions of individuality or charisma without nonverbal cues. Similarly, low levels of presence reduce perceptions of intimacy, involvement, affection, similarity, and trust (Walther, 1992). Nonverbal cues increase impressions of communication partners by enhancing the warmth, immediacy, and intensity of interpersonal interactions (Short et al., 1976); however, CMC lacks many nonverbal cues. Because of this, online channels often yield little social presence, which promotes impersonal messages and superficial conversations. Along these lines, early

conceptualizations of CMC regarded the medium as information deficient (Short et al.,

1976). Similarly, Turoff (1991) attributed CMC's task-orientation and impersonal

discussions to the medium's reduced presence. Other researchers have also asserted that

CMC communicators can never surpass emotionally superficial or impersonal impressions

(Short et al., 1976; Turoff, 1991). Thus, cues filtered out theorists view low levels of social

presence as detrimental to warm, involving interpersonal exchanges.

Although not articulated as a specific assumption, social presence theory implies

that CMC is not a suitable environment for the provision of social support. Because

channels with reduced levels of presence can only yield superficial exchanges, they do not

match the sophistication and involvement necessary for HPC messages. Social presence

theory implies that CMC's reduced presence makes it difficult for people to gather or

express the intimate personal, relational, and contextual knowledge inherent in sensitive

support messages. In contrast, the full array of nonverbal behaviors should make FtF an

ideal context for the production and interpretation of HPC messages. The inability to

develop affect-based impressions, personalized content, or HPC messages because of

CMC's reduced social presence could severely hamper the efficacy of CMSS.

Media richness theory. Like social presence theory, media richness theory is a cues

filtered out theory that highlights CMC's reduced nonverbal cues as a detriment to

interpersonal communication. Media richness theory contends that channels vary in terms

of their richness, or ability to transmit multiple cue systems (Daft & Lengel, 1984, 1986).

The theory asserts that multiple cue systems, immediate feedback, message

personalization, and language variety conjointly determine a medium's richness (Clarke,

1992; Daft et al., 1987; Dennis & Kinney, 1998). FtF is the richest communication channel

because of its array of communicative cues, immediate feedback, and ability to simultaneously transmit body language, tone of voice, natural language, and a wealth of other nonverbal cues (Daft & Lengel, 1984). Conversely, most CMC channels are assumed to be relatively lean media because of their reduced nonverbal cues, limited transmission capacities, and other communicative shortcomings (Walther, 1992). Media richness theory asserts that CMC channels are constrained to impersonal, rule-based, and procedure-focused conversations because of their leanness (Daft & Lengel, 1986). Along these lines, some scholars have asserted that CMC channels, especially those with fewer cues and asynchronous interaction, generate less emotional impact than richer channels (O'Sullivan, 2000). Likewise, people perceive lean media as less friendly and more depersonalizing than richer media (Dennis & Kinney, 1998; Walther, 1992, 1993). Williams (1977) even concluded that people perceive others more like objects than individuals in lean media. Thus, CMC is commonly considered a lean medium with limited communicative capabilities.

Media richness theory also contends that transmitting equivocal content, such as sophisticated messages, emotion, or abstract concepts, requires a relatively rich medium to reach full comprehension. Rich media enable detailed description, promote immediate feedback, and accommodate different frames of reference that are instrumental in transmitting equivocal information, such as social support messages. These media should lead to quicker and more effective performance on equivocal tasks (Dennis & Kinney, 1998). In support of this, researchers have documented that communicators prefer oral media when they are faced with comprehension difficulties (Daft et al., 1987; Daft & Lengel, 1984). On the other hand, lean media are the best communication channels for

unequivocal, simpler messages or processes. Lean media are not only functional, but also more efficient for simple tasks because they avoid transmitting unnecessary content (Daft & Lengel, 1986; Dennis & Kinney, 1998). Lean and rich media do not differ in their effectiveness for unequivocal tasks; however, lean media are more efficient (Daft & Lengel, 1984; Trevino, Lengel, & Daft, 1987). Unlike the tenets of social presence theory, media richness theory predicts that rich media do not automatically yield the best or most satisfying interactions; rather, satisfaction depends on the match between a task and the chosen communication medium.

Although media richness theory does not mention social support, its theoretical propositions have implications for CMSS. Effective social support is conceptualized as an equivocal undertaking because it involves multiple goals and requires sophisticated messages. Because media richness theory states that the most effective communication occurs when interactants find an optimal match between channel richness and message ambiguity (Daft & Lengel, 1984; Daft et al., 1987), the theory implies that people will enact the most effective support in richer environments. By extension, lean media would be relatively ineffective venues for social support. This may be especially true in the case of HPC messages, which may require the richness of FtF channels to be effectively communicated.

This section reviewed cues filtered out theories, as well as their implications for the social support process. I discussed social presence theory and media richness theory as exemplars from the cues filtered out paradigm. Both of these theories posit that the lack of nonverbal cues in CMC is detrimental to both interpersonal communication and social support. Social presence theory contends that CMC's lack of nonverbal cues restricts the

interpersonal information required to establish detailed, intimate impressions. Instead, the

information transmitted via CMC yields only superficial relations that are not conducive to

social support. Similarly, media richness theory classifies CMC as a lean medium that is

ineffective for performing complex tasks. Because social support is a complicated

endeavor, this theory implies that a lean communication channel should host unsuccessful

supportive interactions. Whereas CMC might be suitable for simple, task-based

interactions, cues filtered out theories conclude that effective social support should only be

possible in richer channels.

Cues Filtered in Theories

As a counterpart to the previously reviewed theoretical paradigm, this section

elaborates upon cues filtered in theories of CMC. More specifically, I discuss social

information processing theory and the hyperpersonal perspective as exemplars from the

cues filtered in paradigm. This collection of theories opposes the cues filtered out

perspective to assert that people can have intimate social relationships online. Rather than

being universally constrained by a lack of nonverbal cues, these theories argue that people

can maintain social goals, adapt to channel limitations, and achieve meaningful

relationships in CMC. Because of this, these theories emphasize the potential of CMC

channels for social support. The cues filtered in paradigm is both more contemporary and

more theoretically sophisticated than the cues filtered out perspective. These theories

provide a theoretical justification for positing that CMC can yield easier and more effective

social support than FtF channels.

Social information processing theory. Social information processing (SIP; Walther,

1992) theory explicitly rejects the assumption that CMC's lack of nonverbal cues limits

communication. Instead, the theory assumes that online communicators are just as motivated as their offline counterparts to reduce uncertainty, form impressions, and achieve a variety of relational goals. As Walther (1992) asserted, "CMC users, just as communicators in any context, should desire to transact personal, rewarding, complex relationships and that they will communicate to do so" (p. 68). SIP theory also assumes that people can substitute verbal and typographic cues for the information normally transmitted via nonverbal cues (Walther, 1992). Online communicators exchange individuating information by emphasizing and interpreting the content, style, typing, and timing of verbal messages. Through these cues, people adapt the verbal code to convey the intimate, personal information normally communicated nonverbally (Walther, 1996). Because they feel the same social motivations as FtF interactants, SIP theory asserts that CMC communicators adapt to online channels to achieve their interpersonal goals.

According to SIP theory, the key difference between relational information exchanged online and FtF "has to do not with the *amount* of social information exchanged but with the *rate* of social information exchange" (Walther, 1996, p. 10). SIP theory asserts that time is a crucial component of mediated communication. The lack of nonverbal cues in CMC does not limit the amount of information users can transmit; however, it does slow the rate of information transmission. If nothing else, typing messages takes more time than simply speaking in FtF settings. Furthermore, fewer CMC codes are tasked with transmitting the content normally found in numerous nonverbal cues; therefore, a single mediated message likely contains less information than a comparable FtF message. Because of this, SIP theory posits that personal, intimate communication takes longer to emerge in CMC than FtF (Walther, 1992; Walther & Parks, 2002). In support of this

assertion, scholars have recognized that the early stages of mediated relationships are more impersonal and task-oriented than their FtF counterparts (Walther, 1992, 1996). Although FtF partners develop individuated impressions more rapidly, Walther (1993) observed that CMC couples eventually equal FtF partners' levels of impression development. Research has indicated that there are no differences between CMC and FtF perceptions of immediacy, similarity, composure, and receptivity of group members when people anticipate lengthy interactions with a partner (Walther, 1994). Thus, CMC interactions can be just as meaningful or intimate as FtF exchanges; relationship development just takes longer online.

Although SIP theory does not directly address social support, it entails several implications for the support process. Specifically, SIP theory implies that CMC is a suitable context for enacting support encounters and that online communicators are able to achieve the same supportive outcomes as FtF interactants. Online communicators can adapt to channel limitations in the process of providing social support by relying more on verbal cues. Yet, because of these limitations, support encounters are likely to take longer to unfold in CMC than FtF. Although CMC-based social support can be just as effective and satisfying as FtF support, relational partners may have to devote more time to providing support online than FtF. Overall, SIP theory implies that social support is possible online, albeit only after sufficient time elapses. The predictions of SIP theory are not specifically tested in this dissertation because many of them are subsumed by the subsequently described hyperpersonal perspective; however, SIP theory is discussed in this section to help contextualize the cues filtered in paradigm.

The hyperpersonal perspective. The hyperpersonal perspective completely opposes the aforementioned cues filtered out theories to contend that online interaction is actually superior to offline discourse. As Walther (1996) described, hyperpersonal communication is "CMC that is more socially desirable than we tend to experience in parallel FtF interaction" (p. 17). Hyperpersonal theory posits a negative relationship between communication cues and communicative capability. In other words, the lack of nonverbal cues online actually promotes enhanced relational outcomes. According to the hyperpersonal perspective, online actors can adapt and exploit the diminished nonverbal cues online in ways that enhance their ability to attain interpersonal goals (Dunthler, 2006; Walther, 1996, 2006). For example, researchers have found that fewer nonverbal cues enable communicators to manipulate their identity, time the production of messages, and effectively organize their thoughts (Dunthler, 2006). Thus, hyperpersonal theory asserts that the lack of nonverbal cues online enhances interpersonal communication such that many relational processes can be more effectively pursued online than FtF.

Hyperpersonal theory proclaims that without visual information, message senders have enhanced presentational abilities online. Communicators can selectively mask or edit undesirable and uncontrollable cues while magnifying preferred attributes (Walther, 1996, 1997). As Walther (1996) asserted, "such social evaluations as one is able to garner are not impeded by messy hair, lack of makeup, or normal imperfections, much less more pronounced physical distracters or disabilities" (p. 20). Stated differently, people take care to reveal only positive information online. The verbal content that takes center stage in CMC is easier to control and strategically manipulate than nonverbal behavior (Ekman & Frieson, 1969). Because CMC requires people to type their responses before sending them,

a communicator is able to revise or abandon unfavorable messages before they are sent (Walther, 1996, 2006). Henderson and Gilding (2004) provided empirical support of this idea when they observed that respondents take special care to strategically construct messages in CMC. Similarly, Walther (2006) reported that people mindfully edit their statements online, with greater editing leading to higher levels of relational immediacy and affection. Hence, CMC allows people to disclose personal information that they are unable to express in parallel FtF situations (Bargh et al., 2002). By exploiting the lack of nonverbal cues online, the hyperpersonal perspective proposes that mediated communicators "engage in selective self-presentation and partner idealization, enacting exchanges more intimate than those of FtF counterparts" (Tidwell & Walther, 2002, p. 319).

Despite lacking many nonverbal cues, the hyperpersonal perspective contends that mediated channels are still capable of hosting rich interactions. For example, research has concluded that CMC can equal or surpass FtF in terms of uncertainty reduction and attributional confidence (Tidwell & Walther, 2002). As Walther and Parks (2002) noted, "the channel itself facilitates goal-enhancing messages by allowing sources far greater control over message construction than is available in FtF settings" (p. 541). Because CMC contains less information than FtF contexts, relational partners are unhindered by extraneous information and can concentrate on relationally important disclosures. The absence of many nonverbal demands and temporal commitments in CMC should also enable communicators to redirect cognitive resources to where they are most needed or to where they can be applied most efficaciously (Walther, 1996, 1997). In other words, hyperpersonal theory argues that through cognitive reallocation online communicators can

devote more resources to verbal message production than is possible FtF. Because online communicators do not have to expend cognitive resources on several aspects of nonverbal communication, these extra resources can be reallocated to create particularly effective verbal messages.

Another benefit of CMC is the buffer effect (O'Sullivan, 2000). During online interactions, people are insulated or buffered from their partners' reactions to statements or self-disclosures. This increased perceptual distance removes some of the anxiety and face threat that plague FtF interactions, thereby enabling people to communicate in ways that might be too uncomfortable FtF. For example, researchers have documented that people prefer leaner communication channels when they are concerned about their self-presentation or desire to obscure unattractive traits (O'Sullivan, 2000). In the context of CMSS, the buffer effect could assist in the production of HPC messages by shielding people from their partners' reactions to these messages. Simply adding perceptual space between communicators could make is easier for some people to produce intimate, sensitive, or personal messages.

The strategic self-presentation, idealized impressions, and channel benefits included in the hyperpersonal perspective all imply that people might actually be more successful supporters online than FtF. Rather than limiting interaction, this perspective argues that the lack of nonverbals online frees people and enables them to experience better communication than is possible FtF. For example, support providers should be able to strategically create and edit HPC support messages via CMC's selective self-presentation. In fact, through cognitive reallocation, support providers are able to devote more mental resources to the production of these messages online than FtF. In addition,

CMC's buffer effect implies that people should produce more HPC messages online than FtF because they are shielded from their partners online. Support providers can strategically exploit CMC's buffer effect to produce messages they are too threatened or self-conscious to communicate FtF. Overall, the hyperpersonal perspective implies that online communicators can create more intimate, sensitive, and effective support interactions than are possible FtF.

This section reviewed extant theories of mediated interpersonal communication to summarize their predictions and specify their implications for CMSS. In general, cues filtered out theories decry the lack of nonverbal cues online and speculate that CMC is universally impersonal. Through different mechanisms, these theories assert that CMC is a limited medium that is incapable of transmitting detailed impressions or sustaining effective supportive interactions. Although cues filtered in theories also recognize the lack of nonverbal cues in CMC, they claim that these deficits do not constrain communication. Instead, social information processing theory and the hyperpersonal perspective contend that CMC yields impressions and interpersonal exchanges that are equivalent to or better than their FtF counterparts. Thus, CMSS looks very different when viewed through the lenses of the cues filtered out versus the cues filtered in paradigms.

Individual Differences in Preference for Online Social Interaction

In the previous chapter on social support, I identified a person's gender as an individual difference with documented effects on social support. With regard to CMC, individual differences have also emerged. In particular, some scholars claim that people can develop a preference for online social interaction (POSI) that compels them to avoid FtF exchanges and embrace all means of CMC interaction. If people prefer to conduct their

relational interactions online, they may not only desire more CMSS but also work harder to provide and receive it. Thus, a preference for online social interaction is an individual difference variable that has the potential to influence the production and interpretation of CMSS.

Caplan (2003) theorized that POSI affects how people use the Internet to achieve interpersonal goals. A POSI is characterized by beliefs that one is safer, more efficacious, more confident, and more comfortable with mediated interpersonal interactions than traditional FtF exchanges (Caplan, 2003, 2005a, 2005b; see also Morahan-Martin, 1999). Founded on Davis's (2001) research on problematic Internet use, Caplan (2003) asserted that people who suffer from psychosocial problems often hold negative opinions of their FtF social competence. For such individuals, the perceived self-presentational affordances of CMC represent an attractive alternative. Mediated interaction entails anonymity, controlled self-presentation, and reduced social risk (Morahan-Martin & Schumacher, 2000; Wallace, 1999; Walther, 1996), all of which can benefit introverted communicators. In fact, scholars have contended that feelings of awkwardness or fear dissipate by removing the FtF aspect of communication (Kelly & Keaten, 2007). Likewise, Caplan (2003) noted that people with POSI perceive CMC to be an easier, less risky medium for self-presentation. Wallace (1999) agreed, stating CMC that is, "hard for any humdrum reality to compete with, especially for people whose real lives are troubled" (p. 182).

Caplan (2003) argued that people with a POSI choose mediated venues to simultaneously minimize self-presentational costs and maximize presentational ability. Along these lines, Caplan (2003, 2005a) observed that depression and loneliness were both significant predictors of POSI. On the other hand, scholars have documented that socially

troubled individuals display reduced shyness, nervousness, and inhibition online than FtF (Kelly & Keaten, 2007; Stritzke, Nguyen, & Durkin, 2004). Lonely people have also been found to exhibit more effective self-presentation in CMC than FtF (McKenna et al., 2002). The increased control and reduced anxiety online have even caused some people to feel positive affect toward mediated channels (Kelly & Keaten, 2007). Thus, POSI identifies individuals who are comfortable, and presumably enjoy, interacting online.

People who prefer mediated channels might consider them functional alternatives to FtF contexts for interpersonal behavior (Caplan, 2005a). In particular, people with higher levels of POSI could both prefer receiving and providing support in mediated venues. Although they may lack sufficient skills or confidence to excel in FtF support exchanges, people with high levels of POSI should feel more comfortable in mediated support encounters. To the extent that these individuals want to participate in social support interactions, but are unable to do so FtF, people with high levels of POSI could be particularly effective CMSS partners. These individuals may very well work harder at producing and interpreting supportive messages online than FtF. In fact, Caplan (2005b) asserted that, "POSI may lead an individual to use the Internet, rather than traditional FtF behavior, when they seek comforting and companionship from members of their support network" (p. 8).

Hypotheses

To this point in this dissertation, I have highlighted the need for further research into the dyadic experience of social support, reviewed research on social support, and examined CMC as a venue for CMSS. To guide a study of factors that affect the production and interpretation of support messages in both FtF and CMC interactions, I

now advance several hypotheses. A first group of hypotheses focuses on how extant theories of mediated interpersonal communication draw contrasting conclusions about CMSS. These hypotheses specify how social support differs between CMC and FtF contexts according to the theoretical implications of cues filtered out and cues filtered in theories. Another set of hypotheses considers how gender influences social support interactions. These hypotheses describe how an individual's gender and the gender composition of a dyad moderate the support process. A last set of hypotheses focuses on how POSI alters people's use of communication channels. These hypotheses describe how people's levels of POSI can influence how they produce and evaluate supportive messages in different communication channels. Throughout, I focus on IM as a CMC channel that approximates FtF interaction, yet retains core aspects of CMC. Within each section, hypotheses emphasize message producers' perceptions, objective assessments of communicated messages, and message receivers' perceptions as central to understanding the experience of social support interactions.

CMC Interpersonal Theories and Social Support

Cues filtered out theories, such as social presence and media richness theories, contend that conducting social support online should limit its efficacy. Specifically, social presence theory contends that IM is a superficial channel that does not contain a sufficient level of presence to yield effective support. At the very least, IM contains less presence than FtF interactions; therefore, IM-based social support should be perceived as inferior to FtF support. The full array of nonverbal cues in FtF contexts makes it possible to develop affectionate communication, personalized content, and highly person-centered (HPC) messages. Because several of these cues are absent or lacking in IM, the production and

reception of social support should suffer therein. Social presence theory implies a main effect of communication channel, such that all levels of person-centered messages are better suited for FtF than IM channels.

Rather than predicting a similar main effect of communication channel, media richness theory argues that communicators should match a task's complexity to a channel's richness (Daft & Lengel, 1984; Daft et al., 1987). Equivocal tasks require a rich context; simple tasks necessitate leaner contexts. Because IM is a relatively lean medium, only the simplest and theoretically least sensitive and effective LPC messages should be successfully conveyed therein. On the other hand, HPC messages should be more successfully conveyed in a richer medium, like a FtF conversation, than a mediated interaction. Media richness theory implies an interaction between communication channel and level of person-centeredness, such that the positive qualities of HPC are less likely to be realized in IM interactions.

SIP theory and the hyperpersonal perspective were reviewed as cues filtered in theories. Yet, because the hyperpersonal perspective advances more specific and testable predictions, many of which mirror the assertions of SIP theory, it provides the theoretical basis for the hypotheses derived from the cues filtered in theories. Specifically, the hyperpersonal perspective directly contrasts the cues filtered out paradigm by implying that IM is a suitable environment for the enactment of social support. In fact, the logic of hyperpersonal theory suggests that it should be easier for people to produce social support messages online than FtF. By reallocating cognitive resources that are not needed for nonverbal communication, online communicators can devote more energy to support message production and interpretation than FtF interactants. If the principles of cognitive

reallocation are accurate, CMC communicators are expected to have more success with HPC messages than their FtF counterparts. Even more, because online communication entails the buffer effect (O'Sullivan, 2000), people are shielded from their partners' reactions to the messages they produce. This perceptual space should enhance people's ability to produce sensitive or effective supportive messages. Thus, the hyperpersonal perspective posits that people should experience more effective supportive conversations via IM than FtF interactions.

The contrasting predictions of these theories are tested in a set of competing hypotheses. Although social presence theory and media richness theory are both cues filtered out theories, they predict slightly different outcomes for supportive conversations. Conversely, the hyperpersonal perspective completely opposes the predictions of social presence theory. The following set of hypotheses provides a critical test of these competing perspectives by specifying their distinct implications for support providers' perceptions of their own effectiveness (H1), third party evaluations of message production (H2), and support receivers' evaluations of message quality (H3). The first hypotheses address the effects of level of person-centeredness and communication channel on support providers' perceptions of their efficacy in message production. H1a follows from social presence theory, H1b from media richness theory, and H1c from the hyperpersonal perspective:

H1a: Support providers perceive that they produce all levels of person-centered messages more effectively in FtF interactions than IM interactions.

H1b: There is an interaction between level of message person-centeredness and communication channel, such that (a) support providers perceive that they produce

HPC messages more effectively in FtF channels than IM, and (b) support providers

perceive that they produce LPC messages more effectively in IM than FtF.

H1c: Support providers perceive that they produce all levels of person-centered messages

more effectively in IM interactions than in FtF interactions.

The second hypotheses address the effects of message person-centeredness and communication channel on third party evaluations of messages. Again, predictions following from social presence theory (H2a), media richness theory (H2b), and the hyperpersonal perspective (H2c) are contrasted in the following hypotheses:

H2a: Support providers are perceived by third parties to be more supportive in FtF

interactions than in IM conversations.

H2b: There is an interaction between level of person-centeredness and communication

channel, such that (a) third parties perceive more supportive HPC messages in FtF

interactions compared to IM conversations, and (b) third parties perceive more

supportive LPC messages in IM conversations compared to FtF interactions.

H2c: Support providers are by perceived by third parties to be more supportive in IM

interactions than in FtF conversations.

The third hypotheses specify associations between level of message person-centeredness and communication channel on support receivers' evaluations of supportive messages. H3a specifies the implications of social presence theory, H3b follows from media richness theory, and H3c documents the predictions from the hyperpersonal perspective:

H3a: Support receivers perceive all levels of person-centered messages to be higher

quality in FtF interactions than IM interactions.

H3b: There is an interaction between level of person-centeredness and communication

channel, such that (a) support receivers evaluate HPC messages as higher quality in

FtF conversations compared to IM interactions, and (b) support receivers evaluate

LPC messages as higher quality in IM interactions compared to FtF conversations.

H3c: Support receivers perceive all levels of person-centered messages to be higher

quality in IM than FtF interactions.

The Influence of Gender

As described in chapter 2 of this dissertation, gender differences are prevalent in

social support interactions. For example, researchers have documented that although both

men and women prefer HPC messages to their LPC counterparts (Jones & Burleson, 1997;

Kunkel & Burleson, 1999), women are better at producing these messages than are men

(Burleson, 1982; Samter, 2002). In fact, women are more skilled than men in most aspects

of social support provision and reception (Hale et al., 1997; Kunkel & Burleson, 1999;

Sarason, Sarason, Hacker, & Basham, 1985). These findings have led some scholars to

conclude that women possess more skill or critical abilities for evaluating social support

messages than men do (Eagly, 1987; Holmstrom, Burleson, & Jones, 2005). In support of

this assertion, women evaluate LPC messages as lower in quality than do men (Kunkel &

Burleson, 1999). Women neither value producing these messages nor do they appreciate

receiving them (Holmstrom et al., 2005; Kunkel & Burleson, 1999). Thus, I expect females

to be more competent and effective support providers and receivers than men. This means

females are expected to be competent producers and receivers of HPC messages and

relatively ineffective interaction partners in relation to LPC messages. I propose the

following hypotheses to test these predictions:

H4: There is an interaction between gender and level of person-centeredness, such that

(a) women perceive they produce HPC messages more effectively than do men, and

(b) women perceive they produce LPC messages less effectively than do men.

H5: There is an interaction between gender and level of person-centeredness, such that

(a) third party observers perceive that females produce more supportive HPC

messages than do men, and (b) third party observers perceive that females produce

less supportive LPC messages than do men.

H6: There is an interaction between gender and level of person-centeredness, such that

(a) females evaluate HPC messages as higher quality than do men, and (b) females

evaluate LPC messages as lower quality than do men.

As previously documented, the gender composition of a dyad can also influence the

processes of support provision and reception. In general, men and women both prefer

engaging in supportive interactions with women (Burleson, Holmstrom, & Gilstrap, 2005;

Holmstrom et al., 2005; Kunkel & Burleson, 1999). In fact, male – male dyads have been

found to yield particularly ineffective social support interactions. Men view interactions

involving a male HPC helper as unrealistic, and they dislike male HPC helpers. People in

male – male dyads downplay the importance of receiving HPC messages, produce fewer

HPC messages, and communicate more LPC messages than other gender combinations.

When paired with another male, men actually endorse avoidant support strategies that

neglect emotions (Burleson et al., 2005). In addition, dyads composed entirely of women

have been found to produce interesting results regarding LPC messages. In particular,

Holmstrom et al. (2005) reported that females rated "masculine" LPC comfort as

especially unsupportive and ineffective. Women actually liked female LPC supporters less

than they liked male supporters even though they conveyed identical messages. Whereas men might not even criticize LPC messages, this support violates feminine behavioral norms and challenges females' basic concept of support provision (Eagly, 1987; Leaper, Carson, Baker, Holliday, & Myers, 1995). Women are expected to be uncomfortable both providing and receiving LPC messages from another female. Thus, the gender composition of a supportive dyad should influence support interactions, as follows:

H7: There is an interaction between level of person-centeredness and the gender composition of a dyad, such that (a) support providers perceive that they produce HPC messages most effectively in female – female dyads, moderately effectively in female – male dyads, and least effectively in male – male dyads, and (b) women perceive they are ineffective at producing LPC messages, especially for a female receiver.

H8: There is an interaction between level of person-centeredness and the gender composition of a dyad, such that (a) third parties perceive the most supportive HPC messages in female – female dyads, moderately supportive HPC messages in female – male dyads, and the least supportive HPC messages in male – male dyads, and (b) third parties perceive the most supportive LPC messages in male – male dyads, moderately supportive LPC messages in female – male dyads, and the least supportive LPC messages in female – female dyads.

H9: There is an interaction between level of person-centeredness and the gender composition of a dyad, such that (a) support receivers evaluate HPC messages as the highest quality in female – female dyads, as moderate quality in female – male dyads, and as the lowest quality in male – male dyads, and (b) support receivers

evaluate LPC messages as the highest quality in male – male dyads, as moderate

quality in female – male dyads, and as the lowest quality in female – female dyads.

The Influence of Communication Channel

Yet, communication channel could influence these patterns such that males benefit

from conducting their support interactions in IM. Specifically, the next set of hypotheses

qualify the predictions of H8, H9, and H9, such that communication channel has a

moderating effect for males but not females. The factors that are likely to be particularly

consequential for men in their traditional FtF supportive interactions, such as anxiety, face

threat, and uncertainty (e.g., Burleson, 2003), may be lessened online. When they interact

via IM, men experience a buffer between themselves and their partners (O'Sullivan, 2000).

This perceptual space should not only shield males from their partners' reactions but also

lend them more time to compose effective supportive messages. Men value this buffer and,

compared to women, are more likely to exploit it by IMing a partner in their same physical

space (Shiu & Lenhart, 2004). By removing some of the complications of the support

process that are especially problematic for men, mediation should enhance males' ability to

enact successful supportive interactions. In this regard, it might be easier for men to

provide HPC comfort to other men in CMC, even though they are often unable to

effectively do so FtF. Whereas females can rely on their heightened support skills to

produce HPC messages, men require the benefits of mediated communication to do so.

Beyond this, I also assert that communication channel influences the evaluation of

LPC support in same-sex dyads. Specifically, LPC support received from a same-sex

partner will be evaluated as lower quality in CMC than FtF. Although men commonly use

LPC comforting messages with each other in FtF conversations (i.e., Eagly, 1987), these

messages are expected to be interpreted less favorably online. In addition, prior research

has found that women exhibit particularly critical evaluations of cold comfort they receive

from another woman, and these criticisms are also likely to be amplified in CMC. The

reason for these effects is that in FtF interactions, the negative perceptions surrounding

LPC messages can be softened through nonverbal immediacy or simply "being there" for

someone (i.e., Dakof & Taylor, 1990; Jones, 2004, 2005). The softening of these otherwise

ineffective messages is less likely to occur in CMC contexts, which necessarily inserts a

buffer between interactants (O'Sullivan, 2000). In other words, online communicators who

receive LPC messages experience fairly insensitive messages without the warmth or

presence of another person to boost their effects. This effect is expected to be particularly

strong in female – female dyads that interact online, given research that concludes that

women are more expressive and involved nonverbal communicators than men (Briton &

Hall, 1995; Hall, 1984). Because women are expected to dislike both LPC support and

mediated contexts for comforting interactions, they are likely to be especially critical of

LPC support they receive from a woman online. This critical evaluation of LPC messages

in CMC is not likely to be realized in cross-sex dyads because of the commonly accepted

stereotypes and sex differences surrounding VPC social support (Burleson et al., 2005;

Kunkel & Burleson, 1999). When women receive LPC support from a male online, they

may simply assume it is the normal or perhaps most effective comfort a man can produce.

Men, on the other hand, have been found to indicate favorable evaluations of VPC support

from female providers in a variety of situations. They are also less critical of LPC support

than are women (Burleson et al., 2005; Kunkel & Burleson, 1999); therefore, men are not

expected to be overly critical of receiving LPC messages from women in mediated interactions. Thus, I propose the following hypotheses:

H10: There is a 3-way interaction between level of person-centeredness, gender composition of a dyad, and communication channel, such that (a) male support providers believe they provide HPC messages to males more effectively in IM than FtF, (b) male support providers believe they provide HPC messages to females more effectively in IM than FtF, and (c) females believe they produce LPC messages to both men and women more positively in FtF than IM interactions.

H11: There is a 3-way interaction between level of person-centeredness, gender composition of a dyad, and communication channel, such that (a) third party observers perceive that male support providers produce more supportive HPC messages for males in IM conversations compared to FtF interactions, (b) third party observers perceive that male support providers produce more supportive HPC messages for females in IM conversations compared to FtF interactions, and (c) third party observers perceive that female support providers produce less supportive LPC messages to female receivers in CMC compared to FtF.

H12: There is a 3-way interaction between level of person-centeredness, gender composition of a dyad, and communication channel, such that (a) the support receivers in male – male dyads evaluate HPC messages as higher quality in IM conversations compared to FtF interactions, (b) the support receivers in male – male dyads evaluate LPC messages as lower quality in IM conversations compared to FtF interactions, (c) the support receivers in male – female dyads evaluate HPC messages as higher quality in IM conversations compared to FtF interactions, and

(d) the support receivers in female – female dyads evaluate LPC messages as lower

quality in IM compared to FtF.

The Influence of POSI

In discussing individual differences relevant to CMC, I reviewed how POSI can both draw people towards mediated channels and influence their communication therein. Because people with a strong POSI normally experience ineffective interpersonal interactions in FtF contexts, these people are expected to devote more effort to mediated conversations. Scholars have previously specified that online interaction enhances feelings of comfort or self-presentational confidence in people with a strong POSI (Caplan, 2003, 2005a). Because these are people who desire support, but are often unable to achieve it FtF, people with high levels of POSI are expected to take advantage of their increased confidence online and become particularly effective CMSS partners. These people should both work harder to produce effective supportive messages and positively evaluate the messages they receive via online interaction. These associations are formalized in the following set of hypotheses:

H13: There is an interaction between communication channel and POSI, such that (a) people with a strong POSI believe they produce all levels of person-centered messages more effectively in IM than FtF interactions, and (b) people with a lower POSI believe they produce all levels of person-centered messages more effectively in FtF interactions than in IM.

H14: There is an interaction between communication channel and POSI, such that (a) third party observers perceive that people with a strong POSI produce more supportive person-centered messages in IM conversations compared to FtF

interactions, and (b) people with a lower POSI produce more supportive person-centered messages in FtF interactions than IM conversations.

H15: There is an interaction between communication channel and POSI, such that (a) support receivers with a strong POSI evaluate all levels of person-centered messages as higher quality in IM than FtF, and (b) support receivers with a lower POSI evaluate all levels of person-centered messages as higher quality in FtF interactions than in IM.

Conclusion

This chapter discussed how the provision of social support in online contexts is a complex and multifaceted process. People's search for the most effective and efficient means to enhance their personal well-being and relational satisfaction is likely to at least occasionally lead them online. The convenience, cost, availability, and resources of CMC compel people to increasingly conduct their interpersonal interactions online. Yet, despite the increasing commonality and potential benefits of CMSS, the study of online social support remains a relatively new topic of scholarly inquiry.

A central issue motivating this chapter is a lack of understanding of how CMC influences people's production and perceptions of social support messages. Rather than considering the rich and varied CMC contexts conducive to social support provision, the majority of research on mediated social support catalogs the content of online support groups (e.g., Davison et al., 2000; Hildingh, Fridlund, & Segesten, 1995; Winzelberg, 1997; Wright; 2000b, 2002; Wright & Bell, 2003). Although not originally conceptualized as an appropriate channel for the enactment of supportive encounters, this relatively contemporary research has documented the ubiquity of social support online. Many of the

common types of support that people experience FtF also exist in CMC, and people are frequently satisfied with the support they receive online. In fact, some scholars have even reported advantages that mediated channels hold over FtF conversations for interpersonal interactions. Accordingly, I concentrated on IM as a relevant channel to compare to FtF settings throughout this dissertation. IM is similar enough to compare to FtF yet distinct enough in important ways to demonstrate how CMC influences the production and interpretation of person-centered messages. The mediated traits of IM channels likely interact with personal characteristics and relational qualities to determine the ultimate efficacy of a support encounter.

Although there is no specific theory dedicated to mediated social support, several interpersonal CMC theories have implications for CMSS. More specifically, this chapter reviewed two paradigms of CMC theory. The cues filtered out theories disparage CMC as a medium of limited, impersonal communication. This paradigm implies that CMC's lack of nonverbal cues necessarily and universally constrains social support and complex interpersonal interaction in mediated contexts. Conversely, cues filtered in theories predict that people can adapt to CMC's deficits and conduct satisfying interactions online. These more contemporary theories posit that people can employ mediated venues to exchange supportive messages that are equivalent to or even more sensitive and effective than the messages they create in FtF conversations. Thus, there is theoretical discord between the cues filtered out and the competing cues filtered in paradigms about the role of mediated contexts in the social support process.

People regularly cite interpersonal functions as the primary reasons they engage in CMC (e.g., Madden & Rainie, 2003). Besides providing a novel context for traditional

forms of interpersonal communication, CMC venues also cause important changes in the

communication process. Whereas traditional notions of social support assume copresence

is a requirement for sensitive comfort, a contemporary conceptualization of CMSS

recognizes that support providers can provide meaningful, sophisticated support messages

when they are separated by space or time. Even more, the anxiety, face threat, and

uncertainty that often plague supportive interactions (e.g., Burleson, 2003) may be

ameliorated online. This chapter culminated in 15 hypotheses deduced from my integration

of research on person-centered social support messages, CMC, and relevant individual

differences stemming from the effects of gender on social support and the effects of POSI

on CMC. In the next chapter, I describe the study I propose to test these hypotheses.

CHAPTER FOUR

The aim of this project was to determine how personal and contextual qualities influence the production and evaluation of person-centered support messages in both FtF and CMC contexts. Because this project focused on both social support message production and reception, I used an interaction-based research design. I wanted to look beyond isolated perceptions of message production or reception to better understand how these processes work together. This dissertation also employed an experimental approach to unpack the effects of person-centeredness, gender, and communication channel. An experimental methodology allowed me to control the variables of interest and assess their influence in relation to other factors.

Method

In this study, two participants reported to the research laboratory at the same time. One participant identified and discussed a personal problem that provided at least moderate levels of personal stress. The other participant was trained to provide either low, moderate, or high levels of person-centered social support. After the support training, the dyads were reunited to engage in an interaction about the participant's stressful topic. These interactions were conducted either FtF or online. Self-report data was collected from both dyad members to assess their perceptions of the interaction. In this way, the perspectives of both the support provider and receiver were jointly considered, and the effects of person-centeredness, communication channel, and gender were examined.

Research Design

The design of this study was a 2 (participant sex) x 2 (experimental role) x 3 (level of person-centered support) x 2 (communication channel) between-subjects design. The

three levels of person-centered support were low, moderate, and high person-centered

messages. The two communication channels were FtF and CMC. The experimental roles

included support providers or support receivers. In total, there were 24 different

experimental conditions. The primary independent variables in this study were the sex of

the support providers and recipients, level of person-centeredness, communication channel,

and preference for online social interaction (POSI). The primary dependent variables

focused on support providers' perceptions of message production, third party observers'

assessments of communicated messages, and support receivers' evaluations of the quality

of the messages they received.

Participants

The sample included 510 participants (52.4% female) from a large eastern

university who received course research credit or extra credit for their participation. The

participants were recruited from communication classes and a research pool that

accompanies an introductory public speaking course. Volunteers for the study were

scheduled to participate in the communication research lab, with two people assigned to

each session. The participants ranged in age from 17 to 33 years old ($M = 20.21$, $SD = $

1.91). The majority of the sample was white (79.2%), but it also included people who were

Asian (13.7%), Black (5.9%), and Hispanic (3.3%).

Procedures

Upon arrival at the research lab, the participants received a general description of

the experiment and were asked to provide informed consent. Before engaging in the

experimental interaction, participants were seated at computers in separate rooms to

complete a variety of self-report measures. The pre-interaction questionnaire measured several personal qualities, including POSI (See Appendix A).

Upon completion of this questionnaire, the participants were randomly assigned to the role of either discloser or support provider. The disclosers were asked to identify a personal problem they were comfortable talking about to obtain social support. I followed slightly modified procedures from published research to identify appropriate conversational topics (i.e., Verhofstadt, Buysse, & Ickes, 2007; Verhofstadt, Buysse, Ickes, Davis, & Devoldre, 2008; Leonard & Roberts, 1998). Specifically, I asked participants to consider personal problems they were currently experiencing or had recently experienced. Personal problems could have been caused by a variety of stressors, including another person, a relationship, or a problematic situation. For example, dealing with work stress, changing a bad habit, and discussing something a person would like to change about him or herself all constituted personal problems in this study (Verhofstadt et al., 2008). If participants were unable to think of a personal problem, research assistants suggested several common problem areas that could prime participants to recognize relevant stressors.

Participants were asked to identify up to 10 personal problems on separate index cards (See Appendix B). After identifying these problems, they were asked to rate the severity of each problem on a 1-100 scale (Leonard & Roberts, 1998; Sillars, Roberts, Leonard, & Dun, 2000). A problem rated 100 was said to be an extremely serious problem that the participant could not stop thinking about. A problem rated a 50 was thought to be a fairly serious issue that participants felt stressed about several times a week. Problems rated a 1 was described as a fairly minor inconvenience that participants rarely worried

about – maybe one or two times a week. Participants were then asked to use a *yes* or *no* scale to indicate whether they were willing to talk about each personal problem with the other research participant.

Research assistants selected the most severe problem that participants were willing to talk about as the focus of the experimental interaction. The personal problems participants indicated they were willing to talk about included topics such as stresses with school or class work, relational issues, uncertainties about post-graduation plans, health problems, trouble speaking English, and personal morals, to name a few. The most common problems selected for discussion were school stress, boyfriend or girlfriend issues, financial concerns, worries about the inability to find employment, and roommate annoyances. The severity scores for the topics that were discussed ranged from 15 to 100 on a 100 point scale ($M = 78.17$, $SD = 18.09$, Mode = 90). Twenty-four people elected to talk about a problem that they rated as a 100. The procedures to which I adhered for problem selection allowed me to obtain moderately distressing problems with high face validity about which participants felt comfortable conversing.

Meanwhile, the other member of each dyad was escorted into another room to complete a social support training session. Support providers were told that their partners were thinking about an issue that is stressful to them. The principal investigator then trained these participants to provide low, medium, or high levels of person-centered comfort. Specifically, the support training session entailed describing each level of person-centeredness along with the qualities of the support provided therein. The principal investigator also provided tips for the ensuing interactions and example messages that fit within the particular level of person-centeredness. After learning their specific support

technique, support providers were told that they would have an opportunity to enact their learned style of social support by comforting their interaction partner during a conversation focusing on the partner's stressor.

Following the procedures of past research (i.e., Jones & Burleson, 2001), participants were trained to provide one of three different levels verbal person-centered (VPC) support. Random assignment yielded equal sample sizes for each condition: low person-centered (LPC; 33.7%), moderately person-centered (MPC; 32.9%), and high person-centered (HPC; 33.3%). Most research that manipulates the provision of VPC support employs confederate support providers; therefore, the training procedures used in this study mirror the training of confederates in published research. The studies consulted for the manipulation of VPC messages indicated that MPC messages are the most common level of VPC in normal comforting interactions. Participants in prior research were told to think of how they would normally comfort a stranger in the MPC condition and were instructed how to adjust their behavior to yield LPC or HPC support as needed (Jones & Burleson, 2003). The same procedures were followed in this study. The levels of person-centeredness included herein correspond with the three main levels of the VPC support hierarchy (Applegate, 1980; Burleson, 1982).

Participants in the LPC condition learned how to provide relatively low quality social support (See Appendix C). For example, they were told to develop messages that minimize and invalidate the participants' feelings, while turning the conversation to their own personal problems. Social support in this condition consisted of messages that encourage the participants to forget about their feelings (e.g., "I think you really just need to get over it."). In addition, support providers assigned to this condition were instructed to

use messages that ignored or minimized their partner's feelings (e.g., "Oh, come on. It's not the end of the world. I'm sure you'll get over this."), explicitly blamed the participants for feeling stressed (e.g., "Well, this really is your problem to figure out."), challenged the actions that people have (or have not) done to fix the problem (e.g., "Well, it doesn't really sound like you've done much to improve this situation, have you?"), or claimed that the distressing situation was meant to happen and that participants should move on with their lives (e.g., "Sometimes things happen and there's nothing we can do about it. Just forget about it."). Furthermore, support providers in the LPC condition were encouraged to divert the conversational focus away from the support recipient and his or her problems to center on the support provider's issues or an unrelated topic (e.g., "Guess what happened to me today at lunch."). Each of these particular strategies provides low person-centered support.

MPC social support represents higher quality and more sophisticated support than the previously described strategies (See Appendix D). Messages in this level of the person-centered hierarchy often recognize and legitimize the feelings of distressed people, but they do not provide them with an opportunity to resolve or improve those feelings. Such messages often come in the form of condolences (e.g., "I'm sorry to hear that."). Questions that clarify the details of the stressor are also commonly found in this level (e.g., "Well, why do you think this bothers you so much?"). Similarly, content-focused prompts that encourage partners to elaborate upon additional details of the situation (e.g., "What happened then?"), as well as content-oriented remarks (e.g., "It's too bad that happened."), express moderate levels of person-centeredness. Support providers in this condition were instructed to express a mild interest in or concern over their distressed partner by paraphrasing the partner's plight (e.g., "Wow, it sucks pretty bad that _____ happened.").

They were also encouraged to invent a distraction to get their partner's mind off of the distressing situation (e.g., "Sometimes when I feel like that, I like to take a night off to forget about things. Why don't you just hang out with friends tonight to make yourself feel better?"). The training provided to participants in this condition focused on MPC social support strategies.

People who were trained to provide HPC social support learned how to provide high quality supportive messages that focus on a partner's emotions (See Appendix E). For example, support providers were trained to express empathy (e.g., "I totally understand. I feel so bad for you."). Similarly, support providers were coached to encourage their partners to talk about their feelings (e.g., "Hey, how are you feeling right now?") and express acceptance of those emotions (e.g., "I don't blame you for feeling that way."). In other words, the HPC support training emphasized the importance of focusing on the normality or propriety of feeling a certain way because of a problem. Support providers also received training on how to reassure the individual that he or she was a good person, despite the problem (e.g., "You seem like a smart person and I'm sure this won't happen again."). The support providers trained in this highest level of person-centeredness obtained information on how to offer alternative interpretations of emotional distress (e.g., "Maybe something good will come of this situation in the long run. Maybe you can try to look on the bright side."). All of these strategies emphasized acceptance and understanding on the part of the support provider and healthy elaboration of a problem for support receivers. After receiving training on how to provide their respective level of person-centered social support, the support providers were given several minutes to ask questions about their assigned level of person-centeredness and to practice creating sample messages.

Once the discloser identified a stressful problem and the support provider was trained to communicate a specific level of VPC support, the dyad was reunited for a conversation. As previously noted, this conversation focused on the most stressful personal problem about which a discloser indicated he or she was willing to talk. Dyads were randomly assigned to interact either FtF or online. Again, random assignment produced equal numbers of dyads interacting in FtF (49.8%) and CMC (50.2%) channels. Participants in the FtF condition sat across a table from one another in the research lab. Although their interactions were videotaped, they were left alone in the room to create a sense of privacy.

The dyads who conversed in the CMC condition were not physically co-present during their interactions. The support recipient sat in front of a computer in the room where he or she performed the problem identification task. The support provider used a computer in the room where he or she underwent the social support training. Conversations occurred via synchronous CMC software (i.e., Google chat or Gchat) similar to common instant messaging programs. The study partners were the only people in the CMC channel, which encouraged a sense of privacy. In this interface, the partners were able to read and reply to each other's comments with little to no time delay. The CMC software automatically kept transcripts of these conversations. Because SIP theory (Walther, 1996) posits that relationships take longer to develop in CMC than FtF, the CMC dyads were allowed to interact for 15 minutes, whereas the FtF dyads were limited to 10 minutes.

Prior to the interaction, I described the focus of the conversation to the participants. Specifically, I explained that the conversations should center on the support receiver's thoughts and feelings about a personal problem. Each dyad received a note card with

prompt questions (e.g., "What is the nature of the problem?" "How does this compare to similar problems you have had?" "How do you feel about the problem?"). I told the dyads that their conversations would last for 10 minutes (or 15 minutes in the CMC condition) and that a research assistant would notify them when time elapsed.

After the conversation, the participants interacting FtF were separated, and all participants completed a final online survey. This survey contained items that assessed people's impressions of their partner and the conversation they just completed. The participants were then debriefed before leaving the study. Specifically, research assistants explained the goals of the study, as well as the style of support the support providers were trained to provide. The researchers clarified that the type of support provided by the support provider did not necessarily reflect the type of support that person would typically communicate nor the type of support the discloser would receive if he or she approached another person with the same problem. All participants were allowed to ask questions until the purpose of the research was understood.

Preference for Online Social Interaction

Prior to the interaction, an online survey assessed a variety of personal qualities relevant to social support and interpersonal communication. Items developed by Caplan (2003) were employed as indicators of POSI (e.g., I prefer communicating with people online rather than face-to-face). Specifically, participants rated the extent to which they agreed with six statements using Likert scales (1 = strongly disagree; 5 = strongly agree). A CFA examining the unidimensionality of these items exhibited excellent model fit, χ^2/df = 1.47, *ns*; AGFI = 0.98; CFI = 0.99; RMSEA = 0.03. A composite variable was created where higher scores indicated a stronger preference for conducting social interactions

online (all participants: $M = 1.98$, $SD = 0.62$, $\alpha = 0.78$; support providers: $M = 1.98$, $SD = 0.63$, $\alpha = 0.78$; support receivers: $M = 1.97$, $SD = 0.60$, $\alpha = 0.77$).

Post-Interaction Measures

After their conversations, all participants were asked to complete another computer-based survey. The items on this survey assessed people's perceptions of their partner and the communication that occurred during their interaction. Support providers (See Appendix F) and receivers (See Appendix G) completed slightly different post-interaction surveys.

Self-presentational confidence. Self-presentational confidence refers to how comfortable people feel when communicating an impression of themselves in interpersonal interactions. I conceptualized it as a communicative state that differs between interactions. Participants completed 10 items (e.g., "I felt confident about the way I communicated during this conversation") using five-point Likert scales (1 = strongly disagree; 5 = strongly agree) to indicate how much they agreed or disagreed with each statement. This scale has been found to exhibit acceptable reliability and unidimensionality in a previous unpublished study (High, 2006). I conducted a CFA to examine the unidimensionality of the self-presentational confidence items, $\chi^2/df = 2.12$, $p < 0.05$; AGFI = 0.97; CFI = 0.99; RMSEA = 0.05. Because both providers and receivers were queried about their presentational confidence during the conversations, I also conducted separate CFAs for support providers, $\chi^2/df = 2.02$, $p < 0.05$; AGFI = 0.95; CFI = 0.99; RMSEA = 0.06, and receivers, $\chi^2/df = 1.34$, *ns*; AGFI = 0.96; CFI = 0.99; RMSEA = 0.04; both models exhibited acceptable fit. A composite self-presentational confidence variable was created where higher scores indicated greater self-presentational confidence (all participants: $M = $

3.59, $SD = 0.62$, $\alpha = 0.90$; support providers: $M = 3.53$, $SD = 0.67$, $\alpha = 0.91$; support

receivers: $M = 3.64$, $SD = 0.67$, $\alpha = 0.89$).

Support providers' ease of message production. Ten items were created to measure

support providers' perceived ease of support message production (e.g., "I had no problem

producing the messages I was trained to provide"). This measure served as a second

operationalization of support providers' perceived efficacy of communicating the messages

they were trained to provide. Participants responded to these items using 5-point Likert

scales (1 = strongly disagree; 5 = strongly agree), and higher scores indicated that support

providers had an easier time producing the level of VPC they were trained to provide. A

CFA investigated the dimensionality of this measure, and the items displayed acceptable

model fit, $\chi^2/df = 2.83$, $p < 0.01$; AGFI = 0.91; CFI = 0.97; RMSEA = 0.09. Hence, a

composite perceived ease of message production variable was created ($M = 3.53$, $SD =$

0.76, $\alpha = 0.92$).

Perceptions of support quality. Ten items assessed participants' evaluations of the

quality of the social support communicated during the conversations. A similar set of

questions was posed to support providers and receivers to measure both people's

perceptions of message quality (e.g., "the conversation helped my partner feel better about

his or her problem" for support providers, and "the conversation helped me feel better

about my problem" for support receivers). Participants completed these questions using

Likert-type scales (1 = not at all; 5 = completely) where higher scores indicated greater

support quality. The answers from support providers served as a third operationalization of

their perceived communicative efficacy. The responses from the receivers were used as an

index of received message quality. A CFA was conducted to examine the dimensionality

of these items, which produced χ^2/df values that are higher than desired. With this caveat in

mind, the remaining fit indices displayed acceptable model fit, χ^2/df = 5.23, $p < 0.01$;

AGFI = 0.91; CFI = 0.98; RMSEA = 0.09. I also conducted separate CFAs to assess model

fit for both providers, χ^2/df = 3.74, $p < 0.01$; AGFI = 0.85; CFI = 0.96; RMSEA = 0.11,

and receivers, χ^2/df = 5.78, $p < 0.01$; AGFI = 0.77; CFI = 0.94; RMSEA = 0.14. A

composite variable was created to reflect participants' perceptions of the quality of the

support that was communicated (all participants: M = 3.28, SD = 0.82, α = 0.95; support

providers: M = 3.26, SD = 0.80, α = 0.95; support receivers: M = 3.29, SD = 0.84, α =

0.96).

Partner's conversational propriety. Participants responded to modified items

assessing conversational appropriateness from Canary and Spitzberg's (1987) interpersonal

communication competence scale. These items measured the degree to which people

believed the support communicated in their conversations fulfilled their expectations and

provided social rewards (e.g., "everything my partner said was appropriate"). These items

were employed as a second assessment of support receivers' perceptions of message

quality. Participants responded to 20 items with Likert scales (1 = strongly disagree; 5 =

strongly agree) where higher scores signified more appropriate support. A CFA was

conducted to verify the unidimensionality of these items, and these items displayed

acceptable model fit, χ^2/df = 2.31, $p < 0.01$; AGFI = 0.92; CFI = 0.97; RMSEA = 0.05. I

also conducted separate CFAs for support providers, χ^2/df = 2.29, $p < 0.01$; AGFI = 0.86;

CFI = 0.94; RMSEA = 0.0, and receivers, χ^2/df = 1.81, $p < 0.01$; AGFI = 0.88; CFI = 0.96;

RMSEA = 0.06. Both of these models displayed good model fit. I created a composite

variable that represented participants' perceptions of the propriety of the support

communicated in their conversations (all participants: $M = 4.16$, $SD = 0.54$, $\alpha = 0.94$;

support providers: $M = 4.18$, $SD = 0.48$, $\alpha = 0.92$; support receivers: $M = 4.14$, $SD = 0.60$,

$\alpha = 0.95$).

Perceived sensitivity. The study participants were asked to rate the sensitivity of

their partner's communication during the conversation. Specifically, I employed two items

(i.e., "he/she communicated in a sensitive manner," "he/she seemed sensitive") that were

measured on 5-point Likert scales (1 = strongly disagree; 5 = strongly agree); higher scores

indicated more sensitive social support. These items displayed a strong linear relationship

with one another ($r = 0.61$, $p < 0.01$) and were combined to create a perceived sensitivity

variable (All participants: $M = 3.63$, $SD = 0.80$; Support providers: $M = 3.58$, $SD = 0.72$;

Support receivers: $M = 3.68$, $SD = 0.86$).

Conversational realism. Five items measured how realistic participants perceived

their conversations to be (e.g., "our conversation was realistic"). Respondents completed

these questions using Likert scales (1 = strongly disagree; 5 = strongly agree) where higher

scores indicated more realistic comforting interactions. The realism items were examined

with a CFA to evaluate their unidimensionality, and although the χ^2/df score is higher than

desired, the other fit indices indicated acceptable model fit, χ^2/df = 6.02, $p < 0.01$; AGFI =

0.94; CFI = 0.99; RMSEA = 0.10. Support providers and receivers both completed a

similar set of items to measure message realism; therefore, I also conducted separate CFAs

for providers, χ^2/df = 7.84, $p < 0.01$; AGFI = 0.80; CFI = 0.96; RMSEA = 0.17, and

receivers, χ^2/df = 4.83, $p < 0.01$; AGFI = 0.90; CFI = 0.97; RMSEA = 0.13. The separate

models did not meet conventional model fit statistics. With this caveat noted, I created a

composite realism variable to serve as a covariate in this study (all participants: $M = 3.36$,

SD = 0.88, α = 0.90; support providers: *M* = 3.36, *SD* = 0.92, α = 0.90; support receivers:

M = 3.35, *SD* = 0.85, α = 0.89).

Rated Measures

Because several hypotheses in this study focus on third party observations of the

conversations, I employed research assistants to rate the conversational content. Six

undergraduate research assistants independently rated the perceived levels of person-

centeredness, sensitivity, and supportiveness of the comforting conversations in this study.

The raters were provided with transcripts of the CMC conversations, videos of the FtF

interactions, and a coding manual (See Appendix H) to assist their coding. I educated the

raters about the concepts and theory behind the notion of person-centeredness in the social

support literature. As a group, we also discussed qualities that make social support

messages more or less sensitive and supportive. The observers rated approximately 15% of

the total number of conversations as practice before they began weekly coding tasks. The

practice coding was intended to familiarize the observers with rating person-centeredness,

sensitivity, and supportiveness and to develop decision rules to guide their subsequent

coding decisions. The raters also met weekly as a group to review the prior week's ratings,

clarify decision rules, and discuss any particularly difficult judgments from the previous

week's assignment. All raters were kept blind to the specific experimental condition they

were coding.

To explain the rating task, raters were given a description that read:

Our goal is to rate how person-centered, sensitive, and supportive you think these

conversations are. Social support involves communication (both verbal and

nonverbal) that is intended to make a distressed individual feel cared for by others.

Further, social support includes verbal messages that are intended to alleviate or

lessen the emotional distress of others. Supportive or comforting statements can

also agree with a person's feelings, statements, or thoughts; provide information or

resources to help a person deal with a problem; offer to do things to help; bolster a

person's self-esteem; or supply positive evidence to 'back up' a distressed person's

statements or feelings. Social support may even involve disagreeing when a person

expresses negative opinions or feelings about him or herself.

Raters were also informed that supportive cues can include agreeing with a participant's

positive statements, disagreeing if a participant expresses negative feelings about him or

herself, and providing evidence of favorable traits witnessed in the past. I employed items

used in prior research (i.e., Jones & Guerrero, 2001) to rate the dyadic conversations in this

study. More specifically, raters employed five, 7-point semantic differential scales that

were verified in published research to identify fundamental features of person-centered

social support (i.e., self-centered vs. other-centered, invalidates vs. validates, judges vs.

empathizes, disregards vs. acknowledges, and unconcerned vs. concerned). The raters also

provided their ratings on five, 7-point semantic differential scales that are unique to this

study (not at all supportive or neutral vs. extremely supportive, insensitive vs. sensitive,

ineffective vs. effective, ignores emotions vs. emotion-focused, very LPC vs. very HPC).

To calculate coding reliability, I computed the intraclass correlation coefficient (ρ)

for the 10 ratings made by the raters: message centeredness ($\rho = 0.91$), validation ($\rho =$

0.93), judging ($\rho = 0.92$), acknowledgment ($\rho = 0.93$), concern ($\rho = 0.93$), emotions ($\rho =$

0.92), level of VPC ($\rho = 0.93$), supportiveness ($\rho = 0.93$), sensitivity ($\rho = 0.93$), and

effectiveness ($\rho = 0.92$). These ρ coefficients reveal that the six research assistants reliably performed all 10 ratings.

As a preliminary step, I examined the correlations among the rated items (See Table 1). As can be seen from Table 1, all 10 items exhibited very strong, positive correlations with each other. To assess the extent to which these items distinctly measured level of VPC, sensitivity, and supportiveness, I conducted three separate CFAs that evaluated three competing models. I first grouped each rating into the person-centeredness, sensitivity, or supportiveness category based on the content of the items. The first CFA model contained perceived person-centeredness, sensitivity, and supportiveness as first-order factors that predicted the 10 aggregated ratings, $\chi^2/df = 7.24$, $p < 0.01$; AGFI $= 0.71$; CFI $= 0.97$; RMSEA $= 0.15$; AIC $= 277.77$. I also tested a model in which the 10 ratings were predicted by two first-order factors focusing on sensitivity and supportiveness, $\chi^2/df = 8.34$, $p < 0.01$; AGFI $= 0.66$; CFI $= 0.97$; RMSEA $= 0.17$; AIC $= 325.56$. A final model included a single factor of comforting quality that predicted all 10 ratings, $\chi^2/df = 8.24$, $p < 0.01$; AGFI $= 0.67$; CFI $= 0.97$; RMSEA $= 0.17$; AIC $= 328.53$. Because none of the models clearly met established criteria for model fit, I compared their respective fit statistics. The Akaike information criterion (AIC), which is used to test competing models, was especially informative. Lower scores on the AIC indicate better model fit. I also ran a χ^2 difference test between the 3-factor model and the single factor model. The difference in χ^2 between the three factor model ($\chi^2 = 231.77$, df $= 32$) and the single factor model ($\chi^2 = 288.53$, df $= 35$) was 56.76 with 3 degrees of freedom. This value was significant at $p < 0.0001$. After inspecting the model fit statistics, particularly the χ^2/df and AIC scores, and the results of the χ^2 difference test, I decided to employ the three factor model in the

substantive analyses. Thus, the hypotheses focusing on observer perceptions of the interactions were tested using composite variables focusing on observers' perceptions of person-centeredness ($M = 4.34$, $SD = 1.42$), sensitivity ($M = 4.08$, $SD = 1.55$), and supportiveness ($M = 4.12$, $SD = 1.54$).

Analyses

The measures used in this dissertation were collected from support providers and receivers who were put into a dyad to interact with one another; therefore, the data from partners are interdependent. More specifically, this study contains mixed independent variables that vary both between and within dyads. Between-dyad variation is characterized by variation in the dyad means; within-dyad variation is caused by variation from person to person within each dyad (Kenny, Kashy, & Cook, 2006). To address dependence in the data due to people being nested within dyads, the substantive analyses in this study treat the dyad as the unit of analysis.

The data in this study were analyzed using two main statistical techniques. The first 12 hypotheses were analyzed using analysis of variance (ANOVA) and the final three hypotheses were analyzed using a linear regression model. I performed all statistical analyses using the Statistical Package for the Social Sciences (SPSS).

The full ANOVA model for this study is a 2 (sex of the support provider) x 2 (sex of the support receiver) x 2 (communication channel) x 3 (level of person-centeredness) between-subjects model. The general dependent variables are the support providers' self-perceived effectiveness of message production, third party ratings of message supportiveness, and the support receivers' judgments of message quality. The full model includes the variables needed to test the first 12 hypotheses in this study.

H1 through H3 were evaluated by examining the effects of communication channel, level of person-centeredness, and any relevant interactions. Specifically, the test of H1a, H2a, and H3a was provided by the main effect of communication channel on support providers' self-perceived effectiveness of message production, third party ratings of message supportiveness, and support receivers' judgments of message quality, respectively. H1b, H2b, and H3b focused on the interaction between level of person-centeredness and communication channel predicting the same set of dependent variables. H1c, H2c, and H3c was tested by the main effect of communication channel on support providers', third party observers', and support receivers' perceptions of the conversations.

H4 through H9 all specified interactions between gender and level of person-centeredness; therefore, evaluations of these hypotheses focused on support provider's sex, support receiver's sex, and level of person-centeredness as independent variables. Whereas H4, H5, and H6 made predictions independent of a conversational partner, H7, H8, and H9 qualified these predictions by including the gender composition of the conversational dyad. Hence, tests of H4 through H9 focused on the interactions among support provider sex, support receiver sex, and level of person-centeredness as predictors of the three categories of dependent variables.

H10, H11, and H12 specified 3-way interactions between level of person-centeredness, the gender composition of a dyad, and communication channel. The interactions among these variables were examined as predictors of support providers' self-perceived effectiveness of message production, third party ratings of message supportiveness, and support receivers' judgments of message quality.

The final set of hypotheses, H13, H14, and H15, predicted interactions between communication channel and POSI. These hypotheses were tested with a regression model that included a continuous POSI variable, a dummy-coded variable representing communication channel (FtF = 0; CMC = 1), and a product term that represented the interaction between these variables. The regression models also included variables that were related to the dependent variables, as indicated by the ANOVAs. These regression models were evaluated with respect to the same dependent variables that were analyzed for H1 – H12.

CHAPTER FIVE

Preliminary Analyses

Before testing the hypotheses, I performed several preliminary analyses. To begin, I examined the correlations among the continuous variables in this study (See Table 2). I began by using scores for all participants, which did not distinguish between support provider and receiver roles, to understand the general associations among the variables. This analysis revealed several significant correlations. Specifically, self-presentational confidence, ease of message production, sensitivity, support quality, appropriateness, and realism all exhibited positive and significant associations with each other. Of all the possible correlations within this set of variables, only the relationship between ease of message production and sensitivity was not statistically significant. POSI, on the other hand, only exhibited a single significant negative correlation with appropriateness.

I also computed the correlations between the support providers' and receivers' scores to assess the amount of interdependence between partners' perceptions of the interaction they completed together (See Table 3). Support providers' perceptions of self-presentational confidence, ease of message production, support quality, and conversational realism were all positively and significantly associated with receivers' scores on self-presentational confidence, support quality, appropriateness, sensitivity, and conversational realism. Support providers' views on conversational propriety were positively associated with receivers' self-presentational confidence and perceived conversational sensitivity, but not with receivers' beliefs about support quality or realism. The diagonal in Table 3 reports the correlation between identical variables for support providers and receivers. According to Cohen's (1988) effect size labels, there were fairly small correlations between partners'

perceptions of conversational appropriateness and sensitivity. The correlations between partners' scores for self-presentational confidence and conversational realism exhibited medium range effects, and their association for support quality displayed a fairly strong effect (Cohen, 1988).

I next examined how the variables relevant to the substantive analyses varied according to the dichotomous variables included in the research design: participant sex and communication channel. First, I conducted independent samples t-tests with participant sex as the grouping variable and the relevant self-report variables as test variables using an individual-level data set; therefore, this analysis does not distinguish between who provided and received support (Table 4). This analysis revealed significant sex differences for self-presentational confidence and support quality. Men possessed higher levels of presentational confidence during their interactions than females did. Men also thought the support messages conveyed in this study were generally higher quality than females did. Second, I conducted an independent samples t-test to compare CMC and FtF communication channels (See Table 5). This analysis produced only one significant effect for communication channel, such that participants reported more self-presentational confidence FtF than in CMC.

I next appraised the manipulation of verbal person-centeredness (VPC) with respect to the evaluations provided by third party observers. I ran a one-way ANOVA with the ratings of person-centeredness, sensitivity, and supportiveness as the dependent variables and the 3-level VPC variable as the factor. I found a significant effect for level of VPC on the rated variables of person-centeredness, $F(2, 253) = 160.05$, $p < 0.001$, sensitivity, $F(2, 253) = 210.60$, $p < 0.001$, and supportiveness, $F(2, 253) = 184.37$, $p < 0.001$. Bonferroni

post-hoc tests verified that the VPC manipulation produced significant differences among LPC, MPC, and HPC conditions for all three dependent variables (See Table 6). In other words, the manipulation produced noticeable differences between all three levels of person-centeredness for the third party observers, and those patterns aligned with the experimental manipulation. Accordingly, the hypotheses analyzing the rated dependent variables are evaluated using a 3-level VPC variable.

I performed a similar analysis to test whether the manipulation of VPC also produced three distinguishable levels of person-centeredness for the participants. I ran a one-way ANOVA on the relevant dependent variables with the 3-level VPC variable as the comparison factor (See Table 6). In all cases, the ANOVA results displayed statistically significant results. In other words, people's conversational perceptions varied depending on their assignment to a particular level of VPC support. Bonferroni post-hoc tests indicated that the LPC condition was significantly different from the MPC and HPC conditions for all variables. In contrast, the MPC and HPC conditions were not significantly different from each other for any of the participant-level outcomes measured in this study. These results suggest that the support training procedures I employed produced two distinguishable levels of person-centeredness for the study participants: low person-centeredness and medium to high person-centeredness. Whereas the VPC manipulation resulted in three distinguishable levels of VPC support for third party observers, it only produced two perceptible levels of VPC comfort for the participants. Thus, the MPC and HPC levels were combined to form a single VPC condition ($N = 169$). From this point forward, the VPC variable included in the analyses examining support

provider and receiver hypotheses will be described as distinguishing LPC and HPC content. This formulation is also consistent with the wording of the hypotheses.

I also wanted to examine whether random assignment was effective in distributing levels of POSI across the manipulated factors. Specifically, I conducted a 2 (sex) x 2 (channel) x 2 (experimental role) x 3 (level of VPC) between-subjects ANOVA to investigate the distribution of POSI scores (See Table 7). Although a 2-level VPC variable is used in several of the substantive analyses, I employed the 3-level VPC factor in this analysis because participants were randomly assigned into three levels of VPC support training. The main effects for respondent sex, F (2, 485) = 1.25, ns, communication channel, F (1, 485) = 3.45, ns, experimental role, F (1, 485) = 0.09, ns, and level of VPC, F (2, 485) = 1.52, ns, were not statistically significant. This analysis did, however, reveal a significant 2-way interaction between experimental role and communication channel, F (1, 485) = 4.36, p <0.05. An examination of the means revealed that the biggest difference in POSI scores occurred between the support receivers in FtF (POSI M = 1.86, SD =0.05) and CMC (POSI M = 2.08, SD =0.05) channels. The support providers exhibited similar POSI scores across both FtF (M = 1.99, SD =0.05) and CMC (M = 1.95, SD =0.10) channels. From these results, I concluded that POSI scores were largely equivalent across experimental conditions.

I next evaluated the extent to which this study's research design was perceived as valid by the participants by examining their scores for conversational realism. There was a moderate positive correlation between support providers' and receivers' perceptions of realism (r = 0.31, p < 0.01); therefore, I considered the dyadic aggregated realism score, as well as realism ratings reported by individuals. Specifically, I compared the participants'

realism scores to the midpoint of the realism scale. I conducted one-sample t-tests with 3

(i.e., the midpoint on a 5-point scale) as the test value to assess support providers'

perceptions of realism, receivers' perceptions of realism, and a composite dyadic realism

variable that averaged the provider and receiver scores into a single variable. These scores

were all significantly above the scale midpoint: providers ($M = 3.36$, $SD = 0.92$), t (252) =

6.24, $p < 0.001$; receivers ($M = 3.35$, $SD = 0.85$), t (253) = 6.56, $p < 0.001$; combined

realism ($M = 3.35$, $SD = 0.72$), t (253) = 7.89 $p < 0.001$. These results indicate that both

support providers and receivers perceived their interactions to be relatively realistic.

I conducted a final preliminary analysis on the realism variables to determine

whether participants' realism scores varied by experimental condition. I constructed a 2

(participant sex) x 2 (experimental role) x 2 (communication channel) x 3 (level of VPC)

between-subjects ANOVA model and evaluated support providers' realism, support

receivers' realism, and dyadic realism as dependent variables. In the support provider's

model, I observed a significant main effect for person-centeredness, F (2, 228) = 14.72, $p <$

0.001, which was subsumed by a significant provider sex by VPC interaction, F (2, 228) =

4.01, $p < 0.05$. The same main effect and interaction were also observed for the support

receivers' realism scores, VPC, F (2, 229) = 6.16, $p < 0.001$; provider sex x VPC, F (2,

229) = 3.48, $p < 0.05$, and the combined realism variable, VPC, F (2, 229) = 18.84, $p <$

0.001; provider sex x VPC, F (2, 229) = 2.56, $p < 0.01$. Table 8 displays the means for the

realism variables by the provider sex and VPC interaction. In all cases, interactions in the

HPC condition were perceived as more realistic. The significant interaction reflects the

tendency for males assigned to the LPC condition to perceive such interactions as more

realistic than females assigned to the LPC condition. This finding is not surprising given

that LPC messages are commonly thought to represent masculine comfort (Kunkel &

Burleson, 1999), and that females exhibit particularly critical evaluations of LPC support

(Holmstrom, Burleson, & Jones, 2005).

<div align="center">Substantive Analyses</div>

The majority of the substantive analyses were analyzed according to the ANOVA

models described at the conclusion of the previous chapter. Specifically, I ran three

separate sets of ANOVA models for each hypothesis focusing on variables from (a)

support providers, (b) third party observers, and (c) support receivers. Other hypotheses

were evaluated through t-tests, and the hypotheses involving POSI were tested using

regression models. Although the tests of the majority of the hypotheses are subsumed

within the full ANOVA model, I report them in piecemeal fashion for ease of

interpretation.

H1a predicted that support providers believe they produce all levels of VPC

messages more effectively in FtF interactions than CMC interactions. This hypothesis was

evaluated with a t-test that compared support providers' perceptions of message efficacy

across communication channels. There were no significant differences between providers'

ratings of self-presentational confidence, $t(252) = 0.75$, ns, between FtF ($M = 3.56$, $SD = $

0.66) and CMC ($M = 3.50$, $SD = 0.68$) channels. Similarly, there were no significant

differences between providers' perceptions of the quality of the support they provided, t

$(252) = -0.38$, ns, between FtF ($M = 3.24$, $SD = 0.80$) and CMC ($M = 3.28$, $SD = 0.79$)

channels. There was, however, a significant difference between providers' perceptions of

the ease of support message production, $t(252) = -2.27$, $p < 0.05$, between FtF ($M = 3.37$,

$SD = 0.80$) and CMC ($M = 3.59$, $SD = 0.74$) channels. The means run counter to the

predictions of H1a, and reveal that support providers reported greater ease producing the support messages they were trained to provide in CMC compared to FtF interactions. Thus, H1a was not supported.

H1b posited an interaction between the 2-level VPC variable and communication channel, such that support providers in the HPC condition perceive they produce messages more effectively FtF than in CMC, and support providers in the LPC condition perceive they produce messages more effectively in CMC than FtF. This prediction was evaluated by examining the interaction between level of VPC and communication channel predicting support providers' perceptions of message production in a 2-way ANOVA. The ANOVA results for self-presentational confidence, $F(1, 237) = 0.75$, ns, ease of message production, $F(1, 237) = 0.50$, ns, and perceptions of support quality, $F(1, 237) = 0.00$, ns, were not statistically significant. H1b was not supported.

H1c predicted that support providers perceive they produce all levels of VPC messages more effectively in CMC interactions than in FtF encounters. Because this hypothesis directly opposes H1a, it was tested by those same t-tests. As previously stated, support providers felt it was easier to produce the messages they were trained to provide in CMC interactions than FtF conversations. Thus, H1c was supported for support providers' perceptions of the ease of message production.

H2a asserted that support providers are perceived by third party observers to be more supportive FtF than online. This prediction was evaluated with a series of t-tests that compared the raters' perceptions of the conversations across communication channels. The results of this analysis indicated a statistically significant difference in observers' ratings of the level of person-centeredness, $t(252) = -3.67$, $p < 0.001$, perceived sensitivity, $t(252) =$

-2.65, $p < 0.01$, and perceived supportiveness, $t(252) = -3.06$, $p < 0.01$ between channels.

Specifically, the raters believed the conversations exhibited a higher level of person-centeredness in CMC ($M = 4.66$, $SD = 1.44$) than FtF ($M = 4.02$, $SD = 1.34$). Similarly, the conversations were perceived to be more sensitive online ($M = 4.33$, $SD = 1.61$) than FtF ($M = 3.82$, $SD = 1.43$) and more supportive online ($M = 4.41$, $SD = 1.60$) than FtF ($M = 3.83$, $SD = 1.43$). These means run counter to H2a, which was therefore not supported.

H2b predicted an interaction between the 3-level VPC variable and communication channel, such that third party observers perceive more supportive messages in the HPC condition in FtF interactions than in CMC conversations and more supportive messages in the LPC condition in CMC compared to FtF. Similar to H1b, this hypothesis was evaluated by examining the interaction between level of VPC and communication channel in a series of 2-way ANOVA models. This interaction was not significant in the model predicting the rated level of person-centeredness, $F(2, 229) = 1.62$, ns. Conversely, this interaction was statistically significant for observers' perceptions of conversational sensitivity, $F(2, 229) = 4.31$, $p < 0.05$, and supportiveness, $F(2, 229) = 3.72$, $p < 0.05$. An examination of the means for both sensitivity and supportiveness (See Table 9) revealed that messages produced by participants assigned to the HPC condition were rated as more sensitive and supportive online than FtF; this pattern is contrary to H2b. The observers tended to rate messages produced by participants assigned to the LPC condition as more sensitive and supportive in CMC than FtF; however, the confidence intervals surrounding these means exhibited substantial overlap. Thus, H2b was partially supported by observers' varying perceptions (i.e., sensitivity and supportiveness) of conversations in the LPC condition that

occurred in CMC and FtF channels. More generally, CMC interactions tended to be judged as more supportive than FtF conversations, irrespective of the VPC condition.

H2c posited that support providers are perceived by third party observers to be more supportive in CMC interactions than FtF conversations. Because this hypothesis opposes H2a, its support is taken from the *t*-tests described earlier. As previously stated in the results of H2a, there were significant differences in the rated levels of person-centeredness, sensitivity, and supportiveness between FtF and CMC channels. The CMC conversations were perceived to be more person-centered, sensitive, and supportive than the FtF interactions. Thus, H2c was supported.

H3a predicted that support receivers perceive VPC messages to be higher quality FtF than in CMC interactions. This hypothesis was evaluated using a series of *t*-tests that contrasted receivers' ratings of conversational quality between communication channels. These results revealed no significant differences in support receivers' perceptions of appropriateness, $t(252) = 0.73$, *ns*, between FtF ($M = 4.17$, $SD = 0.54$) and CMC ($M = 4.12$, $SD = 0.65$) channels. There were also no significant differences in receivers' evaluations of support quality, $t(252) = 0.61$, *ns*, between channels (FtF: $M = 3.33$, $SD = 0.80$; CMC: $M = 3.26$ $SD = 0.88$). Similarly, support receivers' did not evaluate the sensitivity of the conversations differently, $t(252) = -0.30$, *ns*, between FtF ($M = 3.66$, $SD = 0.76$) and CMC ($M = 3.69$, $SD = 0.95$) channels. H3a was not supported.

H3b specified an interaction between the 2-level VPC variable and communication channel, such that support receivers assigned to the HPC condition evaluate messages to be higher quality FtF than in CMC and support receivers assigned to the LPC condition evaluate messages to be higher quality online than FtF. The ANOVA results for receivers'

perceptions of conversational appropriateness, F (1, 237) = 0.45, *ns,* and support quality, F (1, 237) = 3.43, *ns,* were not statistically significant. Conversely, the results for receivers' perceptions of conversational sensitivity indicated a significant interaction between VPC condition and communication channel, F (1, 237) = 6.72, $p < 0.01$. Inspection of the means revealed that participants in the HPC condition tended to perceive messages to be more sensitive in CMC (*M* = 4.04, *SD* = 0.08, 95% C.I. = 3.88, 4.20) than FtF (*M* = 3.86, *SD* = 0.08, 95% C.I. = 3.70, 4.02); however, there is substantial overlap in the confidence intervals for these means. Support receivers in the LPC condition also perceived messages to be more sensitive FtF (*M* = 3.26, *SD* = 0.11, 95% C.I. = 3.04, 3.48) than in CMC (*M* = 2.94, *SD* = 0.11, 95% C.I. = 2.72, 3.16), but these confidence intervals also overlapped. In sum, H3b was not supported.

H3c asserted that support receivers evaluate all VPC messages to be higher quality in CMC than FtF interactions. Because this hypothesis directly contrasts H3a, the results were tested by those same *t*-tests. As reported in the results of H3a, support receivers' evaluations of conversational quality did not differ by communication channel. Thus, H3c was not supported.

H4 specified an interaction between support providers' sex and the 2-level VPC variable, such than women perceive they produce messages in the HPC condition more effectively than men and messages in the LPC condition less effectively than men. I observed a significant interaction between sex and VPC condition predicting providers' perceptions of self-presentational confidence, F (1, 237) = 8.84, $p < 0.01$, ease of message production, F (1, 237) = 7.51, $p < 0.01$, and the quality of the support they provided, F (1, 237) = 16.26, $p < 0.001$. Examination of the means (See Table 10) suggests that men and

women evaluated their ability to produce messages in the HPC condition similarly. In addition, both males and females tended to evaluate their ability to produce messages in the LPC condition less favorably. This difference, however, was greater for female providers relative to males. In all cases, females' evaluated their success producing messages in the LPC condition significantly less favorably than their production of messages in the HPC condition. Moreover, females' perceptions of their self-presentational confidence and the quality of the support they provided in the LPC condition were significantly lower than men's scores on these variables. Thus, H4 was largely supported.

H5 hypothesized an interaction between support provider sex and the 3-level VPC variable, such that third party observers perceive females assigned to the HPC condition to produce more supportive messages and females assigned to the LPC condition to produce less supportive messages, relative to men assigned to the same conditions. This prediction was evaluated by examining the interaction between support provider sex and VPC condition predicting the observers' perceptions of support quality. This interaction was statistically significant for rated person-centeredness, $F(2, 229) = 7.37$, $p < 0.001$, sensitivity, $F(2, 229) = 6.46$, $p < 0.01$, and supportiveness, $F(2, 229) = 7.76$, $p < 0.001$. Examination of these means (See Table 11) indicates that raters observed female support providers in the HPC condition to communicate messages that are more person-centered, sensitive, and supportive than the messages produced by men in the same condition. Additionally, messages from females in the LPC condition were rated as less person-centered, sensitive, and supportive than the messages men communicated in the same condition; however, the confidence intervals surrounding these means overlapped. These patterns are consistent with H5.

H6 predicted an interaction between support receivers' sex and the 3-level VPC variable, such that women evaluate messages in the HPC condition to be higher quality and messages in the LPC condition to be lower quality than do men. There was no significant interaction between receiver sex and level of VPC predicting sensitivity, $F (1, 237) = 2.98$, *ns*; however, this interaction was significant for receivers' perceptions of conversational appropriateness, $F (1, 237) = 5.42$, $p < 0.05$, and support quality, $F (1, 237) = 8.21$, $p < 0.01$. The means for these variables (Table 12) indicate that males and females in the HPC condition evaluated support similarly and judged the interactions more favorably than people in the LPC condition. On the other hand, female receivers in the LPC condition perceived the messages to be significantly less appropriate and lower quality than men did. Thus, H6 received some support.

H7 posited a 3-way interaction among the 2-level VPC variable, sex of the support provider, and sex of the support receiver, such that support providers assigned to the HPC condition perceive they produce messages most effectively in female – female dyads, moderately effectively in female – male dyads, and least effectively in male – male dyads. H7 also predicted that women perceive themselves to be ineffective at providing support in the LPC condition, especially to female support receivers. The interaction between support provider sex, receiver sex, and level of VPC was statistically significant for neither support providers' self-presentational confidence, $F (1, 237) = 0.03$, *ns*, nor perceptions of support quality, $F (1, 237) = 0.07$, *ns*. This interaction was statistically significant, however, for support providers' ease of message production, $F (1, 237) = 3.67$, $p < 0.05$. An examination of the means revealed partial support for H7 (Table 13). Specifically, female support providers assigned to the HPC condition believed they produced messages most

effectively for female receivers. Rather than support providers in male – male dyads experiencing the most difficulty producing messages in the HPC condition, male providers in this condition unexpectedly had the most difficulty providing support for female receivers. As predicted by H7, females trained to provide LPC support had a particularly difficult time producing messages for female receivers. In the LPC condition, males believed it was easier to support a female than females did. Of all the dyadic combinations, support providers in female – female dyads had the most difficulty producing messages in the LPC condition and the easiest time producing messages in the HPC condition. Hence, H7 was largely supported.

H8 predicted a 3-way interaction among the 3-level VPC variable, sex of the support provider, and sex of the support receiver. In the HPC condition, third party observers were expected to perceive the most supportive messages in female – female dyads, moderately supportive messages in female – male dyads, and the least supportive messages in male – male. H8 also predicted that raters would observe the most supportive messages in male – male dyads, moderately supportive messages in female – male dyads, and the least supportive messages in female – female dyads among participants assigned to the LPC condition. The 3-way interaction among provider sex, receiver sex, and level of VPC was not significant for any of the rated variables: person-centeredness, F (2, 229) = 1.06, ns; sensitivity, F (2, 229) = 0.78, ns; supportiveness, F (2, 229) = 0.74, ns. Thus, H8 was not supported.

H9 predicted a 3-way interaction among provider sex, receiver sex, and VPC condition, such that support receivers in the HPC condition evaluate messages as the highest quality in female – female dyads, as moderate quality in female – male dyads, and

as the lowest quality in male – male dyads. Support receivers in the LPC condition were also expected to evaluate messages as the highest quality in male – male dyads, as moderate quality in female – male dyads, and as the lowest quality in female – female dyads. This 3-way interaction was not significant for receivers' perceptions of conversational appropriateness, $F(1, 237) = 1.77$, *ns*, support quality, $F(1, 237) = 0.01$, *ns*, or sensitivity, $F(1, 237) = 0.68$, *ns*. Thus, H9 was not supported.

H10 tests the full ANOVA model that subsumes all other models employed thus far. Specifically, the full ANOVA model includes support provider sex, receiver sex, communication channel, level of VPC, and all interactions up to, and including, the 4-way interaction among these variables (See Table 14 for the results of the full ANOVA model predicting the three support provider dependent variables). H10 proposed that male support providers assigned to the HPC condition evaluate their efficacy at producing messages to both other males and females more positively in CMC than FtF. This hypothesis also asserted that women trained to provide LPC support evaluate their communicative efficacy when comforting men and women more favorably in FtF than CMC interactions. The test for this hypothesis came from the 4-way interaction among provider sex, receiver sex, communication channel, and the 2-level VPC variable. This interaction was not significant for support providers' perceptions of self-presentational confidence, $F(1, 237) = 0.10$, *ns*, ease of message production, $F(1, 237) = 1.76$, *ns*, or support quality, $F(1, 237) = 0.25$, *ns*. H10 was not supported.

H11 posited a similar interaction among provider sex, receiver sex, communication channel, and the 3-level VPC variable predicting third party observer perceptions of conversational quality (See Table 15 for the results of the full ANOVA model predicting

the three rated dependent variables). This 4-way interaction produced a significant effect predicting rated person-centeredness, F (2, 229) = 7.17, $p < 0.001$, sensitivity, F (2, 229) = 6.94, $p < 0.001$, and supportiveness, F (2, 229) = 7.70, $p < 0.001$. Table 16 displays the means for these analyses. Regarding the predictions of H11, the raters observed males in the HPC condition to provide significantly more person-centered, sensitive, and supportive messages to other males in CMC compared to FtF channels. The same pattern of results was found for males who were trained to provide HPC support to females; however, the confidence intervals surrounding these means overlapped. The rated scores for female support providers' person-centeredness, sensitivity, and supportiveness also corroborated the prediction that female support providers assigned to the LPC condition communicated lower quality support to other females in CMC than FtF; however, the confidence intervals surrounding these means exhibited substantial overlap. Thus, because third party observers rated males in the HPC condition to provide higher quality support to both males and females online than FtF and because raters perceived female providers in the LPC condition to communicate lower quality support to females online than FtF, H11 received some support.

H12 specified a 4-way interaction among support provider sex, receiver sex, communication channel, and the 2-level VPC variable predicting support receivers' perceptions of conversational quality (See Table 17 for the results of the full ANOVA model predicting the three support receiver dependent variables). This hypothesis predicted that both male and female support receivers in the HPC condition evaluate messages produced by males as higher quality in CMC conversations compared to FtF interactions. I also asserted that support receivers assigned to the LPC condition in both male − male

dyads and female – female dyads evaluate messages to be lower quality in CMC than FtF. This 4-way interaction was not statistically significant for support receivers' perceptions of conversational appropriateness, $F (1, 237) = 3.56$, ns, or support quality, $F (1, 237) = 0.01$, ns. This interaction was significant, however, for receivers' perceptions of conversational sensitivity, $F (1, 237) = 3.93$, $p < 0.05$. Table 18 displays the means for this interaction. Regarding the predictions of H12, male support receivers in the HPC condition evaluated the support produced by males to be higher quality online than FtF; however, there was substantial overlap in the confidence intervals surrounding the means between channels. This hypothesis also predicted that female support receivers assigned to the HPC condition evaluate messages produced by males to be higher quality in CMC than FtF. The means were in the expected direction, but the confidence intervals between channels overlapped. In addition, receivers in male – male dyads who interacted in the LPC condition perceived the messages they received to be less sensitive online than FtF, but these confidence intervals also overlapped. In support of H12, support receivers in female – female dyads assigned to the LPC condition evaluated the support they received to be particularly insensitive in CMC compared to FtF. Thus, H12 received partial support.

The final set of hypotheses includes POSI as an independent variable. Because POSI was measured as a continuous variable, these final three hypotheses were evaluated using regression analysis. VPC condition, provider sex, and receiver sex were also included in these regression analyses because the results from the ANOVA models highlighted their relevance to the dependent variables. In total, the regression models included support provider sex, receiver sex, communication channel, POSI, and level of VPC. After running the full regression models, I removed support receiver sex from the

models predicting support providers' self-presentational confidence and support quality because that variable was significant in neither these regression models nor the previously reported ANOVA models. Receiver sex did contribute to a significant interaction in the regression model predicting support providers' ease of message production; therefore, it was retained in that model.

H13 predicted an interaction between communication channel and POSI such that people with a strong POSI believe they produce messages more effectively in CMC than FtF, and that people with a low POSI believe they produce messages more effectively FtF than in CMC (See Table 19 for the results of the regression models predicting the three support provider dependent variables). The interaction between communication channel and support providers' POSI was not significant in the models assessing providers' self-presentational confidence ($\beta = 0.21$, *ns*), ease of message production ($\beta = 0.11$, *ns*), or perceptions of support quality ($\beta = 0.14$, *ns*). This interaction was, however, subsumed by a significant three-way interaction in several instances. Specifically, I found a significant interaction among provider sex, provider POSI, and communication channel ($\beta = 0.68$, *p* < 0.05) predicting providers' self-presentational confidence. There were also two significant 3-way interactions among provider sex, provider POSI, and communication channel ($\beta = 0.73$, *p* < 0.05) and among receiver sex, provider POSI, and communication channel ($\beta = 1.20$, *p* < 0.01) predicting providers' ease of message production.

H14 and H15 were also not supported. The remainder of this chapter is devoted to explaining a set of findings not related to the hypotheses, but dedicated to exploring and unpacking POSI's influence on the process of VPC social support. To identify the nature of these interactions, I followed guidelines proposed by Aiken and West (1991, chapter 3).

Aiken and West (1991) asserted that, in a model including main effects and interaction terms, the simple slope for an independent variable is an estimate of its relationship with the dependent variable when all other variables in the model have a value of zero. Furthermore, they instructed how to evaluate the nature of an interaction by adjusting the distribution of the independent variables so that the zero points are meaningful. Their procedure allowed me to calculate simple slopes for support providers' POSI at each level of the relevant independent variables. It also allowed me to compute standard errors and t-tests of statistical significance for the simple slopes.

Aiken and West's (1991) procedure, applied to this analysis, required rescaling the provider sex, receiver sex, and communication channel variables to compute the slopes for support providers' POSI for the different combinations of these independent variables. More specifically, I (a) created additional terms for provider sex, receiver sex, and communication channel in which the group originally dummy coded as 0 was coded as 1 (e.g., provider sex was originally coded as 0 = males, 1 = females. The recoding procedure resulted in 0 = females, 1 = males); (b) mean-centered the variables that interacted with POSI; (c) recomputed the interaction terms with the recoded variables; (d) substituted one or more of the recoded variables and corresponding interaction terms into the original model; and (e) examined the slope of support providers' POSI on the step where the corresponding main effects and interactions terms were included in the model (i.e., Step 3 for a 3-way interaction).

Slopes clarifying the significant interaction among provider sex, provider POSI, and communication channel predicting self-presentational confidence ($\beta = 0.68$, $p < 0.05$) are pictured in Figure 1. The slopes for POSI were not statistically significant for males (β

= -0.01, *ns*) or females (β = -0.15, *ns*) in the FtF condition. In CMC, the slope for males (β

= -0.15, *ns*) was also not significant; however, the slope for females (β = 0.10, *p* < 0.10)

was positive and approaching significance. As seen in Figure 1, a strong POSI resulted in

greater self-presentational confidence for female support providers in the CMC condition.

This pattern is consistent with the predicted role of POSI.

    I also unpacked the interaction among provider sex, provider POSI, and

communication channel predicting support providers' ease of message production (β =

0.73, *p* < 0.05). The lone significant slope for this interaction was a negative slope for

POSI for men in the CMC condition (See Table 20 and Figure 2). Contrary to predictions,

a strong POSI made it more difficult for men to provide support online. Moreover, the

significance of the interaction suggests the slope terms are significantly different from each

other. As depicted in Figure 2, having a strong POSI appears to make it more difficult for

females to provide VPC support in FtF contexts and easier for them to provide VPC

comfort in CMC. As in the previous test, a strong POSI appears to benefit female support

providers in mediated channels.

    The results of a receiver sex, provider POSI, and communication channel

interaction predicting providers' ease of message production (β = 1.20, *p* < 0.01)

uncovered further evidence of sex differences between channels (See Figure 3). Whereas

the slope for POSI for male receivers in FtF contexts was positive (β = 0.13, *ns*), the

corresponding slope for female receivers was negative and significantly different from zero

(β = -0.33, *p* < 0.01). Whereas male receivers displayed a significant negative slope for

POSI when conversing online (β = -0.30, *p* < 0.05), female receivers (β = -0.03, *ns*) yielded

a non-significant slope for POSI. These results reveal that a POSI makes it easier for

support providers to comfort men and significantly more difficult to comfort women in FtF

contexts. This latter finding is in accordance with the current conceptualization of POSI

given that a strong POSI was expected to make FtF support a difficult enterprise. Whereas

POSI acts as expected and hinders the process of providing support to women FtF, it is

also a detriment to providers comforting men online. Thus, H13 was largely unsupported.

I also observed an unexpected 4-way interaction involving providers' POSI,

provider sex, receiver sex, and the 2-level VPC variable predicting support providers' ease

of message production ($\beta = 1.50$, $p < 0.05$). I unpacked this interaction to better understand

the role POSI plays in influencing support providers' perceptions of comforting

interactions (See Table 21). Doing so revealed two particularly interesting results.

Specifically, a strong POSI yielded a negative slope, making it more difficult for females

to provide comfort to other females in the LPC condition. In other words, a strong POSI

amplifies the unpleasant female – female interaction in the LPC condition that was

identified in previous analyses. Having a POSI made it difficult for support providers in

female – female dyads assigned to the LPC condition to communicate the level of VPC

support they were trained to provide. Although the individual slope term was not

significant, a POSI also appeared to make it increasingly difficult for males to provide

support to other men in the LPC condition. I also observed a significant negative slope for

POSI for male support providers assigned to the HPC condition who interacted with

female receivers. This is more evidence that a POSI intensifies troublesome support

interactions. Overall, a strong POSI made it increasingly difficult for females in the LPC

condition and males in the HPC condition to comfort female receivers. Although POSI

does not operate in the predicted manner, it does appear to exert a modest effect on the production of VPC comforting messages.

H14 posited an interaction between communication channel and support providers' POSI, such that third party observers perceive people with higher POSI scores to produce more supportive person-centered messages in CMC conversations compared to FtF interactions. Conversely, raters were expected to observe support providers with lower levels of self-reported POSI to produce more supportive person-centered messages FtF than in CMC. Because this hypothesis is investigated with a 3-level VPC variable, I created two dummy-coded variables to account for the VPC factor. The first dummy-coded variable contrasts LPC with more person-centered support; the second dummy code compares HPC to less person-centered support (See Table 22 for the results of the regression models predicting the three rated dependent variables). The interaction between support providers' POSI and communication channel was not significant for rated level of person-centeredness ($\beta = 0.07$, *ns*), sensitivity ($\beta = 0.06$, *ns*), or supportiveness ($\beta = 0.06$, *ns*). Thus, H14 was not supported.

The predicted interaction between provider POSI and communication channel was subsumed by several significant 3-way interactions predicting the rated dependent variables; therefore, I employed Aiken and West's procedures to unpack these interactions. Specifically, I observed two significant 3-way interactions among support provider POSI, communication channel, and VPC predicting the rated level of person-centeredness (Dummy code 1: $\beta = 0.57$, $p < 0.05$; Dummy code 2: $\beta = 0.58$, $p < 0.05$). The pattern of slopes (See Table 23) indicated that raters evaluated support less positively when participants who had a strong POSI were assigned to the HPC condition and asked to

produce messages in FtF interactions. For mediated interactions, observers unexpectedly rated support providers with a POSI to produce messages with a particularly high level of person-centeredness in the LPC condition. In addition, they also perceived that support providers with a strong POSI who were assigned to the MPC condition produced messages with a particularly low degree of person-centeredness online. As Figure 4 makes clear, a POSI resulted in higher quality comforting messages from providers assigned to the LPC and HPC conditions in CMC than FtF channels. Conversely, providers' POSI decreased the rated person-centeredness of messages in the MPC condition more prominently in mediated interactions. This analysis demonstrated that POSI has the ability to improve the production of VPC messages in CMC; however, this effect was most clearly observed in the LPC condition.

I also unpacked an unanticipated interaction among provider POSI, communication channel, and a dummy code for VPC ($\beta = 0.48$, $p < 0.05$) predicting raters' perceptions of conversational sensitivity (See Table 24). As pictured in Figure 5, POSI appears to have a greater positive slope for communicating support in the LPC condition online than FtF. Whereas POSI had a positive association with providing messages in the MPC condition in FtF interactions, the corresponding slope was negative online. Conversely, POSI's slope for producing messages in the HPC condition during FtF interactions was negative; however, the slope for doing so online was positive. Participants with a strong POSI were rated to produce more sensitive messages in the LPC and HPC conditions when they conversed online than FtF.

Another significant interaction that subsumed the predicted POSI by communication channel interaction also included a dummy code for level of VPC ($\beta =$

0.54, $p < 0.05$) on raters' perceptions of supportiveness. Although none of the slope terms

for POSI were statistically significant (See Table 25), three slopes approached

significance. For FtF interactions, the slope for producing messages in the HPC condition

was negative and approaching significance. For CMC interactions, the slope for producing

messages in the LPC condition was positive and the slope for producing messages in the

MPC condition was negative. Both slopes approached statistical significance. Despite the

slopes being non-significant, the significant interaction suggests that the slopes are

significantly different from one another. As Figure 6 clarifies, POSI resulted in a greater

positive slope for producing messages in the LPC condition online than FtF. Although the

graphed line for POSI's effect on providing messages in the MPC condition in FtF

interactions is relatively flat, POSI has a negative effect when producing messages in the

MPC condition online. In addition, POSI exerts a negative effect when producing

messages in the HPC condition during FtF interactions, but it exhibits a positive effect

when producing these messages online. Thus, for online interactions, a POSI decreases the

rated supportiveness of messages in the MPC condition, but it enhances the rated

supportiveness of messages in the LPC and HPC conditions. These results confirm my

prediction that a POSI benefits people during mediated comforting interactions.

Although it does not include communication channel, I explored a significant 3-

way interaction among support providers' POSI, provider sex, and a dummy code for VPC

predicting raters' perceptions of conversational supportiveness ($\beta = -0.48$, $p < 0.05$).

Unpacking this interaction (See Table 26) revealed that possessing a strong POSI resulted

in a significant, positive slope for males providing support in the LPC condition. As Figure

7 displays, POSI also exerts a negative effect on the rated supportiveness of messages

produced by females in the LPC condition. POSI also contributes to a negative effect for both males and females providing support in the MPC condition. POSI also has a fairly small positive slope for men and a negative slope for females in the HPC condition. This analysis found that POSI is most beneficial for males providing support in the LPC condition.

To better understand the influence of POSI on the social support process, I found and unpacked two significant 2-way interactions involving POSI. I first unpacked an interaction between provider POSI and the 3-level VPC variable predicting the rated level of person-centeredness ($\beta = 0.41$, $p < 0.05$). Although none of the individual slope terms for POSI were statistically significant, the positive slope for the LPC condition ($\beta = 0.13$, $p < 0.10$) and the negative slope for the MPC condition ($\beta = -0.13$, $p < 0.10$) both approached statistical significance. The slope for POSI in the HPC condition ($\beta = -0.09$, ns) was not statistically significant. Figure 8 also depicts that a support provider's POSI exerted its most beneficial effect on the rated person-centeredness for people communicating support in the LPC condition. Beyond this, I found another negative slope for POSI in the MPC condition. Although a POSI may benefit the LPC support process, it is a detriment to MPC comfort.

I also unpacked a significant interaction between provider POSI and provider sex predicting the rated level of conversational sensitivity ($\beta = -0.25$, $p < 0.05$). POSI's slope for males ($\beta = 0.06$, ns) was not statistically significant, but its slope for women was negative and approached statistical significance ($\beta = -0.0$, $p < 0.10$). As pictured in Figure 9, females were rated to produce less sensitive VPC messages to the extent they had a strong POSI. Men, on the other hand, benefited slightly from having a strong POSI.

Overall, a support provider's POSI exerted a weak effect on the quality of VPC comfort perceived by raters and frequently did not function in accordance with the hypothesized predictions.

H15 predicted an interaction between communication channel and support receivers' POSI (See Table 27 for the results of the regression models predicting the three receiver dependent variables), such that receivers with high POSI scores evaluate all levels of person-centered messages as higher quality in CMC than FtF, and receivers with lower POSI scores evaluate all levels of person-centered messages as higher quality FtF than in CMC. The interaction between support receivers' POSI and communication channel was not statistically significant for support receivers' perceptions of conversational appropriateness ($\beta = 0.13$, *ns*), support quality ($\beta = 0.35$, *ns*), or sensitivity ($\beta = 0.16$, *ns*). Furthermore, there were no significant higher-order interactions to which receivers' POSI and communication channel contributed. Receivers' self-reported levels of POSI displayed no significant associations with their perceptions of conversational quality; therefore, H15 was not supported.

Although H15 was not supported, I unpacked a significant interaction among receivers' POSI, receiver sex, and the 2-level VPC variable predicting receivers' perceptions of conversational appropriateness ($\beta = -1.33$, $p < 0.01$). I did this to help understand the influence of receivers' POSI on the evaluation of comforting messages. Unpacking this interaction revealed that POSI produced a significant negative slope for male receivers in the LPC condition ($\beta = -0.36$, $p < 0.01$). The corresponding slope for females in the LPC condition was not significant ($\beta = 0.25$, *ns*). Although the slope for males in the HPC condition was not statistically significant ($\beta = -0.05$, *ns*), the slope for

females was negative and significant (β = -0.24, p < 0.05). As pictured in Figure 10,

possessing a strong POSI was beneficial for females receiving messages in the LPC

condition but was detrimental to males' evaluations of these messages. This pattern of

results was reversed in the HPC condition. Specifically, having a strong POSI was

negatively associated with females' evaluations of comforting messages in the HPC

condition. This analysis suggests that receivers of VPC messages benefit from a POSI only

when they are female and receive messages in the LPC condition. Overall, POSI had little

influence on receivers' evaluations of supportive messages.

CHAPTER SIX

This dissertation was motivated by a desire to contribute to the discussion

surrounding a prominent question within social support scholarship. That question being,

"What factors elicit the best or highest quality evaluations of social support experiences?"

This is an important inquiry given research that concludes certain types, styles, or

mechanisms of providing social support are more sophisticated and, therefore, elicit better

outcomes than other means of comfort. As Burleson (2009) asserted, "Sophisticated forms

of support do a better job than alternatives of instantiating theoretical principles that

characterize helpful, sensitive, and effective support in a given domain" (p. 24). Numerous

research reports indicate that emotional support is often thought to be a sophisticated and

high quality form of comfort (Jones & Burleson, 1997; Xu & Burleson, 2001). The

reported benefits of sensitive emotional support range from enhanced physical health

(Berkman, Glass, Brissette, & Seeman, 2000), to relational satisfaction (Baxter, 1986;

Wan, Jaccard, & Ramey, 1996), and mental well-being (Albrecht & Adelman, 1987;

Albrecht, Burleson, & Goldsmith, 1994). Accordingly, scholars have dedicated themselves

to identifying the factors that influence the provision and reception of sensitive and

effective ways of implementing feeling-centered support.

Emotional support has been found to yield positive outcomes to the extent that it

contains verbal person-centeredness (VPC). As such, one answer to the previously posed

question is that good quality social support is highly person-centered. A wealth of research

concludes that highly person-centered (HPC) messages routinely convey the highest

quality support (i.e., Burleson, 2003; Burleson & Samter, 1985; Jones & Burleson, 1997;

Kunkel & Burleson, 1999); however, scholars have found that the effects of VPC

messages, especially when combined with contextual variables, are not straight-forward and direct but are often quite complex. Finding a satisfying answer to the question posed at the outset of this chapter becomes even more complicated when researchers realize that what counts as the best support varies according to the subjective beliefs of support providers, receivers, and even third party observers. Along these lines, Burleson (2009) contended that the influence of VPC messages is often moderated by four categories of factors: features of the message, the source of the message, the interaction context, and the receiver of the message. Moreover, Burleson (2009) claimed, "it appears that many (and perhaps most) of these factors operate in concert with each other – combining, qualifying, and moderating each other's influence – thereby making the task of explaining their collective effects seem gargantuan" (p. 27). This dissertation embraced this challenge by seeking to ascertain the influence of personal, relational, and contextual factors on the evaluation of VPC messages from support providers, receivers, and third party observers.

This chapter concludes this dissertation by reviewing the results and discussing their implications. Specifically, I describe ways in which the results of this study resonate with and extend the literature on VPC social support. In addition, I discuss this experiment's contributions to the study of computer-mediated social support. Although social support is not a common context for research on CMC, the results of this study highlight the influence of mediated channels on the enactment of support and the ability of communication channels to moderate the support process. After discussing the implications of these results, I turn to the limitations of this study. This chapter concludes by surveying some potential directions for future research.

Support and Refutation of the Hypotheses

The first set of hypotheses compared predictions derived from social presence theory, media richness theory, and the hyperpersonal perspective within the context of supportive interactions occurring in face-to-face (FtF) and computer-mediated communication (CMC) channels. Social presence theory assumes that CMC universally and necessarily lacks the immediacy required to enact sensitive comfort. In contrast, media richness theory claims it is important to match task complexity to channel richness, thereby suggesting that low person-centered (LPC) messages could be effectively communicated even in lean online channels. Finally, the hyperpersonal model asserts that support providers and receivers should actually prefer mediated contexts because the lack of nonverbal cues and resulting ability to control self-presentation should facilitate the support process. These competing theoretical predictions were examined against three different categories of outcome variables. Specifically, their predictions were tested against support providers' perceptions of message production ability, third party observers' ratings of conversational supportiveness, and support receivers' assessments of support quality.

Although none of these theories received unanimous support in this study, the hyperpersonal model obtained the most validation. The hyperpersonal perspective suggests that users can exploit the lack of nonverbal cues online to present themselves in ways that would be difficult, if not impossible, to do in FtF interactions. In support of this, support providers believed it was easier to produce messages in all three VPC message conditions online than FtF. Raters also indicated that the CMC comforting conversations entailed a higher level of person-centeredness, supportiveness, and sensitivity than the FtF interactions. None of the theories received support from the perspective of the support

receiver. In other words, receivers' perceptions of support message quality did not vary by communication channel. Media richness theory also received some support because third party observers rated messages in the LPC condition to be more sensitive and supportive online than FtF. Notably, social presence theory received no empirical support in this study. Overall, the supportive conversations in this study appeared to exhibit the strongest parallels with the predictions of the hyperpersonal perspective.

H4 – H12 focused on interactions among support provider sex, receiver sex, level of VPC, and communication channel predicting providers', receivers', and third party observers' perceptions of the comforting interactions. I observed interactions between support provider sex and VPC condition predicting providers', observers', and receivers' conversational perceptions. As predicted by H4, women in the LPC condition were critical of producing the messages they were asked to provide, such that their judgments of self-presentational confidence and support quality were lower than men's perceptions. I also expected women in the HPC condition to indicate that they produced supportive messages more effectively than men; however, males and females assigned to the HPC condition evaluated their message production ability quite similarly. This finding is consistent with prior research, which found that men are perhaps overly confident in their comforting abilities (Sarason, Sarason, Hacker, & Basham, 1985).

Raters also observed discrepancies among the VPC conditions in support of H5. The raters perceived women in HPC conditions to produce messages that were more person-centered, sensitive, and supportive and women in LPC conditions to produce messages that were less person-centered, sensitive, and supportive than men assigned to the same conditions. Interestingly, the results from the support providers displayed the

greatest sex differences in perceptions of LPC message production (with women indicating less efficacy in the LPC condition than men); however, the observers found the greatest gender differences in the HPC condition (with women being better than men). In other words, females are particularly critical of their ability to provide messages in LPC conditions and underestimate their performance when assigned to communicate HPC support. Men assigned to the HPC condition, on the other hand, appear overly confident in their message production ability.

H6 also revealed that female support receivers evaluate messages in LPC conditions as less appropriate and lower quality than men do. Contrary to predictions, there were no sex differences in support receivers' evaluations of messages in the HPC condition. Although Jones and Burleson (1997) documented that women more strongly discriminate between HPC and LPC messages than men do, I observed the greatest sex differences in the LPC condition. All participants assigned to the HPC condition perceived the messages they received to be high quality; however, females were critical of comfort in the LPC condition. This finding parallels past research that documents that females are particularly critical of LPC messages and certainly more critical than men are (Holmstrom, Burleson, & Jones, 2005; Kunkel & Burleson, 1999).

The next subset of hypotheses examined the interactions among support provider sex, receiver sex, and level of VPC predicting perceptions of supportive interactions. Although the results for third party observers and receivers revealed no significant effects, there was a significant interaction predicting support providers' ease of message production in support of H7. Of all dyadic combinations, female providers paired with female receivers had the easiest time producing messages in the HPC condition and the

most difficult time producing messages in the LPC condition. These results echo the

cautions of research on cold comfort: although females are particularly skilled at providing

HPC support, they value neither providing nor receiving LPC support with another woman

(Holmstrom et al., 2005). Tests of H7 also showed that men indicated reduced

communicative competence when asked to provide HPC support to a female. Prior

research has reported that males credit females with possessing large amounts of support

expertise and often seek a female when in need of comfort (Kunkel & Burleson, 1999).

Because of this, the stakes are high with more pressure on men when asked to provide

HPC support to women. Men seek safety, such as less threatening communication

channels, when required to be disclosive with a female in normal interactions (Schouten,

Valkenburg, & Peter, 2007). When support providers are outside their traditional comfort

zones (i.e., men assigned to provide HPC support and women assigned to communicate

LPC messages), female receivers are particularly troublesome targets. The sex of the

receiver and level of VPC interact to influence the ease of message production for both

male and female support providers. Although these results provided support for H7, neither

third party observers nor support receivers reported significant differences in their

perceptions of supportive interactions based on the interaction between VPC condition and

the gender composition of a dyad.

The ANOVA models testing H10 – H12 included communication channel, along

with provider sex, receiver sex, and level of VPC. No significant interactions were found

for the model focusing on providers' conversational perceptions; however, the models

assessing the raters' and support receivers' impressions revealed significant interaction

effects. In support of H11, third party observers perceived men who were assigned to the

HPC condition to provide more person-centered, sensitive, and supportive messages to both male and female receivers in CMC than FtF interactions. Also consistent with predictions, raters perceived women assigned to the LPC condition to communicate less person-centered, sensitive, and supportive messages to other females in CMC than FtF. In the eyes of third party observers, CMC appears to provide a crutch for male support providers assigned to the HPC condition, enabling them to communicate comfort in ways they are often unable to accomplish FtF. Conversely, females in the LPC condition were hindered in CMC and actually did worse providing messages to other females online than FtF.

The model for support receivers' impressions of conversational sensitivity revealed a similar pattern of findings. In support of H12, both male and female receivers assigned to the HPC condition evaluated the messages they received from males to be more sensitive in CMC than FtF. In addition, both male and female receivers in the LPC condition evaluated support from same-sex partners to be less sensitive in CMC than FtF, with females being particularly critical in this regard. Overall, CMC appears to facilitate the support process for men tasked with providing HPC comfort; however, messages in the LPC condition appear particularly lacking online, especially in female – female dyads.

The final set of hypotheses explored the influence of participants' POSI on impressions of supportive interactions. Although the hypothesized effects of POSI were not observed, POSI did contribute to interactions that influenced providers', raters', and receivers' impressions of comforting interactions. Specifically, I found an interaction among provider POSI, provider sex, receiver sex, and level of VPC predicting providers' ease of message production. Examining the slopes of this interaction revealed that a strong

POSI makes is increasingly difficult for men to produce supportive messages for women in HPC conditions and for women to comfort other women in LPC conditions. In other words, a strong POSI exacerbates the troublesome support pairings identified in H7. These results suggest that POSI may act as a proxy for social skill or competence in comforting interactions. Prior research (Caplan, 2003, 2005a) has documented that people with a stronger POSI often hold negative opinions of their FtF social competencies. This lack of skill may be magnified in difficult comforting contexts, such as when support providers are asked to communicate messages they are uncomfortable using.

The results for providers' perceptions of message production ability provide validation of the theory behind POSI when considering female providers, but not male providers. For instance, I found that female support providers reported heightened self-presentational confidence in CMC, but not FtF interactions. Similarly, whereas having a POSI decreased females' perceptions of ease of message production in FtF interactions, a POSI made VPC message production easier for them in CMC. Conversely, a strong POSI decreased male support providers' perceptions of ease of message production and conversational sensitivity in mediated interactions. It is unclear why a POSI hindered male providers' comforting interactions in CMC contexts given that a POSI, by definition, means that people prefer interacting online. Overall, a POSI appears most beneficial for female support providers in mediated interactions.

POSI also contributed to several interactions involving third party observers' perceptions of the supportive conversations. Consistent with the theory underlying POSI, raters indicated that support providers with a strong POSI who were assigned to the HPC condition produced particularly low person-centered messages FtF. In other words, a POSI

made it difficult to accomplish comforting goals in FtF interactions. Third party observers also documented that providers assigned to the LPC and HPC conditions produced messages with a greater degree of person-centeredness, sensitivity, and supportiveness online than FtF. In contrast, several analyses revealed that a POSI is detrimental for support providers tasked with communicating MPC messages online. In this condition, support providers' POSI consistently displayed a negative slope. From these results, it is clear that POSI at least partially operates in the hypothesized manner, and its influence was moderated by the VPC condition. Whereas support providers who were tasked with communicating LPC and HPC support benefitted from a POSI in online interactions, support providers assigned to the MPC condition were hindered by their POSI in CMC. Future research will have to unpack the negative relationship between POSI and MPC support in CMC channels.

Receivers' self-reported POSI exerted a comparatively small influence on their impressions of comforting interactions. In fact, receivers' POSI only contributed to a single 3-way interaction along with receiver sex and the 2-level VPC variable predicting conversational appropriateness. This interaction revealed that a POSI enhanced females' perceptions of appropriateness when receiving messages in the LPC condition and decreased their reported appropriateness in the HPC condition. POSI also decreased males' evaluations of appropriateness in the LPC condition. Thus, a POSI only benefited female receivers in the LPC condition. It decreased evaluations of appropriateness for males assigned to the LPC condition and females in the HPC condition.

Implications for a Theory of Verbal Person-centered Social Support

This section extends the aforementioned results to more general theorizing about VPC messages. I begin by discussing the prevalence of different levels of VPC support. Although theorists and many support receivers hail the benefits of HPC support, these messages are difficult to produce and may be infrequently encountered in comforting interactions. In addition, I offer a motivational account for gender differences in social support. Whereas some prior research claims men lack the skills needed to produce and adequately appreciate HPC messages, I assert that a differential motivation between the sexes provides a better explanation. I conclude this section by addressing research that posits support is most beneficial when it is provided invisibly. Invisible support often contradicts the tenets of HPC message production; however, its success in published reports cannot be denied.

HPC Support is Not Omnipresent

Theorizing about the effects of VPC support messages contends that support providers should always strive to employ HPC messages because they universally yield the best supportive outcomes. In accordance with this, past research has reported that HPC messages result in the highest quality support with the greatest perceptions of provider competence, regardless of the stressor for which they are provided (Jones, 2004; Jones & Burleson, 2003). Yet, simply claiming that HPC support is best glosses over many nuances in the experience of VPC support. Doing so also ignores the fact that HPC messages are not routinely encountered. MPC and LPC support are easier to produce and more common than their HPC counterparts. Some research actually found that people employ messages that are not HPC even when they possess the skill needed to produce more effective

comfort (Lehman, Ellard, & Wortman, 1986). In fact, men and women are equally likely to provide LPC support (Holmstrom et al., 2005), and people consider MPC messages to be the most expected level of VPC comfort (Jones & Burleson, 2003). Clearly, HPC messages are not omnipresent.

People's preferences for and experiences of providing and receiving different levels of VPC messages are influenced by their sex. Specifically, a provider's sex influences whether he or she is most confident providing LPC, MPC, or HPC support in a given encounter. As the results of this study demonstrate, females are uncomfortable providing support in LPC conditions. Whereas third party observers rated women to produce higher quality messages in the HPC condition than men did, women were rated to be less effective than men when asked to provide LPC support. In addition, providers exhibit varying perceptions of their message production ability depending on the level of VPC and sex of the receiver. This finding was illustrated by females' polar perceptions of their ability to provide support in the HPC and LPC conditions to other women. Men also displayed particularly critical evaluations of their message production ability when asked to provide HPC support to women. HPC support may not be the best or most desired option for men when they are faced with comforting a woman. Differences in message production ability resided in both the perceptions of support providers and third party observers. Thus, a support provider's sex influenced his or her comfort providing different levels of VPC support.

Sex is also relevant to support receivers. Women assigned to the LPC condition exhibited particularly critical evaluations of the support they received, and these criticisms were more pronounced when the messages were provided by another woman. Men, on the

other hand, indicated more tempered evaluations of the messages they received in both the HPC and LPC conditions. Furthermore, support receivers reported more favorable evaluations of the support provided by men in the HPC condition when they interacted online, rather than FtF. In other words, other factors besides the main effect for person-centeredness contributed to receivers' impressions of VPC messages. Although these differences exist within a larger pattern of preference for messages in the HPC condition, these results confirm that sex is an important variable to consider in VPC research. Simply suggesting that HPC messages are best forgets that HPC messages are not all that common and ignores the perspective of the support provider. Theory and research on VPC social support could gain a greater understanding of everyday supportive interactions by tempering their focus on the efficacy of HPC messages and emphasizing the commonality of LPC and MPC support in addition to the personal qualities that moderate impressions of all levels of VPC messages.

A Motivational Account for Gender Differences in Social Support

The skills specialization account is perhaps the most widely accepted explanation of gender differences in social support. This perspective claims that women have greater ability in the realm of social support because they receive a greater share of society's knowledge and skills related to comforting. Whereas the ability for sensitive and effective comfort is nurtured in women, the same skills are downplayed in men (Burleson & Kunkel, 1996; Kunkel & Burleson, 1999). Notably, the skill specialization account does not fully explain the pattern of results found in this dissertation. For one thing, men and women indicated no significant differences in their ease of producing messages in the HPC condition, and women actually had a more difficult time producing messages in certain

(i.e., LPC) conditions. Although raters observed differences in the quality of the comfort produced by men and women assigned to the HPC condition, the interactants did not report differences in communicative efficacy based on their sex and level of VPC. Furthermore, preliminary analyses also failed to reveal sex differences in the ease of message production.

A more detailed explanation of these sex differences can be found by borrowing from theoretical models of message processing. Specifically, dual-process models of support message processing assert that VPC messages are maximally effective when receivers possess both the ability *and* motivation to thoroughly process messages (Bodie & Burleson, 2008; Burleson, 2009). Extrapolating from this model, I expect that support providers also generate maximally effective messages when they possess both the ability *and* motivation to sensitively comfort a distressed partner. In fact, ability and motivation may be more crucial to message production than message processing. People receive comforting messages in times of need when they are motivated to process them; however, support providers presumably lack a similar exigency.

Although women's socialization typically provides them with the requisite skills to be effective support providers, research also notes that women may experience more pressure than men to behave in a nurturing fashion (Taylor, 2002) and to talk about their own and others' emotions (Dunn, 1999). Moreover, women typically conform to this aspect of the feminine gender role to the extent that they are emotionally invested in the role and desire to be seen as feminine. Warm, nurturing comfort also corresponds with many of the personal and professional roles for which women aspire in contemporary society (Holmstrom et al., 2005; Wood, 1994). For example, sensitive discussions,

nurturance, and the mutual provision of emotional support are valued skills among women and fundamental features of female friendships (Johnson, 1996; MacGeorge, Feng, & Butler, 2003). Conversely, women who are unwilling or unable to provide sensitive emotional support place themselves at risk for social isolation and rejection (Barbee et al., 1993; Holmstrom et al., 2005). Holmstrom et al. (2005) even stated, "Women are more likely to view 'unfeminine' behavior by a woman more negatively than they are 'unmasculine' behavior by a man, especially in prototypically feminine contexts (such as providing emotional support)" (p. 155). Stated differently, it is riskier for women to provide LPC support than is it for men to provide HPC comfort.

These factors should heighten females' motivation to provide HPC and avoid LPC comfort. Whether they are motivated by gender roles, societal expectations, or standards of friendship, women are likely to be more compelled than men to provide HPC comfort. This motivation to excel in comforting situations, in conjunction with their supportive skill sets, is likely why females are commonly more sensitive and effective comforters than men. Moreover, these forces were likely at play in this experiment. When paired with a distressed stranger, the female participants were presumably motivated to comfort their partners. Not doing so would violate a number of feminine behavioral norms and standard practices. This may be why messages in the LPC condition, especially in female – female dyads, were so problematic. Men, on the other hand, likely did not experience the same motivation because they do not feel the same set of societal and relational forces compelling them to be effective support providers. Accordingly, men were not as critical as women of being asked to provide LPC comfort. This study suggests that skill does not fully explain the association between sex and comforting quality; men and women had an

equally easy time producing the messages they were asked to provide, even messages in the HPC condition (cf. MacGeorge, Gillihan, Samter, & Clark, 2003). Instead, differential motivation between the sexes is a likely explanation for the gender differences reported here and in the body of work on social support.

The tendency for women to provide HPC support, and avoid LPC support, was expected to be most prominent in female – female dyads. In this study, female support providers assigned to the HPC condition had the easiest time communicating support to other females. Receivers in female – female dyads assigned to the HPC condition also recorded some of the highest scores for support quality. This pattern of results parallels the additivity hypothesis of the heuristic-systematic model (HSM) of social information processing (Todorov, Chaiken, & Henderson, 2002), which has previously been applied to social support outcomes (i.e., Bodie et al., in press). Specifically, the HSM states that, "when the judgmental implications of heuristic cues and arguments are consistent, heuristic and systematic processing can have independent and additive effects on persuasion" (Todorov et al., 2002, p. 199). In this study, the valences of HPC messages and female – female dyads are both positive. The positive implications of this relationship augment the impact of messages in the HPC condition. In fact, the female – female dyads assigned to the HPC condition are the only grouping where the additivity effect is predicted because the judgmental implications for MPC messages are ambiguous and those for LPC messages are negative (Bodie et al., in press). Additionally, females often represent the most attractive sources of social support (Kunkel & Burleson, 1999), so any interaction involving a male is not a candidate for the additivity effect. When applied to

this study, the additivity hypothesis suggests that the positive effects of HPC messages are amplified in female – female dyads.

Invisible Support

Some scholars suggest that social support achieves optimal results when it is communicated invisibly. When receivers are aware they are being supported, they may feel indebted, incompetent, or incapable of solving problems on their own (Bolger, Kessler, & Zuckerman, 2000; Howland & Simpson, 2010). Rather than incurring these costs, scholars have suggested that support yields better outcomes when it is provided invisibly. There are two ways through which support can be invisible: (a) when recipients are unaware of having received support, and (b) when providers communicate support subtly or skillfully. Features of invisible support include deemphasizing the roles of provider and receiver, deflecting attention away from the receiver's problem and distress, and conveying support under the radar to avoid feelings of indebtedness (Howland & Simpson, 2010). Howland and Simpson (2010) observed the largest declines in anger and anxiety and the greatest increases in self-efficacy when support was provided without the receiver being aware of it.

In this study, as well as many others, third party observers and support receivers evaluated messages in the HPC condition as the most appropriate, sensitive, and high quality. Yet, HPC messages presumably do not satisfy the requirements of invisible support. Rather, HPC messages directly acknowledge and legitimize a person's problem and emotions. Several components of HPC messages violate the tenets of invisible support. Whereas invisible support deemphasizes the roles of provider and receiver, HPC comforters often actively structure or lead supportive interactions. Invisible support is

under the radar – support in disguise; however, HPC comfort advocates involvement and fairly lengthy messages. Invisible support is not immediately recognized by receivers, but HPC support is difficult to miss. Furthermore, providers use themselves or third parties as examples when communicating invisible support, but HPC comforters are instructed to avoid talking about their own or others' problems. Thus, it may be beneficial to compare the elements of invisible and HPC support to synthesize an optimal style of comfort. This support would still legitimize and elaborate upon a person's problem and emotions, but it would do so without creating an atmosphere defined by indebtedness and the roles of provider and receiver. Such research may find that turning down the intensity and involvement of HPC comfort, so receivers are less aware of its occurrence, improves their evaluations of an already effective mechanism of support.

Implications for the Study of Computer-Mediated Social Support

Recent years have seen a proliferation of websites featuring venues for social support, so much that some theorists have labeled the transition a consumer-led revolution in healthcare (Ferguson, 1997). People flock to the Internet for social support because this medium fulfills their needs to be heard and to have others comfort them (Bjornsdottir, 1999). Young people are especially likely to embrace mediated venues for support seeking (Fukkink, 2010). Besides receiving support, users are often willing to provide support to both friends and strangers online, and emotional support is among the most common types of support communicated therein (Bjornsdottir, 1999; Braithwaite, Waldron, & Finn, 1999). In fact, VPC messages are a common form of emotional support in mediated venues (Fukkink, 2010).

This study expands research on computer-mediated social support by evaluating the communication of VPC messages online. Although participants in this study indicated they experienced higher levels of self-presentational confidence FtF than in CMC, I observed no differences between channels in the self-reported ease with which participants produced comforting messages. There were also no differences in the quality, appropriateness, or sensitivity of the comforting interactions based solely on channel differences. Moreover, I found advantages for both message processing and reception in CMC compared to FtF contexts.

This section extends these findings to the realm of computer-mediated social support. In so doing, I describe Walther's (1996) hyperpersonal perspective in the context of supportive interactions. The results of this study not only inform research on mediated social support but also can be employed to clarify the conditions under which hyperpersonal effects are likely to occur. In addition, this section addresses CMC's lack of nonverbals in relation to social support. Despite lacking the nonverbal immediacy of FtF interactions, I suggest that CMC is able to effectively transmit VPC messages to achieve successful supportive outcomes.

Hyperpersonal Social Support

Although traditional theories of mediated interpersonal communication (i.e., social presence theory, media richness theory) characterize CMC as a channel that is incapable of hosting rich, interpersonal communication, this study suggests that CMC is a viable channel for social support. The results of this study suggest that people adapted to the lack of nonverbals in CMC environments and achieved outcomes that were, in some cases, superior to FtF contexts. In particular, men assigned to the HPC condition were rated to

provide more person-centered, sensitive, and supportive messages online than FtF. Similarly, support receivers evaluated the messages they received from men in the HPC condition to be more sensitive online than FtF. Perhaps whereas men struggle to communicate HPC support FtF, they are freed to be more expressive and sensitive in mediated channels. Stated differently, men experienced hyperpersonal outcomes.

The hyperpersonal perspective has been criticized in recent years because it fails to acknowledge user qualities that influence CMC and its outcomes (Schouten et al., 2007). This study identifies sex as an important personal quality that contributes to hyperpersonal outcomes in supportive contexts. Men benefited from online interaction and experienced hyperpersonal benefits. Women, on the other hand, faired worse online. Third party observers and support receivers alike both viewed LPC messages from women to be lower quality online than FtF. The outcomes experienced by women providing LPC messages are reminiscent of Walther, Slovacek, and Tidwell's (2001) hypernegative effect, in which people experience more negative personal outcomes in CMC than FtF. Perhaps because of their successes FtF, women may not desire to support people online, may devalue CMC as a medium for social support, and may not exert sufficient effort to online supportive interactions. Any of these factors could contribute to a lack of success in CMC support. Further, this is not the only study where people who are normally successful FtF achieve poorer outcomes online (i.e., High & Caplan, 2009; Walther et al., 2001). Thus, CMC only produces hyperpersonal supportive outcomes for certain people in certain situations, and participant sex seems to be one personal quality that moderates hyperpersonal outcomes.

Other scholars have critiqued the hyperpersonal perspective because it does not specify when or how hyperpersonal effects occur (High & Caplan, 2009). In the original

presentation of the hyperpersonal perspective, Walther (1996) admitted, "it is not yet clear which specific processes are necessary or sufficient for the hyperpersonal effect to be obtained" (p. 17). CMC channels provide users with the *opportunity* to exploit technological features for communicative gains, but users and scholars alike do not know exactly when these benefits will be accrued. After observing that highly socially anxious people obtained the greatest benefits from online social interaction, High and Caplan (2009) argued that users may require sufficient motivation to engage in hyperpersonal communication. In other words, people experience hyperpersonal benefits only when they are motivated to achieve them. The same logic extends to this experiment. Men typically have a difficult time providing sensitive support to other men in FtF contexts; however, they were able to produce higher quality messages in the HPC condition by moving these conversations online. Men's relative lack of success in FtF comforting interactions may have instilled a strong motivation in them to be successful online. Women, on the other hand, presumably lacked this motivation and failed to achieve hyperpersonal outcomes. They may simply prefer to conduct their comforting interactions FtF where they traditionally have success. This study provides support for a motivation to engage in hyperpersonal communication as an important contributing condition to the experience of hyperpersonal outcomes.

Lack of Nonverbal Cues

The magnitude of the person-centered effect in predicting supportive outcomes has been established here (i.e., the variable representing VPC condition exerted the strongest effect in all analyses) and elsewhere; however, several nonverbal behaviors that are instrumental to communicating support FtF are conspicuously missing online. Some

scholars describe nonverbal immediacy, which encompasses behaviors such as smiling, eye gaze, and direct body orientation, as crucial to the provision of sensitive comfort (Jones, 2004; Jones & Burleson, 2003, Jones & Guerrero, 2001). As such, nonverbal immediacy is akin to providing person-centeredness through nonverbal cues. Research contends that nonverbal immediacy promotes positive comforting outcomes by conveying positive affect and liking; stimulating physiological arousal that leads to feelings of warmth, care, and love; and encouraging psychological connection and interpersonal intimacy (Jones, 2004). Although moderate levels of nonverbal immediacy are most common in normal social interactions, nonverbal immediacy exhibits a positive correlation with comforting quality and evaluations of helper competence (Jones & Burleson, 2003). In fact, perceptions of conversational engagement may be more strongly influenced by nonverbal immediacy than by the communicated level of person-centeredness (Jones & Burleson, 2003). This finding is noteworthy given research that suggests simply "being there" for someone in need is intrinsically comforting (Dakof & Taylor, 1990). Yet, the results of this study suggest that people are able to successfully communicate VPC support online, even without a bevy of cues signaling nonverbal immediacy.

Like many aspects of social support, there are gender differences associated with nonverbal immediacy, such that women are not only more nonverbally immediate than men but also more likely to benefit from nonverbal communication (Menzel & Carrell, 1999). The lack of nonverbal behaviors online may further contribute to women's lack of success with messages in the LPC condition. Of all the combinations between gender composition of the dyad and communication channel, support receivers from female – female dyads assigned to the LPC condition reported the lowest evaluations of

conversational sensitivity. If women are truly used to and motivated to receive sensitive comfort, the relatively insensitive messages in the LPC condition combined with the lack of nonverbals in CMC elicits particularly negative conversational impressions from women. Receiving insensitive messages is unsettling for female receivers, and this effect becomes amplified when doing so in channels that lack nonverbal cues.

Perhaps more important than the lack of nonverbals online is how users perceive the remaining mediated features and what they do with them. Internet users vary in their beliefs about the relevance of CMC attributes (Peter & Valkenburg, 2006; Tsai, 2004), and these beliefs have important implications for communicative outcomes (Rubin, 2002). With this in mind, the Internet – attribute – perception model argues that the effect of any CMC attribute is due to users' perceptions of its relevance to a given interaction (Schouten et al., 2007). For example, this model posits that a lack of nonverbal cues only effects people's online communication to the extent they perceive it relevant to their interactions. It is people's perceptions of CMC attributes, and not the attributes per se, that determine mediated outcomes. Along these lines, Schouten et al. (2007) reported that adolescents who perceive CMC's lack of nonverbal cues and controlled self-presentation as particularly relevant are less inhibited online and more likely to self-disclose personal information. In the current study, male support providers had more success online than FtF. The Internet – attribute – perception model suggests that men perceived CMC's attributes as especially relevant to their interactions; therefore, they achieved more positive outcomes online than FtF. This assertion parallels the hyperpersonal explanation of the sex differences observed in this study. If men are motivated to achieve success in CMC

supportive interactions and to experience hyperpersonal outcomes, they should be particularly attentive to online cues and willing to use them to their fullest potential.

Research on gender differences in CMC provides a rationale for supposing that men are more attentive to online attributes than are women. Scholars have suggested that a history of gender inequality has made women reluctant to embrace CMC as widely as men have (Turkle, 1988). Theorists assert that masculine values were institutionalized in the technology during its creation, thereby creating a strong association between masculinity and CMC (Gill & Grint, 1995; Wajcman, 1991). Slightly more men than women use the Internet regularly; however, this gap widens when more intensive or frequent Internet use is considered, and it shows no signs of narrowing (Bimber, 2000; Weiser, 2000). Men also feel more positive about and interested in using the Internet than women do (Ford & Miller, 1996; Qureshi & Hoppel, 1995). The jobs held by men are even more likely than women's professions to promote Internet use (Bimber, 2000). Men have also been found to use the Internet for downloading, shopping, searching for romance, and obtaining information more frequently than women do (Teo & Lim, 2000; Weiser, 2000). As Weiser (2000) concluded, "In comparison to women, males use the Internet more, they are more comfortable with it, and their reasons for using it are more extensive" (p. 169). Because men are more oriented towards the Internet than women are, they may be more apt to identify and appreciate mediated attributes. Men, in turn, may also be more likely than women to exploit these relevant attributes to achieve successful mediated supportive conversations.

Due to the lack of nonverbals in CMC, support providers in the online condition may have had to rely more heavily on verbal components of support than those who

interacted FtF. In fact, theorists have claimed that CMC communicators often adapt to mediated communication by putting more effort into the verbal aspects of their communication (Walther, 1992, 1996). Walther (1996) proposed the notion of cognitive reallocation to describe the ability of online communicators to devote increased thought and effort to their written communication because they do not have to monitor their nonverbal behaviors. The results of this study suggest that men did a better job reallocating their cognitive resources to produce effective comfort online than women did. Perhaps the aforementioned gender differences in mediated communication made men more confident in CMC settings and provided them with a greater ability to reallocate their mental energy to produce effective VPC messages. Cognitive reallocation thus provides an explanation for the increased efficacy of male support providers in CMC compared to FtF channels.

Limitations

This study is not without its limitations, perhaps the most prominent among them being the support training procedures. Although the raters were able to identify three distinct levels of person-centeredness in the conversations, the self-reports of the study participants did not distinguish between MPC and HPC messages. This study's methods were adapted from the VPC definitions and training procedures reported in prior research, but perhaps the training used herein described MPC messages as too high quality to meaningfully distinguish among all three levels of VPC. That being said, MPC messages are often evaluated similarly to HPC messages in published research. For example, Holmstrom et al. (2005) employed LPC messages ($M = 2.54$) that were distinct from the higher levels; however, their MPC ($M = 3.17$) and HPC ($M = 3.47$) messages were quite similar. Study 2 in Burleson (2008) used LPC messages ($M = 2.40$) that appear to be

outliers from the MPC ($M = 3.67$) and HPC ($M = 3.85$) messages. Researchers have also reported variation in the strength and consistency of the linear effect of VPC messages (Bodie et al., in press; Jones & Burleson, 1997). Because of this, the operationalization of VPC messages could be advanced by determining the number of levels that truly exists within the VPC hierarchy and then refining training procedures to ensure that the appropriate levels can be distinguished in research practice.

Any experiment-based study invites artificiality into the research design. Clearly, people do not often arrive at unfamiliar places only to be asked to engage in comforting conversations with complete strangers. These taken-for-granted aspects of experimental research limit the external validity and generalizability of any conclusions drawn from the results. Nevertheless, I considered an experimental approach to be the best research design for capturing perceptions of both message production and reception in a quasi-naturalistic setting. Without an experimental design, I would have been unable to train the support providers to instantiate certain levels of VPC and ensure an equal representation of all levels of the VPC hierarchy. The random assignment inherent in experimental designs also ensured that personal characteristics and biases were equally distributed among the experimental conditions. Furthermore, this research design allowed me to avoid hypothetical scenarios and instead focus on problems about which support receivers were actually concerned.

Another limitation of this study involves the use of strangers. I measured people's perceptions of VPC messages in "zero history" dyads. Accordingly, the results reported herein may not apply to more advanced phases of relationship development. It is also debatable how frequently people provide support to or receive comfort from a stranger.

Despite this, I believe that strangers were necessary to obtain realistic impressions of received support. Individuals develop expectations about the support commonly received from different relational partners, such as "close friends provide sensitive support when needed" (Pierce, Sarason, & Sarason, 1991). If an intimate relational partner was asked to provide a level of VPC that was markedly different from his or her normal comforting style, the receiver could become confused or primed about the study's purposes. Prior research has established that support provided by close relational partners is often evaluated more favorably than messages from distant acquaintances (Clark, Pierce, Finn, Hsu, Toosley, & Williams, 1998; Pierce et al., 1991). Hence, the effect sizes and significance levels reported herein could be conservative estimates of people's perceptions of VPC comfort.

The nature of the sample also limits the generalizability of the conclusions drawn from this research. This sample consisted entirely of college students for whom the distinction between FtF and CMC communication channels may be smaller than the population at large. In fact, college students are the heaviest Internet users (Hoffman, Novak, & Venkatesh, 2004). Other research has reported that younger people may use IM more often than e-mail and that they employ IM as a supplement to their normal FtF conversations (Shiu & Lenhart, 2004). Their use and familiarity with mediated channels may allow younger people to conduct an array of intimate or sensitive interpersonal conversations online with relative ease. In contrast, older people may perceive a greater difference between CMC and FtF channels and experience more difficulty when asked to conduct interpersonal interactions online. Evidence of an age-based digital divide is still

apparent despite more and more older people logging on (Lenhart, 2000). Thus, caution should be exercised when generalizing these results to different age cohorts.

<div align="center">Benefits of the Research Design</div>

Although the experimental research design employed in this dissertation has its flaws, it also advances research methodology for studying VPC social support. The research design employed herein involved the production and evaluation of supportive messages in live interactions. Whereas message perception studies only capture participants' evaluations of pre-formulated, written comforting messages in response to hypothetical stressors, this study had support providers generate messages when faced with a distressed partner. I also obtained evaluations of spontaneously produced comforting messages in response to support receivers' self-selected stressors. As Burleson and MacGeorge (2002) suggested, "There is obviously a difference (of unknown magnitude) between actually experiencing a supportive message when upset and making judgments about messages directed at hypothetical others" (p. 391). Data from live interactions allow scholars to assess what actually was said to comfort a distressed person, rather than what support receivers think would comfort them if they were upset. Moreover, live interaction increases the salience of moderating variables, including sex of the support provider, sex of the receiver, and communication channel, (Holmstrom et al., 2005). Scholars can create elaborate scenarios to describe the presence of certain variables; however, even the most carefully-crafted and descriptive accounts likely do not match the realism and intensity of encountering variables in live interactions.

There are substantial bodies of literature that investigate the influence of certain variables on support providers' VPC production ability and receivers' evaluations of

comforting messages; however, these research foci remain largely separate. In other words, support provider and receiver variables are usually examined in separate studies. The majority of the published message perception studies ignore characteristics of the support provider (Jones & Burleson, 2003), and the research that does involve live interaction is often confederate-based, thereby nullifying the perspective of the support provider. This experiment advances the study of VPC messages by examining provider and receiver perceptions of the same interaction. The use of third party observers also allowed me to obtain a neutral perspective on the quality of the supportive interactions. Obtaining multiple perspectives of the same interaction proved valuable given that different sources provided different conversational perceptions.

Another benefit from this research design is that I assessed participants' perceptions of several distinct outcome variables. An abundance of published VPC research has receivers evaluate messages on several dimensions, then scholars form general indices of comforting quality by averaging several conceptually distinguishable measures (i.e., Bodie et al., in press; Jones, 2004; Jones & Burleson, 1997, 2003; Jones & Guerrero, 2001; Lemieux & Tighe, 2004; Samter, Burleson, & Murphy, 1987). These studies combine items such as appropriateness, effectiveness, helpfulness, and sensitivity into composite measures that lose the nuance and richness of the individual variables. Indeed, scholars have confirmed that these items often represent distinct judgments of emotional support messages (Goldsmith & McDermott, 1997 as cited in Jones & Burleson, 1997). Research methodologies that measure distinct variables provide a more nuanced description of the comforting process. Although some of the dependent variables were intercorrelated in this study, I retained distinct variables to obtain participants' and raters'

assessments of several conceptually distinct outcome variables. Along these lines, participants assigned to the HPC condition rated messages produced by males as more sensitive in CMC than FtF; however, their evaluations of appropriateness and support quality did not vary by channel. Thus, there is value in employing conceptually distinct and properly measured outcome variables.

<div align="center">Directions for Future Research</div>

Scholars should continue to examine the influence of different communication channels on the support process. Mediated communication channels not only resulted in rated improvements to the support messages produced by men assigned to the HPC condition but also created better support experiences for receivers. Although Burleson, Holmstrom, and Gilstrap (2005) reported that there are certain things "guys can't say to guys," specifically HPC messages, this study clarifies their assertion and documents that men can indeed be sensitive to other men, they just might require a mediated channel to do so. Nevertheless, this study represents a first attempt to understand the influence of CMC channels on the process of VPC social support. Future research should extend this thinking and expand to other mediated technologies, such as text messaging and asynchronous e-mail or discussion boards.

Scholars have called for efforts to increase the usage of HPC messages by males (Burleson et al., 2005). This experiment suggests that CMC allows men to achieve more success providing HPC messages; however, more research could focus on increasing the prevalence of HPC support by men. Along these lines, this study provides empirical evidence that men possess the skills needed to provide HPC support; they may simply lack the motivation to do so. Because of this, scholars could develop interventions that attempt

to motivate men to be more sensitive purveyors of emotional support. Doing so would

benefit male support providers, their partners, and their interpersonal relationships.

Another potential direction for future research involves considering the overall,

gestalt nature of supportive exchanges. The support providers in this study were trained to

communicate one level of person-centeredness and were asked to stick with that

throughout their conversations. In reality, supportive interactions likely entail several

levels of person-centeredness that occur at varying points throughout an interaction.

Support providers may begin with LPC support, then transition to HPC messages when

they have more time to contemplate their partner and his or her stressor. The study of VPC

could benefit by combining multiple levels of VPC support and situating them in various

places along the timeline of a supportive conversation. It would be interesting to assess the

individual and combined influence of LPC, MPC, and HPC messages at different points in

a comforting conversation.

Scholars could also consider reconceptualizing the nature of LPC social support.

Although LPC support clearly belongs at the bottom of the VPC hierarchy, it is

questionable whether LPC messages even qualify as social support. Despite their

classification as a means of comfort, ignoring people's feelings, challenging why people

have not rectified a problem, and claiming that "shit happens" likely do not fit within most

people's lay conceptions of social support. Scholars could rework the notion of LPC

support to devise a level of person-centeredness that is still below MPC messages but is

not mean and does not belittle a distressed individual. Perhaps trite phrases such as "I'm

sorry," "Oh no," and "that stinks" could exemplify LPC support. A consistent focus on

generic messages that do not consider unique aspects of the situation or the distressed

person, thereby truly capturing the notion of *low person-centeredness,* should be emphasized in the development of LPC, yet still supportive, social support.

Despite more than 25 years of research on VPC messages, this field is still brimming with interesting theoretical and empirical research questions. Some scholars are working to consider moderators of the comforting process (i.e., Bodie et al., in press; Burleson, 2009), others are concentrating on the relational intricacies of support provision (i.e., Burleson et al., 2005; Holmstrom et al., 2005), and this study points to the value of focusing on the channels of VPC comfort. As evident in this manuscript, all of these avenues are worthwhile research foci. The diverse lenses through which the VPC process is examined all contribute to a more nuanced understanding of the support process. A continued appreciation of the processes and moderators through which support providers produce and receivers process VPC messages is likely to result in a better understanding of the personal, contextual, and relational features that are needed to optimally assuage people's emotions and allow them to cognitively reframe stressors into more manageable issues (see Burleson & Goldsmith, 1998). In returning to the question posed at the outset of this chapter, this study provides an answer that is both satisfying and disheartening at the same time. There is no single feature or quality that automatically produces effective social support in all situations. Rather, the best or highest quality support likely looks different for different people, with different roles in supportive interactions, in different contexts. Through research that appreciates the intricacy of these interactions and the influence of moderating variables, scholars will arrive at a more informed understanding of the particular combination of characteristics that truly yields the best or highest quality VPC social support.

References

Adams, S. J., Roch, S. G., & Ayman, R. (2005). Communication medium and member

familiarity: The effects on decision time, accuracy, and satisfaction. *Small Group*

Research, 36, 321-353.

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting*

interactions. Thousand Oaks, CA: Sage Publications.

Albrecht, T. L., & Adelman, M. B. (1987). Communicating social support: A theoretical

perspective. In T. L. Albrecht & M. B. Adelman (Eds.), *Communicating social*

support (pp. 18-39). Newbury Park, CA: Sage.

Albrecht, T. L., Burleson, B. R., & Goldsmith, D. J. (1994). Supportive communication. In

M. L. Knapp & G. R. Miller (Eds.), *Handbook of interpersonal communication* (2nd

ed., pp. 419-449). Thousand Oaks, CA: Sage.

Antonucci, T. C. (1990). Social support and social relationships. In R. H. Binstock & L. K.

George (Eds.), *Handbook of aging and the social sciences* (3rd ed., pp. 205-226).

Orlando, FL: Academic Press.

Antonucci, T. C., & Israel, B. A. (1986). Veridicality of social support: A comparison of

principal and network members' responses. *Journal of Consulting and Clinical*

Psychology, 54, 432-437.

Applegate, J. L. (1980). Person-centered and position-centered teach communication in a

day care center. *Studies in Symbolic Interactionism, 3,* 59-96.

Applegate, J. L., & Delia, J. G. (1980). Person-centered speech, psychological

development, and the contexts of language usage. In R. St. Clair & H. Giles (Eds.),

The social and psychological contexts of language (pp. 245-282). Hillsdale, NJ: Erlbaum.

Ashton, W. A., & Fuehrer, A. (1993). Effects of gender and gender-role identification of participants and type of social support resource on support seeking. *Sex Roles, 28,* 461-476.

Barbee, A. P., & Cunningham, M. R. (1995). An experimental approach to social support communications: Interactive coping in close relationships. In B. R. Burleson (Ed.), *Communication yearbook 18* (pp. 381-413). Thousand Oaks, CA: Sage.

Barbee, A. P., Derlega, V. J., Sherburne, S. P., & Grimshaw, A. (1998). Helpful and unhelpful forms of social support for HIV-positive individuals. In V. J. Derlega & A. P. Barbee (Eds.), *HIV and social interaction* (pp. 83-105). Thousand Oaks, CA: Sage.

Barbee, A. P., & Yankeelov, P. A. (1992, July). *Social support as a mechanism for relationship maintenance.* Paper presented that the annual meeting of the International Society for the Study of Personal Relationships.

Bargh, J. A., McKenna, K. Y. A., & Fitzsimons, G. M. (2002). Can you see the real me? Activation and expression of the "true self" on the Internet. *Journal of Social Issues, 58*, 33-48.

Barnes, M. K., & Duck, S. (1994). Everyday supportive contexts for social support. In B. R Burleson, T. L. Albrecht, & I. G. Sarason (Eds.), *Communication of social support* (pp. 175-194). Thousand Oaks, CA: Sage.

Barrera, M., Jr. (1981). Social support in the adjustment of pregnant adolescents. In B. H. Gottlieb (Ed.), *Social networks and social support* (pp. 69-96). Beverly hills, CA: Academic Press.

Baxter, L. A. (1986). Gender differences in the heterosexual relationship rules embedded in break-up accounts. *Journal of Social and Personal Relationships, 3,* 289-306.

Berkman, L. F. (1995). The role of social relations in health promotion. *Psychosomatic Medicine, 57,* 245-254.

Berkman, L. F., Glass, T., Brisette, L., & Seeman, T. E. (2000). From social integration to health: Durkheim in the new millennium. *Social Science and Medicine, 51,* 843-857.

Berkman, L. F., & Syme, S. L. (1979). Social networks, host resistance, and mortality: A nine-year follow-up study of Alameda county residents. *American Journal of Epidemiology, 109*, 186-204.

Biegel, D. E., McCardle, E., & Mendelson, S. (1985). *Social networks and mental health: An annotated bibliography.* Beverly Hills, CA: Sage.

Bimber, B. (2000). Measure the gender gap on the Internet. *Social Science Quarterly, 81,* 868-876.

Bjonrsdottir, G. (1999). Online social support for individuals concerned with heart disease: Observing gender differences. *Proceedings from the American Medical Informatics Association, 1999,* 681-685. Found at: www.amia.org/pubs/symposia/D005396.pdf.

Bodie, G. D., & Burleson, B. R. (2008). Explaining variations in the effects of supportive messages: A dual-process framework. In C. Beck (Ed.), *Communication yearbook 32* (pp. 354-398). New York, NY: Routelidge.

Bodie, G. D., Burleson, B. R., Gill-Rosier, J., McCullough, J. D., Holmstrom, A. J., Rack, J. J., Hanason, L., & Mincy, J. (in press). Explaining the impact of attachment style on evaluations of supportive messages: A dual-process framework. *Communication Research.*

Bolger, N., Kessler, R. C., & Zuckerman, A. (2000). Invisible support and adjustment to stress. *Journal of Personality and Social Psychology, 92,* 953-961.

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

Briton, N. J., & Hall, A. (1995). Beliefs about male and female nonverbal communication. *Sex Roles, 32,* 79–90.

Bucy, E. P. (2004). Interactivity in society: Locating an elusive concept. *The Information Society*, *20*, 373-383.

Burda, P. C., Vaux, A., & Schill, T. (1984). Social support resources: Variation across sex and sex role. *Personality and Social Psychology Bulletin, 10,* 119-126.

Burleson, B. R. (1982). The development of comforting communication skills in childhood and adolescence. *Child Development, 53,* 1578-1588.

Burleson, B. R. (1987). Cognitive complexity. In J. C. McCroskey & J. A. Daly (Eds.), *Personality and interpersonal communication* (pp. 305-349). Newbury Park, CA: Sage.

Burleson, B. R. (1994). Comforting messages: Features, functions, and outcomes. In J. A. Daly & J. M. Wiemann (Eds.), *Strategic interpersonal communication* (pp.135-161). Hillsdale, NJ : Lawrence Erlbaum.

Burleson, B. R. (2003). Emotional support skill. In J. O. Greene & B. R. Burleson (Eds.), *Handbook of communication and social interaction skills* (pp. 551-594). Mahwah, NJ: Lawrence Erlbaum.

Burleson, B. R. (2008). What counts as effective emotional support?: Explorations of situational and individual differences. In M. T. Motley (Ed.), *Studies in applied interpersonal communication* (pp. 207-227). Newbury Park, CA: Sage.

Burleson, B. R. (2009). Understanding the outcomes of supportive communication: A dual-process approach. *Journal of Social and Personal Relationships, 26,* 21-38.

Burleson, B. R., Albrecht, T. L., Goldsmith, D. J., & Sarason, I. G. (1994). The communication of social support. In B. R. Burleson, T. L. Albrecht, & I. G. Sarason (Eds.), *Communication of social support: Messages, interactions, relationships, and community.* (pp. xi-xxx). Thousand Oaks, CA: Sage.

Burleson, B. R., Delia, J. G., & Applegate, J. L. (1992). Effects of maternal communication and children's social-cognitive and communication skills on children's acceptance by the peer group. *Family Relations, 41,* 264-272.

Burleson, B. R., & Goldsmith, D. J. (1998). How the comforting process works: Alleviating emotional distress through conversationally induced reappraisals. In P. A. Andersen & L. K. Guerrero (Eds.), *Handbook of communication and emotion: Research, theory, applications, and contexts.* (pp. 245-280). San Diego, CA: Academic Press.

Burleson, B. R., Holmstrom, A. J., & Gilstrap, C. M. (2005). "Guys can't say *that* to guys": Four experiments assessing the normative motivation account for

deficiencies in the emotional support provided by men. *Communication Monographs, 72,* 468-501.

Burleson, B. R., & Kunkel, A. W. (1996). The socialization of emotional support skills in childhood. In G. R. Pierce, B. R. Sarason, & I. G. Sarason (Eds.), *Handbook of social support and the family* (pp. 105-140). New York, NY: Plenum Press.

Burleson, B. R., & MacGeorge, E. L. (2002). Supportive Communication. In M. L. Knapp and J. A. Daly (Eds.), *Handbook of interpersonal communication* (3rd ed., pp. 34-424). Thousand Oaks, CA: Sage Publications.

Burleson, B. R., & Samter, W. (1985). Consistencies in theoretical and naïve evaluations of comforting messages. *Communication Monographs, 52,* 103-123.

Burleson, B. R., & Samter, W. (1990).Effects of cognitive complexity on perceived importance of communication skills in friends. *Communication Research, 17,* 165-182.

Callaghan, P., & Morrissey, J. (1993). Social support and health: A review. *Journal of Advanced Nursing, 18,* 203-210.

Canary, D. J., & Spitzberg, B. H. (1987). Appropriateness and effectiveness perceptions of conflict strategies. *Human Communication Research, 14,* 93-118.

Caplan, G. (1974). *Support systems and community mental health: Lectures on concept development.* Pasadena, CA: Behavioral Publications.

Caplan, S. E. (2003). Preference for online social interaction: A theory of problematic Internet use and psychosocial well-being. *Communication Research, 30*, 625-648.

Caplan, S. E. (2005a). A social skill account of problematic Internet use. *Journal of Communication, 55*, 721-736.

Caplan, S. E. (2005b, August). *A two-step approach to studying problematic Internet use: Measurement and structural considerations.* Paper presented at the annual American Psychological Association conference, Washington, D.C.

Caplan, S. E., & Samter, W. (1999). The role of facework in younger and older adults' evaluations of social support messages. *Communication Quarterly, 47,* 245-264.

Caplan, S. E., & Turner, J. S. (2007). Bringing theory to research on computer-mediated comforting communication. *Computers in Human Behavior, 23,* 985-998.

Clark, R. A., Pierce, A. J., Finn, K., Hsu, K., Toosley, A., & Williams, L. (1998). The impact of alternative approaches to comforting, closeness of relationship, and gender on multiple measures of effectiveness. *Communication Studies, 49,* 224-239.

Clarke, H. H. (1992). *Arenas of language use.* Chicago, IL: University of Chicago Press.

Cobb, S. (1976). Social support as a moderator of life stress. *Psychosomatic Medicine, 38,* 300-314.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

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

Collins, N. L., & Feeney, B. C. (2000). A safe haven: An attachment theory perspective on support seeking and caregiving in intimate relationships. *Journal of Personality and Social Psychology, 78*, 1059-1073.

Coyne, J. C., Wortman, C. B., & Lehman, D. R. (1988). The other side of social support: Emotional overinvolvement and miscarried helping. In B. Gottleib (Ed.),

Marshalling social support: Formats, processes, and effects (pp. 305-330). Newbury Park, CA: Sage.

Culnan, M. J., & Marcus, M. L. (1987). Information technologies. In F. M. Jablin, L. L. Putnam, K. H. Roberts, & L. W. Porter (Eds.), *Handbook of organizational communication: An interdisciplinary perspective* (pp. 420-443). Newbury Park, CA: Sage.

Cunningham, M. R., & Barbee, A. P. (2000). Social support. In C. Hendrick & S. S. Hendrick (Eds.), *Close relationships: A sourcebook* (pp. 272-285). Thousand Oaks, CA: Sage.

Cutrona, C. E., & Russell, D. W. (1987). The provisions of social relationships and adaptations to stress. In W. H. Jones & D. Perlman (Eds.), *Advances in personal relationships* (Vol. 1, pp. 37-67). Greenwich, CT: JAI.

Cutrona, C. E., & Russell, D. W. (1990). Types of social support and specific stress: Toward a theory of optimal matching. In B. R. Burleson, I. G. Sarason, & G. R. Pierce (Eds.), *Social support: An interactional view* (pp. 319-366). New York: John Wiley.

Cutrona, C. E., & Suhr, J. A. (1994). Social support communication in the context of marriage: An analysis of couples' supportive interactions. In B. R. Burleson, T. L. Albrecht, & I. G. Sarason (Eds.), *Communication of social support: Messages, interactions, relationships and community.* (pp. 113-135). Thousand Oaks, CA: Sage.

Cutrona, C. E., Suhr, J. A., & MacFarlane, R. (1990). Interpersonal transactions and the psychological sense of support. In S. Duck (Ed.), *Personal relationships and social support* (pp. 30-45). London: Sage.

Daft, R. L., & Lengel, R. H. (1984). Information richness: A new approach to managerial behavior and organization design. In B. M. Staw & L. L. Cummings (Eds.), *Research in organizational behavior* (Vol. 6, pp. 191-233). Greenwich, CT: JAI.

Daft, R. L., & Lengel, R. H. (1986). Organizational information requirements, media richness and structural design. *Management Science, 32,* 554-571.

Daft, R. L., Lengel, R. H., & Trevino, L. K. (1987). Message equivocality, media selection, and manager performance: Implications for information systems. *MIS Quarterly, 11,* 355-366.

Dakof, G. A., & Taylor, S. E. (1990). Victims' perceptions of social support: What is helpful from Whom? *Journal of Personality and Social Psychology, 58,* 80-89.

Davis, R. A. (2001). A cognitive-behaviroal model of pathological Internet use. *Computers in Human Behavior, 17,* 187-195.

Davison, K. P., Pennebaker, J. W., & Dickerson S. S. (2000). Who talks? The social psychology of illness support groups. *American Psychologist, 55,* 205-217.

Dennis, A. R., & Kinney, S. T. (1998). Testing media richness theory in the new media: The effects of cues, feedback, and task equivocality. *Information Systems Research, 9,* 256-274.

Derlega, V. J., Winstead, B. A., Oldfield, E. C., Barbee, A. P. (2003). Close relationships and social support in coping with HIV: A test of sensitive interaction systems theory. *AIDS and Behavior, 7,* 119-129.

Dunkel-Shetter, C., Blasband, D., Feinstein, L., & Herbert, T. (1992). Evelments of supportive interactions: When are attempts to help effective? In S. Spacapan & S. Oskamp (Eds.), *Helping and being helped: Naturalistic studies* (pp. 83-114). Newbury Park, CA: Sage.

Dunn, J. (1999). Siblings, friends, and the development of understanding. In W. A. Collins & B. Laursen (Eds.), *Relationships as developmental contexts* (pp. 263-279). Mahwah, NJ: Erlbaum.

Dunthler, K. W. (2006). The politeness of requests made via email and voicemail: Support for the hyperpersonal model. *Journal of Computer-Mediated Communication*, 500-521.

Eagly, A. H. (1987). *Sex differences in social behavior: A social-role interpretation.* Hillsdale, NJ: Erlbaum.

Eckman, P., & Friesen, W. V. (1969). Nonverbal leakage and cues to deception. *Psychiatry, 32,* 88-105.

Ferguson, T. (1997). Healthcare in cyberspace: Patients lead a revolution. *The Futurist, 31,* 29-33.

Floyd, K., Mikkelson, A. C., Tafoya, M. A., Farinelli, L., La Valley, A. G., Judd, J., et al. (2007a). Human affection exchange XIV: Relational affection predicts resting heart rate and free cortisol secretion during acute stress. *Behavioral Medicine, 32,* 151-156.

Floyd, K., Mikkelson, A. C., Tafoya, M.A., Farinelli, L., La Valley, A. G., Judd, J., et al. (2007b). Human affection exchange: XIII. Affectionate communication accelerates neuroendocrine stress recovery. *Health Communication, 22*, 123-132.

Ford, N., & Miller, D. (1996). Gender differences in Internet perceptions of use. *Aslib Proceeding, 48,* 183-192.

Fukkink, R. (2010). Peer counseling in an online chat service: A content analysis of social support. *Cyberpsychology, Behavior, and Social Networking.* Found at: http://www.liebertonline.com/doi/abs/10.1089/cyber.2010.0163.

Gill, R., & Grint, K. (1995). *The gender-technology relation: Contemporary theory and research.* New York, NY: Taylor and Francis.

Goldsmith, D. (1994). The role of facework in supportive communication. In B. R. Burleson, T. L. Albrecht, & I. G. Sarason (Eds.), *Communication of social support: Messages, interactions, relationships, and community* (pp. 29-49). Thousand Oaks, CA: Sage.

Goldsmith, D., & MacGeorge, E. (2000). The impact of politeness and relationship on perceived quality of advice about a problem. *Human Communication Research, 26,* 234-263.

Goldsmith, D. J., & McDermott, V. M. (1997, May). *Helpful, supportive, and sensitive: Interpreting the outcomes of social support in personal relationships.* Paper presented at the National Communication Association conferences, Chicago, Il.

Hale, J. L., Tighe, M. R., & Mongeau, P. A. (1997). Effects of event type and sex on comforting messages. *Communication Research Reports, 14*, 214-220.

Hall, J. A. (1984). *Nonverbal sex differences: Communication accuracy and expressive style.* Baltimore, MD: The Johns Hopkins University Press.

Hannemyr, G. (2003). The Internet as hyperbole: A critical examination of adoption rates. *Information Society, 19,* 111-121.

Henderson, S., & Gilding, M. (2004). 'I've never clicked this much with anyone in my life': Trust and hyperpersonal communication in online friendships. *New Media & Society, 6,* 487-506.

High, A. C. (2006). *Does communicating via a mediated environment reduce the debilitating effects of social anxiety on interpersonal impression management?* Unpublished master's thesis, The University of Delaware, Newark, DE.

High, A. C., & Caplan, S. E. (2009). Social anxiety and computer-mediated communication: Implications for the hyperpersonal perspective. *Computers in Human Behavior, 25,* 475-482.

High, A. C., & Solomon, D. H. (2008, July). Making college feel like home: The role of computer-mediated and face-to-face support in the transition to college. Paper presented at the International Association of Relationship Research conference, Providence, Rhode Island.

Hildingh, C., Fridlund, B., & Segesten, K. (1995). Social support in self-help groups, as experienced by persons having coronary heart disease and their next of kin. *International Journal of Nursing Studies, 32*, 224-232.

Hiltz, R. S., Johnson, K., & Turoff, M. (1986). Experiments in group decision-making: Communication process and outcome in face-to face versus computerized conferences. *Human Communication Research, 13*, 225-252.

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

Hoffner, C., & Haeffner, M. J. (1997). Children's comforting of frightened coviewers: Real and hypothetical television viewing scenarios. *Communication Research, 24,* 136-152.

Holmstrom, A. J., Burleson, B. R., & Jones, S. M. (2005). Some consequences for helpers who deliver "cold comfort: Why it's worse for women than men to be inept when providing emotional support. *Sex Roles, 53,* 153-172.

Howland, M., & Simpson, J. A. (2010). Getting in under the radar: A dyadic view of invisible support. *Psychological Science, XX,* 1-8.

Johnson, F. (1996). Friendships among women: Closeness in dialogue. In J. T. Wood (Ed.), *Gendered relationships* (pp. 79-94). Mountain View, CA: Mayfield.

Johnson, R., Hobfoll, S. E., & Zalcberg-Linetzy, A. (1993). Social support knowledge and behavior and relational intimacy: A dyadic study. *Journal of Family Psychology, 6*, 266-277.

Jones, S. M. (2004). Putting the person into person-centered and immediate emotional support: Emotional change and perceived helper competence as outcomes of comforting in helping situations. *Communication Research, 31,* 338-360.

Jones, S. M. (2005). Attachment style differences and similarities in evaluations of affective communication skills and person-centered comforting messages. *Western Journal of Communication, 69,* 233-249.

Jones, S. M., & Burleson, B. R. (1997). The impact of situational variables on helpers' perceptions of comforting strategies. *Communication Research, 24,* 530-555.

Jones, S. M., & Burleson, B. R. (2003). Effects of helper and recipient sex on the experience and outcomes of comforting messages: An experimental investigation. *Sex Roles, 48,* 1-19.

Jones, S. M., & Guerrero, L. K. (2001). The effects of nonverbal immediacy and verbal person centeredness in the emotional support process. *Human Communication Research, 27,* 567-596.

Jones, S. M., & Wirtz, J. G. (2006). How *does* the comforting process work?: An empirical test of an appraisal-based model of comforting. *Human Communication Research, 32,* 217-243.

Kelly, L., & Keaten, J. A. (2007). Development of the affect for communication channels scale. *Journal of Communication, 57,* 349-365.

Kenny, D. A., Kashy, D. A., & Cook, W. L. (2006). *Dyadic data analysis.* New York, NY: Guilford Press.

Kerr, E. B., & Hiltz, S. R. (1982). *Computer-mediated communication systems: Status and evaluation.* New York: Academic Press.

Kessler, R. C. (1992). Perceived support and adjustment to stress. In H. O. F. Veiel & U. Baumann (Eds.), *The meaning and measurement of social support* (pp. 259-271). New York, NY: Hemisphere.

Kiesler, S. (1986). The hidden messages in computer networks. *Harvard Business Review, 64,* 46-54.

Kiesler, S., Siegel, J., & McGuire, T. W. (1984). Social psychological aspects of computer-mediated communication. *American Psychologist, 39,* 1123-1134.

Kohn, P. M. (1996). On coping adaptively with daily hassles. In M. Zeidner & N. S.
Endler (Eds.), *Handbook of coping* (pp. 181-201). New York: John Wiley & Sons.

Krause, N., Liang, J., & Yatomi, N. (1989). Satisfaction with social support and depressive
symptoms: A panel analysis. *Psychology and Again, 4,* 88-97.

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

Kunkel, A. W., & Burleson, B. R. (1999). Assessing explanations for sex differences in
emotional support: A test of different cultures and skills specialization accounts.
Human Communication Research, 25, 307-340.

Lakey, B., & Cassady, P. B. (1990). Cognitive processes in perceived social support.
Journal of Personality and Social Psychology, 59, 337-348.

Lakey, B., & Cohen, S. (2000). Social support theory and measurement. In S. Cohen, L. G.
Underwood, & B. H. Gottlieb (Eds.), *Social support measurement and
intervention: A guide for health and social scientists* (pp. 29-52). New York, NY:
Oxford University Press.

Lakey, B., Drew, J. B., & Sirl, K. (1999). Clinical depression and perceptions of
supportive others: A generalizability analysis. *Cognitive Therapy and Research, 23,*
511-533.

LaRose, R., Mastro, D., & Eastin, M. S. (2001). Understanding Internet usage: A social-
cognitive approach to uses and gratifications. *Social Science Computer Review*, *19*,
395-413.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping.* New York, NY: Springer Publishing Company, Inc.

Leaper, C. Carson, M., Baker, C., Holliday, H., & Myers, S. (1995). Self-disclosure and listener verbal support in same-gender and cross-gender friends' conversations. *Sex Roles, 33,* 387-404.

Lehman, D. R., Ellard, J. H., & Wortman, C. B. (1986). Social support for the bereaved: Recipients' and providers' perspectives on what is helpful. *Journal of Consulting and Clinical Psychology, 54,* 438-446.

Lehman, D. R., & Hemphill, K. (1990). Recipients' perceptions of support attempts and attributions for support attempts that fail. *Journal of Social and Personal Relationships, 7,* 563-574.

Lemieux, R., & Tighe, M. R. (2004). Attachment styles and evaluations of comforting responses: A receiver perspective. *Communication Research Reports, 21¸* 144-153.

Lenhart, A. (2000). *Who's not online.* Washington, DC: Pew Internet and American Life Project. Available (February 13, 2011) online: http://www.pewinternet.org/reports/pdfs/Pew_Those_Not_Online_Report.pdf.

Leonard, K. E., Roberts, L. J. (1998). The effects of alcohol on the marital interactions of aggressive and nonaggressive husbands and their wives. *Journal of Abnormal Psychology, 107,* 602-615.

Lombard, M. & Ditton, T. B. (1997). At the heart of it all: The concept of presence. *Journal of Computer-Mediated Communication, 3*. Retrieved from http://jcmc.indiana.edu/vol3/issue2/lombard.html.

MacGeorge, E. L., Feng, B., & Butler, G. L. (2003). Gender differences in the communication values of mature adults. *Communication Research Reports, 20,* 191-199.

MacGeorge, E. L., Gillihan, S. J., Samter, W., & Clark, R. A. (2003). Skill deficit or differential motivation?: Testing alternative explanations for gender differences in the provision of emotional support. *Communication Research, 30,* 272-303.

Madden, M., & Rainie, L. (2003). *America's online pursuits: The changing picture of who's online and what they do.* Washington, DC: Pew Internet & American Life Project. Retrieved from http://www.pewinternet.org/pdfs/PIP_Online_Pursuits_Final.PDF

Marwit, G., & Carusa, S. (1998). Communicated support following loss: Examining the experiences of parental death and parental divorce in adolescence. *Death Studies, 22,* 237-255.

McKenna, K. Y. A., Green, A. S., & Gleason, M. E. J. (2002). Relationship formation on the Internet: What's the big attraction. *Journal of Social Issues, 58*, 9-31.

McRae, R. R. (1984). Situational determinants of coping responses: Loss, threat, and challenge. *Journal of Personality and Social Psychology, 46,* 919-928.

Menzel, K. E., & Carrell, L. J. (1999). The impact of gender and immediacy on willingness to talk and perceived listening. *Communication Education, 48,* 31-40.

Morahan-Martin, J. (1999). The relationship between loneliness and Internet use and abuse. *Cyberpsychology and Behavior,* 2, 431-440.

Morahan-Martin, J., & Schumacher, P. (2000). Incidence and correlates of pathological Internet use among college students. *Computers in Human Behavior, 16,* 13-29.

O'Keefe, B. J., & Delia, J. G. (1982). Impression formation and message production. In M. E. Roloff & C. R. Berger (Eds.), *Social cognition and communication* (pp. 33-72). Beverly Hills, CA: Sage.

O'Sullivan, P. B. (2000). What you don't know won't hurt me: Impression management functions of communication channels in relationships. *Human Communication Research, 26*, 403-431.

Parks, M. R., & Floyd, K. (1996). Making friends in cyberspace. *Journal of Communication, 46,* 80-97.

Pennebaker, J. W. (1993). Putting stress into words: Health, linguistic, and therapeutic implications. *Behavior Research and Therapy, 31,* 539-548.

Pennebaker, J. W. (1997). Writing about emotional experience as a therapeutic process. *Psychological Science, 8,* 162-166.

Peter, J., & Valkenburg, P. M. (2006). Individual differences in perceptions of Internet communication. *European Journal of Communication, 21,* 213-226.

Peters-Golden, H. (1982). Breast cancer: Varied perceptions of social support in the illness experience. *Social Science and Medicine, 16,* 483-491.

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

Pierce, G. R., Sarason, I. G., & Sarason, B. R. (1996). Coping and social support. In M. Zeidner & N. S. Endler (Eds.), *Handbook of coping: Theory, research, and applications* (pp. 434-451). New York, NY: John Wiley.

Preese, J. (1999). Empathic communities: Balancing emotional and factual information. *Interacting with Computers, 12,* 63-77.

Qureshi, S., & Hoppel, C. (1995). Profiling computer predispositions. *Journal of Professional Services Marketing, 12,* 73-83.

Ramirez, A, Jr., & Burgoon, J. K. (2004). The effects of interactivity on initial interactions: The influence of information valence and modality and information richness on computer-mediated interaction. *Communication Monographs, 71*, 422-447.

Ramirez, A., & Zhang, S. (2007). When online meets offline: The effect of modality switching on relational communication. *Communication Monographs, 74,* 287-310.

Reisman, J. M. (1990). Intimacy in same-sex friendships. *Sex Roles, 23,* 65-82.

Rice, R. E., & Case, D. (1983). Electronic messages systems in the university: A description of use and utility. *Journal of Communication, 33,* 131-152.

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

Robinson, J. D., & Turner, J. (2003). Impersonal, interpersonal, and hyperpersonal social support: Cancer and Older Adults. *Health Communication, 15,* 227-234.

Rook, K. S. (1984). The negative side of social interaction: Impacts on psychological well-being. *Journal of Personality and Social Psychology, 46,* 1097-1108.

Rook, K. S. (1990). Parallels in the study of social support and social strain. *Journal of Social and Clinical Psychology, 9,* 118-132.

Roth, S., & Cohen, L. J. (1986). Approach, avoidance, and coping with stress. *American Psychologist, 41,* 813-819.

Rubin, A. M. (2002). The uses-and-gratifications perspective of media effects. In J. Bryant & D. Zillmann (Eds.), *Media effects: Advances in theory and research* (2nd ed., pp. 525-548). Mahwah, NJ: Erlbaum.

Samter, W. (2002). How gender and cognitive complexity influence the provision of emotional support: A study of indirect effects. *Communication Reports, 15,* 5-16.

Samter, W., & Burleson, B. R. (1990). Evaluations of communication skills as predictors of peer acceptance in a group living situations. *Communication Studies, 41,* 311-326.

Samter, W., Burleson, B. R., & Murphy, L. B. (1987). Comforting conversations: The effects of strategy type on evaluations of messages and message producers. *The Southern Speech Communication Journal, 52,* 263-284.

Samter, W., Whaley, B. B., Mortenson, S. T., & Burleson, B. R. (1997). Ethnicity and emotional support in same-sex friendship: A comparison of Asian Americans, African Americans, and Euro-Americans. *Personal Relationships, 4,* 413-430.

Sarason, B. R., Sarason, I. G., Hacker, T. A., & Basham, R. B. (1985). Concomitants of social support: Social skills, physical attractiveness, and gender. *Journal of Personality and Social Psychology, 49*(2), 469-480.

Sarason, B. R., Sarason, I. G., & Pierce, G. R. (1990). Traditional views of social support and their impact on assessment. In B. R. Sarason, I. G. Sarason, & G. R. Pierce (Eds.), *Social support: An interactional view* (pp. 9-25). New York, NY: John Wiley.

Schouten, A. P., Valkenburg, P. M., & Peter, J. (2007). Precursors and underlying processes of adolescents' online self-disclosure: Developing and testing an "Internet – Attribute – Perception" model. *Media Psychology, 10,* 292-315.

Schwarzer, R., & Leppin, A. (1992). Social support and mental health: A conceptual and empirical overview. In L. Montada, S. H. Filipp, & M. J. Lerner (Eds.), *Life crises and experiences of loss in adult life* (pp. 435-458). Hillsdale, NJ: Lawrence Erlbaum.

Servaty-Seib, H. L., & Burleson, B. R. (2007). Bereaved adolescents' evaluations of the helpfulness of support-intended statements: Associations with person centeredness and demographic, personality, and contextual factors. *Journal of Social and Personal Relationships, 24,* 207-223.

Sgoutas-Emch, S. A., & Johnson, C. J. (1998). Is journal writing an effective method of reducing anxiety towards statistics? *Journal of Instructional Psychology, 25,* 49-57.

Shah, D. V., Cho, J., Eveland, W. P., & Kwak, N. (2005). Information and expression in a digital age: Modeling Internet effects on civic participation. *Communication Research, 32*, 531-565.

Shiu, E., & Lenhart, A. (2004). *How Americans use instant messaging*. Washington, DC: Pew Internet and American Life Project. Retrieved from http://www.pewinternet.org/pdfs/PIP_Instantmessage_Report.pdf.

Short, J., Williams, E., & Christie, B. (1976). *The social psychology of telecommunications.* London: Wiley.

Sillars, A., Roberts, L. J., Leonard, K. E., & Dun, T. (2000). Cognition during marital conflict: The relationship of thought and talk. *Journal of Social and Personal Relationships, 17,* 479-502.

Smith, R. A., High, A. C., & Fink, E. L. (2008, November). Network semantics: Perceptions of influence success within a fictitious social network. Paper presented at the National Communication Association conference, San Diego, California.

Smyth, J. M., & Pennebaker, J. W. (1999). Sharing one's story: Translating emotional experiences into words as a coping tool. In C. R. Snyder (Ed.), *Coping: The psychology of what works* (pp. 70-89). New York, NY: Oxford University Press.

Strauss, S. G. (1997). Technology, group processes, and group outcomes: Testing the connections in performance in computer-mediated and face-to-face group. *Human-Computer Interaction, 12,* 227-266.

Strizke, W. G. K., Nguyen, A., & Durkin, K. (2004). Shyness and computer-mediated communication: A self-presentational theory perspective. *Communication Research, 14,* 1-22.

Stroebe, W., & Stroebe, M. (1996). The social psychology of social support. In E. T. Higgins & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (pp. 597-621). New York: Guilford.

Stromer-Galley, J. (2004). Interactivity-as-product and interactivity-as-process. *The Information Society*, *20*, 391-394.

Sullivan, C. F. (1996). Recipients' perceptions of support attempts across various stressful life events. *Communication Research Reports, 13,* 183-190.

Sundar, S. S. (2004). Loyalty to computer terminals: Is it anthropomorphism or consistency? *Behaviour & Information Technology*, *23*, 107-118.

Sundar, S. S. (2008). The MAIN model: A heuristic approach to understanding technology effects on credibility. In M. J. Metzger & A. J. Flanigan (Eds.), *Digital media, youth, and credibility* (pp. 73-100). Cambridge, MA: MIT Press.

Sundar, S. S., & Nass, C. (2000). Source orientation in human-computer interaction. *Communication Research, 27*, 683-703.

Sussman, S., & Sproull, L. (1999). Straight talk: Delivering bad news through electronic communication. *Information Systems Research, 10,* 150-167.

Taylor, S. E. (2002). *The tending instinct: How nurturing is essential for who we are and how we live.* New York, BY: Times Books.

Teo, T. S. H., & Lim, V. K. G. (2000). Gender differences in Internet usage and task preferences. *Behaviour & Information Technology, 19,* 283-295.

Tidwell, L. C., & Walther, J. B. (2002). Computer-mediated communication effects on disclosure, impressions, and interpersonal evaluations: Getting to know one another a bit at a time. *Human Communication Research, 28*, 317-348.

Todorov, A., Chaiken, S., & Henderson, M. D. (2002). The Heuristic-Systematic model of social information processing. In J. P. Dillard & M. Pfau (Eds.), *The persuasion handbook: Developments in Theory and Practice* (pp. 195-212). Thousand Oaks, CA: Sage.

Trevino, L. K., Lengel, R. H., & Daft, R. L. (1987). Media symbolism, media richness, and media choice in organizations. *Communication Research, 14,* 553-574.

Trobst, K. K., Collins, R. L., & Embree, J. M. (1994). The role of emotion in social support provision: Gender, empathy, and expressions of distress. *Journal of Social and Personal Relationships, 11,* 45-62.

Tsai, C. C. (2004). Adolescents' perceptions towards the Internet: A 4-T framework. *Cyberpsychology & Behavior, 7,* 458-463.

Turkle, S. (1988). Computational reticence: Why women fear the intimate machine. In C. Kramarae (Ed.), *Technology and women's voices: Keeping in touch* (pp. 41-61). New York, NY: Routledge Press.

Turner, J. W., Grube, J. A., & Meyers, J. (2001). Developing an optimal match within online communities: An exploration of CMC support communities and traditional support. *Journal of Communication, 51*, 231-251.

Turoff, M. (1991). Computer-mediated communication requirements for group support. *Journal of Organizational Computing, 1,* 85-113.

Uchino, B. N., Cacioppo, J. T., & Keicolt-Glaser, J. K. (1996). The relationship between social support and physiological processes: A review with emphasis on underlying mechanisms and implications for health. *Psychological Bulletin, 119*, 488-531.

Verhofstadt, L. L., Buyse, A., Ickes, W. (2007). Social support in couples: An examination of gender differences using self-report and observational methods. *Sex Roles, 57,* 267-282.

Verhofstadt, L. L., Buyse, A., Ickes, W., Davis, M., & Devoldre, I. (2008). Support provision in marriage: the role of emotional similarity and empathic accuracy. *Emotion, 8,* 792-802.

Wajcman, J. (1991). *Feminism confronts technology.* Cambridge, UK: Polity Press.

Wallace, P. M. (1999). *The psychology of the Internet.* New York, Cambridge University Press.

Walther, J. B. (1992). Interpersonal effects in computer-mediated interaction: A relational perspective. *Communication Research, 19,* 52-89.

Walther, J. B. (1993). Construction and validation of a quantitative measure of impression development. *Southern Communication Journal, 59,* 27-33.

Walther, J. B. (1994). Anticipated ongoing interaction versus channels effects on relational communication in computer-mediated interaction. *Human Communication Research, 20,* 473-501.

Walther, J. B. (1996). Computer-mediated communication: Impersonal, interpersonal, and hyperpersonal interaction. *Communication Research, 23,* 3-43.

Walther, J. B. (1997). Group and interpersonal effects in international computer-mediated collaboration. *Human Communication Research, 23,* 342-369.

Walther, J. B. (2006). Nonverbal dynamics in computer-mediated communication, or :(and the Net :('s with you, :) and you :) alone. In V. Manusov & M. L. Patterson (Eds.), *Handbook of nonverbal communication* (pp 461-480). Thousand Oaks, CA: Sage.

Walther, J. B., & Boyd, S. (2001). Attraction to computer-mediated social support. In C. A. Lin & D. Atkins (Eds.), *Communication technology and society: Audience adoption and uses of the new media* (pp. 133-167). New York: Hampton Press.

Walther, J. B., & Burgoon, J. K. (1992). Relational communication in computer-mediated interaction. *Human Communication Research, 19,* 50-88.

Walther, J. B., Loh, T., & Granka, L. (2005). Let me count the ways: The interchange or verbal and nonverbal cues in computer-mediated and face-to-face affinity. *Journal of Language and Social Psychology, 24*, 36-65.

Walther, J. B., & Parks, M. R. (2002). Cues filtered out, cues filtered in: Computer-mediated communication relationships. In M. L. Knapp, J. A. Daly, & G. R. Miller (Eds.), *The handbook of Interpersonal Communication* (3rd. ed., pp. 529-559). Thousand Oaks, CA: Sage.

Walther, J. B., Slovacek, C. L., & Tidwell, L. C. (2001). Is a picture worth a thousand words? Photographic images in long-term and short-term computer-mediated communication. *Communication Research, 28*, 105-134.

Wan, C. K., Jaccard, J., & Ramey, S. L. (1996). The relationship between social support and life satisfaction as a function of family structure. *Journal of Marriage and the Family, 58,* 502-513.

Weiser, E. B. (2000). Gender differences in Internet use patterns and Internet application preferences: A two-sample comparison. *CyberPsychology & Behavior, 3,* 167-178.

Williams, E. (1977). Experimental comparisons of face-to-face and mediated communication: A review. *Psychological Bulletin, 84,* 963-974.

Winzelberg, A. (1997). The analysis of an electronic support group for individuals with eating disorders. *Computers in Human Behavior, 13*, 393-407.

Wood, J. T. (1994). *Who care? Women, care, and culture.* Carbondale, IL: Southern Illinois University Press.

Wright, K. B. (1999). Computer-mediated support groups: An examination of social

> support, perceived stress, and coping strategies. *Communication Quarterly, 47*,

> 402-414.

Wright, K. B. (2000a). Computer-mediated social support, older adults, and coping.

> *Journal of Communication, 50,* 100-118.

Wright, K. B. (2000b). Perceptions of on-line support providers: An examination of

> perceived homophily, source credibility, communication, and social support within

> on-line support groups. *Communication Quarterly, 48*, 44-59.

Wright, K. B. (2002). Social support within an on-line cancer community: An assessment

> of emotional support, perceptions of advantages and disadvantages, and motives for

> using the community from a communication perspective. *Journal of Applied*

> *Communication Research, 30*, 195-209.

Wright, K. B., & Bell, S. B. (2003). Health-related support groups on the Internet: Linking

> empirical findings to social support and computer-mediated communication theory.

> *Journal of Health Psychology, 8*, 39-54.

Xu, Y., & Burleson, B. R. (2001). Effects of sex, culture, and support type on perceptions

> of spousal social support: An assessment of the "support gap" hypothesis in early

> marriage. *Human Communication Research, 24*, 535-566.

Yankeelov, P. A., Barbee, A. P., Cunningham, M. R., Druen, P., & Berry, M. (1993, June).

> *Cognitive and emotional influences on the interactive coping process in romantic*

> *couples.* Paper presented at the International Conference on Personal Relationships,

> Milwaukee, WI.

Appendix A

Pre-interaction Questionnaire

We'd like to begin this survey by asking you a few questions so we can link your answers to this survey with your other answers.

1. Please enter the FIRST TWO letters of your LAST NAME. _____

2. On what number date were you born? For example, if you were born on June 17th, enter "17." _____

3. Please enter the FIRST TWO letters of your mother's maiden name. _____

4. What is your gender? *Please mark one:*   ____ Male

     ____ Female

     ____ Transgender

     ____ Other (please specify)

5. What was your age on your last birthday?   _____ years

6. What is your ethnicity? *Please mark all that apply:*

     ____ Black or African American   ____ Asian

     ____ White or Caucasian   ____ Native Hawaiian and other Pacific Islander

     ____ Hispanic or Latino   ____ Native American or Alaska Native

     ____ Other

7. Computer Usage

About how many years have you been an Internet user?	Six months or less	A year ago	2 or 3 years ago	4 years	5 years	6 or more years	I don't know
	1	2	3	4	5	6	7

	I don't know	Never	Every few months	Every few weeks	1-2 days a week	3-5 days a week	About once a day	Several times a day
About how often do you go online?								
About how often do you engage in online interactions with people you don't know (e.g., on discussion boards, chat rooms)?								
About how often do you go use Instant Messaging software (IM, AIM)?								

8. Gender schematicity/Sex Role Inventory

How well do the following terms apply to how you see yourself?

		Not at all				A great deal
1	Masculine	1	2	3	4	5
2	Feminine	1	2	3	4	5

9. I think that most people typically see me as . . .

Extremely feminine				Extremely masculine
1	2	3	4	5

Below, you will find listed a number of personality characteristics. We would like you to use those characteristics to describe yourself, that is, we would like you to indicate, on a scale from 1 to 7, how true of you each of these characteristics is.

Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true
1	2	3	4	5	6	7

1	Defend my own beliefs	1	2	3	4	5	6	7
2	Affectionate	1	2	3	4	5	6	7
3	Conscientious	1	2	3	4	5	6	7
4	Independent	1	2	3	4	5	6	7

5	Sympathetic	1	2	3	4	5	6	7
6	Moody	1	2	3	4	5	6	7
7	Assertive	1	2	3	4	5	6	7
8	Sensitive to needs of others	1	2	3	4	5	6	7
9	Reliable	1	2	3	4	5	6	7
10	Strong personality	1	2	3	4	5	6	7
11	Understanding	1	2	3	4	5	6	7
12	Jealous	1	2	3	4	5	6	7
13	Forceful	1	2	3	4	5	6	7
14	Compassionate	1	2	3	4	5	6	7
15	Truthful	1	2	3	4	5	6	7
16	Have leadership abilities	1	2	3	4	5	6	7
17	Eager to soothe hurt feelings	1	2	3	4	5	6	7
18	Secretive	1	2	3	4	5	6	7
19	Willing to take risks	1	2	3	4	5	6	7
20	Warm	1	2	3	4	5	6	7
21	Adaptable	1	2	3	4	5	6	7
22	Dominant	1	2	3	4	5	6	7
23	Tender	1	2	3	4	5	6	7
24	Conceited	1	2	3	4	5	6	7

25	Willing to take a stand	1	2	3	4	5	6	7
26	Love children	1	2	3	4	5	6	7
27	Tactful	1	2	3	4	5	6	7
28	Aggressive	1	2	3	4	5	6	7
29	Gentle	1	2	3	4	5	6	7
30	Conventional	1	2	3	4	5	6	7

10. POSI

Next, we would like to obtain some information about how you use the Internet and other technology. Please answer the following questions to best of your ability.

Please mark the number that best indicates your level of agreement with each of the following statements.

1	2	3	4	5
STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE

1	I prefer communicating with other people online rather than face-to-face.	1	2	3	4	5
2	I feel like I have more control over conversations online than I do in face-to-face conversations.	1	2	3	4	5
3	Meeting and talking with people is better when done online than in face-to-face situations.	1	2	3	4	5
4	I am willing to give up some of my face-to-face relationships to have more time for my online relationships.	1	2	3	4	5

		1	2	3	4	5
5	My relationships online are more important to me than many of my face-to-face relationships.	1	2	3	4	5
6	I am happier being online than I am offline.	1	2	3	4	5

11. Social Support strategies

Everyone has problems that they need to deal with or times when they need to be cheered up. The following statements describe things that other people sometimes do when we have a problem or feel badly. We would like to know how much you want somebody to do these behaviors when you have a problem or feel badly. If you don't like the reaction described in the statement, choose a number near the "not at all" end of the scale. If you really like for someone to react in the way described by a statement, choose a number near the "very much" end of the scale.

1	**2**	**3**	**4**	**5**
Not at all				**Very much**

1	Ask me questions about the details of my problem.	1	2	3	4	5
2	Give me insight into my problem.	1	2	3	4	5
3	Give me suggestions about how to solve my problem.	1	2	3	4	5
4	Offer time, effort, or money to help solve my problem.	1	2	3	4	5
5	Try to understand my point of view about problems that I have.	1	2	3	4	5
6	Show me affection, such as hugging me, when I am upset.	1	2	3	4	5
7	Tell me how he or she cares about me when I am upset.	1	2	3	4	5
8	Listen attentively and show sympathy and understanding when I am upset.	1	2	3	4	5

9	Offer to do something with me, like going for a walk or taking me out, when I am upset.	1	2	3	4	5
10	Compliment or reassure me that I can handle things when I am upset.	1	2	3	4	5
11	Hint or suggest that I control my feelings when I am upset.	1	2	3	4	5
12	Tell me that there is nothing I can do about my problems.	1	2	3	4	5
13	Make light of my feelings when I am upset.	1	2	3	4	5
14	Tell me that my problems are not serious.	1	2	3	4	5
15	Remind me of other people's problems that are worse than mine.	1	2	3	4	5
16	Change the topic when I bring up my problems.	1	2	3	4	5
17	Ignore me when I am upset or mention that I am upset.	1	2	3	4	5
18	Criticize the way I handle my problems.	1	2	3	4	5
19	Express his/her irritation with me when I am upset.	1	2	3	4	5
20	Encourage me to do something, like getting drunk or watching TV, to escape the way I am feeling.	1	2	3	4	5

12. Social support preferences/support orientation

When people experience stress, they tend to seek help from a variety of people including friends, family members, dating partners, or spouses. We are interested in learning what you desire from those people. We want to know what is important and what kind of things you desire when you are experiencing stress.

1	2	3	4	5
Don't Desire at All	**Desire Rarely**	**Desire Occasionally**	**Desire Regularly**	**Desire a Great Deal**

1	Giving you advice about what to do	1	2	3	4	5
2	Analyzing a situation with you and telling you about available choices and options	1	2	3	4	5
3	Giving you reasons why you should or should not do something	1	2	3	4	5
4	Teaching you how to do something you don't know how to do	1	2	3	4	5
5	Providing detailed information about the situation or about skills needed to deal with the situation	1	2	3	4	5
6	Telling you that he/she loves you and feels close to you	1	2	3	4	5
7	Promising to keep problems you discuss in confidence	1	2	3	4	5
8	Providing you with hope or confidence	1	2	3	4	5
9	Expressing sorrow or regret for your situation or distress	1	2	3	4	5
10	Offering attentive comments when you speak	1	2	3	4	5
11	Expressing esteem or respect for a competency or personal quality of yours	1	2	3	4	5
12	Telling you that you are still a good person even when you have a problem	1	2	3	4	5
13	Expressing agreement with your perspective on various situations	1	2	3	4	5
14	Telling you that a lot of people enjoy being with you	1	2	3	4	5
15	Assuring you that you are a worthwhile person	1	2	3	4	5
16	Offering to provide you with access to new companions	1	2	3	4	5
17	Connecting you with people whom you may turn to for help	1	2	3	4	5
18	Connecting you with people whom you can confide in	1	2	3	4	5
19	Reminding you of the availability of companions who share similar interests or experiences with you	1	2	3	4	5

20	Helping you find the people who can assist you with things	1	2	3	4	5
21	Offering to lend you something (including money)	1	2	3	4	5
22	Taking care of your domestic chores when you are feeling ill	1	2	3	4	5
23	Doing laundry or cooking for you	1	2	3	4	5
24	Expressing willingness to help you when you are in need of help	1	2	3	4	5
25	Offering to help you do something that needs to be done	1	2	3	4	5

13. Social Anxiety

		Strongly disagree	Disagree	Agree some and disagree some	Agree	Strongly agree
1	I feel relaxed even in unfamiliar social situations.	1	2	3	4	5
2	I try to avoid situations which force me to be very sociable.	1	2	3	4	5
3	It is easy for me to relax when I am with strangers.	1	2	3	4	5
4	I have no particular desire to avoid people.	1	2	3	4	5
5	I often find social occasions upsetting.	1	2	3	4	5
6	I usually feel calm and comfortable at social occasions.	1	2	3	4	5
7	I am usually at ease when talking to someone of the opposite sex.	1	2	3	4	5

8	I try to avoid talking to people unless I know them well.	1	2	3	4	5
9	If the chance comes to meet new people, I often take it.	1	2	3	4	5
10	I often feel nervous or tense in casual get togethers in which both sexes are present.	1	2	3	4	5
11	I am usually nervous with people unless I know them well.	1	2	3	4	5
12	I usually feel relaxed when I am with a group of people.	1	2	3	4	5
13	I often want to get away from people.	1	2	3	4	5
14	I usually feel uncomfortable when I am in a group of people I don't know.	1	2	3	4	5
15	I usually feel relaxed when I meet someone for the first time.	1	2	3	4	5
16	Being introduced to people makes me tense and nervous.	1	2	3	4	5
17	Even though a room is full of strangers, I may enter it anyway.	1	2	3	4	5
18	I would avoid walking up and joining a large group of people.	1	2	3	4	5
19	When my superiors want to talk	1	2	3	4	5

	with me, I talk willingly.					
20	I often feel on edge when I am with a group of people.	1	2	3	4	5
21	I tend to withdraw from people.	1	2	3	4	5
22	I don't mind talking to people at parties or social gatherings.	1	2	3	4	5
23	I am seldom at ease in a large group of people.	1	2	3	4	5
24	I sometimes take the responsibility for introducing people to each other.	1	2	3	4	5
25	I try to avoid formal social occasions.	1	2	3	4	5
26	I usually go to whatever social engagement I have.	1	2	3	4	5
27	I find it easy to relax with other people.	1	2	3	4	5
28	I often think up excuses in order to avoid social engagements.	1	2	3	4	5

Appendix B

Problem Identification Task

You have been assigned to be the discloser in the conversation you're about to have. Before you start the conversation, we need to identify a problem or stressor for you to talk about during your interaction. Our job right now is to think about the various challenges or problems that you're experiencing, or recently experienced, and identify one of those to talk about. Specifically, please think of personal problems that you're currently experiencing or things you have recently experienced. Personal problems can be caused by a variety of stressors, including another person, a relationship, or a problematic situation. For example, dealing with work stress, problems in your social life or living situation, changing a bad habit, and discussing a personal quality you'd like to change about yourself all constitute personal problems. Basically, think of things that are annoying, upsetting, or bothering you right now.

Please write a separate problem down on each of these index cards. Try to think of up to 10 problems. You don't have to be specific when you name the problems; just provide enough detail so that you recognize the situation that you're referring to.

Possible problem topics:

- Relational partners

- Financial issues

- Parent problems

- Roommate issues

- Relative (siblings, grandparent problems)

- Class/grade stressors

- Loss of someone important

- Changing a bad habit or quality about yourself

- Pet problems

After you think of up to 10 problems, please rate the severity of each on a 1 – 100 scale. 1 represents problems that you're not very concerned about; 100 represents a very severe problem. There are no right or wrong answers in rating these problems. Only you know how much a certain problem is bothering you.

Next, please write "yes" or "no" on each card to indicate whether you'd be willing to talk about this problem with the other person who came to this research session. Yes means that you'd be willing to talk about this problem. No means you are not willing to do so.

Select the problem that has the highest severity rating that people are willing to talk about with the other person. Note: do not allow the participants to talk about anything illegal or anything overly serious, harmful, or severe problem.

Appendix C

LPC Support Training

You've been selected to be the support provider in this interaction. Specifically, I'm going to train you how to provide a style of social support that focuses on minimizing a partner's problems. For the next several minutes, I'm going to talk about ways to comfort someone using this style of support and provide you with example messages. When we're finished with the training, you're going to have a chance to practice and try out these comforting techniques during a conversation with the other person who came to this research session.

Qualities of the support you're going to provide:

- Use messages that minimize the other person's problems and emotions

- Ignore the person's feelings

- Change the focus of the conversation to your own problems or a similar situation that happened to you in the past

- Encourage your partner to forget about his/her feelings

- Put the blame on the partner for their stress/the situation

- Claim the situation was meant to happen and that the person should just move on with his/her life

- Divert the conversation's focus to an irrelevant topic (e.g., Guess what happened to me today at lunch)

- Challenge the actions that people have (or haven't) done to fix the problem

Tips

- Provide short responses

- Be vague

- Don't elaborate on your responses

- Avoid eye contact

- Emphasize that, in the end, the person needs to take responsibility for the problem

- Use standard "box mix" comforting messages

- Don't emphasize the severity of the problem or the person's emotions

Example messages:

- I think you really just need to get over it

- It's not the end of the world. I'm sure you'll get over this.

- Well, this really is your problem to figure out

- Sometimes things happen and there's nothing we can do about it. Just forget about it

- I don't think you should be upset with anyone but yourself because I know you didn't give it your best effort.

- Shake it off. Shit happens

- Well, it doesn't seem like you've done much to really improve your situation, have you?

- Showcase turning attention to yourself: "That reminds me of a time that I . . . ."

Appendix D

MPC Support Training

You've been selected to be the support provider in this interaction. Specifically, I'm going to train you how to provide a style of social support that provides a moderate level of involvement. You're going to learn how to recognize and soothe a person's feelings about a problem. Your goal will be to acknowledge the person's problem and emotions without being overly sensitive or involving. For the next several minutes, I'm going to talk about ways to comfort someone using this style of support and provide you with example messages. When we're finished with the training, you're going to have a chance to practice and try out these comforting techniques during a conversation with the other person who came to this research session.

Qualities of the support you're going to provide:

- Recognize or legitimize the person's feelings, but don't dwell on them

- Use condolences

- Ask questions to clarify the details of the stressor

- Comment on the situation to make your partner elaborate with additional detailed

- Express acknowledgment or understanding of what the other person is saying

- Express a interest in or concern over the situation or your partner, while you keep yourself calm and detached.

- "Smooth over" negative feelings

- Divert the person's attention

- Try to reduce people's emotional distress

Tips

- Try to avoid brief messages, but don't use overly involving or lengthy messages either

- Recognize people's emotions but don't go overboard

- Try not to smother your partner

- Show that you understand what the other person is saying

- Try not to let people dwell on their negative feelings

- Try to get your partner's mind off of his or her problem

- Try to avoid advising people on how to cope with their emotions

Example messages:

- I'm sorry to hear that

- Well, why do you think this bothers you so much?

- What happened then?

- It's too bad that happened

- Wow, that sounds pretty bad

- I'm sorry this happened to you; however, you'll always have another chance to make it

  right

Appendix E

HPC Support Training

You've been selected to be the support provider in this interaction. Specifically, I'm going to train

you how to provide a very sophisticated style of social support that provides a high level of

involvement. Your goal will be to acknowledge the person's problem and emotions as well as

allow your partner to understand those feelings in a larger context. For the next several minutes,

I'm going to talk about ways to comfort someone using this style of support and provide you with

example messages. When we're finished with the training, you're going to have a chance to

practice and try out these comforting techniques during a conversation with the other person who

came to this research session.

Qualities of the support you're going to provide:

- Use messages that encourage people to focus on their emotions

- Express empathy

- Encourage your partner to talk about his or her feelings

- Accept your partner's emotions

- Reassure your partner that he or she seems like a good person, despite the problem he or
  she is having

- Try to provide alternative explanation or another way to look at a distressing situation

- Explain your partner's feelings in a broader context

Tips

- Be sure you elaborate your responses so that you are clear about your meaning and have
  included a lot of detail.

- Maintain eye contact

- Show that you're listening

- Ask questions

- Make sure your partner continues to focus on the positive aspects of him or herself

- Try to make the partner feel better about him or herself

- Let your partner know that it's OK to be feeling the way they are

- Appear accepting and understanding

- Allow your partner to elaborate on his or her feelings in a positive manner

- Offer strategies to cope with negative emotions or the problem

Example messages:

- I totally understand. I feel so bad for you

- Hey, how are you feeling right now?

- I don't blame you for feeling that way

- You're a smart person and I'm sure this won't happen again

- Maybe something good will come of this situation in the long run

- You did everything you could, considering the circumstances, and I know how much it hurt when you couldn't control the situation and ended up with what seems like negative results.

- I completely understand why you would feel those emotions. I'd feel the exact same way

- I am really sorry. You must be just crushed. It seems like this really means a lot to you

- You might try talking to someone to see if there's anything you can do. You never know, maybe something good can come out of this if you stick with it a bit longer

Appendix F

Post-interaction Survey for Support Providers

There are four sections to this survey that correspond to different things we'd like to know about your perceptions of the conversation you just had with your partner. First, we'd like to know how you view the relationship you established with your partner. Second, we're interested in how you felt during the conversation. Third, we'd like to know what you think of your partner. Finally, we just want to learn a little bit about your perceptions of the conversation, in general.

First, we'd like to ask a few questions so we can link your answers to this survey with your other answers.

1. Please enter the FIRST TWO letters of your LAST NAME. _____

2. On what number date were you born? For example, if you were born on June 17th, enter "17." _____

3. Please enter the FIRST TWO letters of your mother's maiden name. _____

4. Did you know (or have you met) your partner at any time BEFORE participating in this study?

_____ Yes, I knew my partner prior to this study

_____ No, I did not know my partner prior to this study

_____ I am not sure if I knew or met my partner prior to this study.

5. During your interaction, were you the discloser or the support provider?

____ Discloser

____ Support provider

6. Liking/Attraction

Please indicate the degree to which you agree or disagree with the following statements as they apply to the person you just had the conversation with.

		Strongly Disagree	Disagree	Agree some and disagree some	Agree	Strongly Agree
1	I think he (she) could be a friend of mine	1	2	3	4	5
2	It would be difficult to meet and talk with him (her)	1	2	3	4	5
3	He (she) just wouldn't fit into my circle of friends	1	2	3	4	5
4	We could never establish a personal friendship with each other	1	2	3	4	5
5	I would like to have a friendly chat with him (her)	1	2	3	4	5

7. Perceived homophily

On the scale below, please indicate your feelings about your partner who you just had the conversation with. Choose the number that best represents your feelings.

My partner. . .

		Strongly Disagree	Disagree	Agree some and disagree some	Agree	Strongly Agree
1	Thinks like me	1	2	3	4	5
2	Behaves like me	1	2	3	4	5
3	Is similar to me	1	2	3	4	5
4	Is like me	1	2	3	4	5
5	Has things in common with me	1	2	3	4	5

This next section is going to ask you several questions about your experience during the interaction.

8. Self-presentational confidence

Please answer the following questions thinking of the conversation you just completed and how well you were able to present yourself to your partner.

		Strongly disagree	Disagree	Agree some and disagree some	Agree	Strongly Agree
1	I could get my partner to think positively of me	1	2	3	4	5

2	I was viewed in a positive light by my partner	1	2	3	4	5
3	I could get my partner to think highly of me	1	2	3	4	5
4	I was able to make a good impression	1	2	3	4	5
5	My partner enjoyed talking with me	1	2	3	4	5
6	I could take a risk during the conversation	1	2	3	4	5
7	I confidently expressed myself	1	2	3	4	5
8	I could speak my mind	1	2	3	4	5
9	I confidently disclosed personal information	1	2	3	4	5
10	I could confidently talk about my personal qualities	1	2	3	4	5

9. Ease of message production

Think of what you said and how you felt while you were talking to your partner. We'd like to know

a bit about how easy or difficult it was to produce the messages you were trained to provide. Use

the following scale to answer the following questions.

		Strongly disagree	Disagree	Agree some and disagree some	Agree	Strongly agree
1	I had no problem producing the messages I was trained to provide	1	2	3	4	5
2	It was easy think of things to say	1	2	3	4	5
3	This conversation was easy	1	2	3	4	5
4	Our interaction was not difficult at all	1	2	3	4	5
5	This was a relatively simple conversation	1	2	3	4	5
6	I experienced a lot of difficulty communicating support to my partner as instructed	1	2	3	4	5

7	I had a tough time producing the supportive messages I was trained to provide	1	2	3	4	5
8	Creating the supportive messages I was trained to provide was difficult	1	2	3	4	5
9	I always stuck to the kind of messages I was trained to provide	1	2	3	4	5
10	My contributions to the conversation frequently differed from the messages I was trained to provide	1	2	3	4	5

10. Interaction involvement

These are others questions about how you felt during the conversation you just completed. Please select the options that best describes how you felt.

		Strongly Disagree	Disagree	Agree some and disagree some	Agree	Strongly Agree

1	I was keenly aware of how my partner perceived me during our conversation	1	2	3	4	5
2	My mind wandered and I often missed parts of what was going on	1	2	3	4	5
3	I wasn't sure what to say. I couldn't seem to find the appropriate lines	1	2	3	4	5
4	I was very observant of my partner's reactions while I was speaking	1	2	3	4	5
5	During our conversation, I listened carefully to my partner and obtained as much information as I could	1	2	3	4	5
6	I wasn't sure what my role was. I wasn't sure how I was expected to relate to my partner	1	2	3	4	5
7	I pretended to listen, when in fact I was	1	2	3	4	5

	thinking of something else					
8	I felt like I know what needed to be said (like accepting a compliment or asking a question), but I hesitated to do so	1	2	3	4	5
9	Sometimes during the conversation, I wasn't what my partner really meant or intended by certain comments	1	2	3	4	5
10	I carefully observed how my partner was responding to me during our conversation	1	2	3	4	5
11	I often felt withdrawn or distant during our conversation	1	2	3	4	5
12	I wasn't sure what my partner's needs were (e.g., a compliment or reassurance, etc.) until it was too late to respond appropriately	1	2	3	4	5

13	I felt confident during our conversation. I was sure of what to say and do.	1	2	3	4	5
14	I was preoccupied during our conversation and didn't pay complete attention to my partner	1	2	3	4	5
15	I felt sort of "unplugged" during the conversation. I was uncertain of my role, my partner's motives, and what was happening	1	2	3	4	5
16	In our conversation, I did not accurately perceive my partner's intentions or motivations	1	2	3	4	5

17	I was very perceptive to the meaning of my partner's behavior in relation to myself and the situation	1	2	3	4	5
18	Often during our conversation, I couldn't think of what to say. I just didn't react quickly enough.	1	2	3	4	5
19	I felt like my partner was really present in the interaction	1	2	3	4	5
20	I felt as though my conversation was involving	1	2	3	4	5
21	I thought about my partner's tone of voice	1	2	3	4	5
22	I paid attention to what was being said	1	2	3	4	5

19-22= social presence

11. Self-perceived quality of support

Thinking of the interaction you just had with your partner, please use the following scale to

indicate how you feel about that conversation

		Strongly disagree	Disagree	Agree some and disagree some	Agree	Strongly agree
1	I think that the conversation was high quality	1	2	3	4	5
2	The conversation was good	1	2	3	4	5
3	I felt as though I supported my partner	1	2	3	4	5
4	That was an excellent supportive conversation	1	2	3	4	5
5	The conversation probably made my partner feel better	1	2	3	4	5
6	The conversation made my partner feel supported	1	2	3	4	5
7	My partner probably doesn't feel any better after that interaction	1	2	3	4	5

8	That interaction made my partner feel worse	1	2	3	4	5
9	The interaction helped with the problem my partner was having	1	2	3	4	5
10	The conversation helped my partner feel better about his or her problem	1	2	3	4	5

Now we'd like you to switch your attention to the partner you had in the conversation. Please answer the questions in this next section of the survey, which will focus on your perceptions of your partner.

12. Appropriateness

Complete the following items about your conversational partner and what he/she said during your interaction. Use the following scale and choose the best number to indicate your feelings.

		Strongly disagree	Disagree	Agree some and disagree some	Agree	Strongly agree
1	My partner said several things that seemed out of place in the conversation					
2	He/she was a smooth conversationalist					

3	Everything he/she said was appropriate					
4	Occasionally, his/her statements made me feel uncomfortable					
5	His/her conversation was very suitable to the situation					
6	Some of the things he/she said were awkward					
7	His/her communication was very proper					
8	He/she said some things that should not have been said					
9	I was embarrassed at times by his/her remarks					
10	Some of his/her remarks were inappropriate					

11	I was comfortable throughout the conversation with his/her remarks					
12	Some of the things he/she said were in bad taste					
13	None of his/her remarks were embarrassing to me					
14	He/she said some things that were simply the incorrect thing to say					
15	He/she did not violate any of my expectations in the conversation					
16	The *way* he/she said some of his/her remarks was unsuitable					

17	The things he/she spoke about were all in good taste as far as I'm concerned					
18	Some of his/her remarks were simply improper					
19	He/she interrupted me in the conversation					
20	At least one of his/her remarks was rude					
21s	He/she communicated in a sensitive manner					
22s	He/she seemed sensitive					
23c	He/she is a good listener					
24c	He/she is easy to talk to					
25c	He/she didn't follow the conversation very well					
26c	He/she is a likeable person					

27c	He/she generally says the right thing at the right time				
28c	He/she is sensitive to others' needs at the moment				

S = sensitivity items

C = communicative competence items

13. Perceptions of a partner's anxiety

The following items describe how people communicate in various situations. Choose the number from the following scale that best describes how you believe *your partner* felt during the conversation you just completed.

		Strongly Disagree	Disagree	Agree some and disagree some	Agree	Strongly Agree
1	My partner seemed tense and nervous	1	2	3	4	5
2	My partner seemed self-confident while talking	1	2	3	4	5

3	While talking, my partner seemed afraid of making an embarrassing or silly slip of the tongue	1	2	3	4	5
4	My partner seemed worried about what I thought of him/her	1	2	3	4	5
5	My seemed calm when he/she was talking	1	2	3	4	5
6	My partner seemed unable to think clearly when he/she spoke	1	2	3	4	5
7	He/she seemed poised and in control while he/she was talking	1	2	3	4	5
8	My partner's words became confused and jumbled when he/she was speaking	1	2	3	4	5
9	My partner seemed relaxed when he/she was talking	1	2	3	4	5

14. Immediacy/Involvement

Below is a series of statements about your perceptions of your conversation and your partner. For each one, please choose a number from 1 to 5, depending on the degree to which you agree or disagree with the statement.

		Strongly disagree	Disagree	Agree some and disagree some	Agree	Strongly agree
1	He/she was intensely involved in our conversation	1	2	3	4	5
2	He/she found the conversation stimulating	1	2	3	4	5
3	He/she acted bored by our conversation	1	2	3	4	5
4	He/she showed enthusiasm while talking to me	1	2	3	4	5
5	He/she seemed involved in the conversation	1	2	3	4	5
6	He/she was distracted during our interaction	1	2	3	4	5

7	He/she appeared attentive to the conversation	1	2	3	4	5
8	He/she seemed interested in talking to me	1	2	3	4	5
9	He/she seemed indifferent to our conversation	1	2	3	4	5

1-4 = immediacy; 5-9 = involvement

Ok, just one more section to go. This time, please think of your general perceptions or impressions of the conversation you just had. This last set of items is about how you view the interaction you just completed.

15. Interaction realism

Please use the following scale to indicate how realistic or believable you found the interactions with your partner.

		Strongly disagree	Disagree	Agree some and disagree some	Agree	Strongly agree
1	Our conversation was realistic	1	2	3	4	5

2	Our interaction was similar to others I've had with people	1	2	3	4	5
3	Our interaction does not seem typical to me	1	2	3	4	5
4	Our conversation felt natural	1	2	3	4	5
5	That interaction did not seem realistic	1	2	3	4	5

16. Media Richness

Lastly, please use the following scale to indicate your perceptions of the conversation you just completed.

		Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
1	Our conversation allowed my partner and me to give and receive timely feedback	1	2	3	4	5
2	We were able to tailor our interaction to our own personal requirements	1	2	3	4	5

3	Our interaction allowed my partner and me to communicate in a variety of different cues (such as emotional tone, attitude, or formality)	1	2	3	4	5
4	We were able to use rich and varied language in our conversation	1	2	3	4	5

Appendix G

Post-interaction Survey for Support Receivers

There are four sections to this survey that correspond to different things we'd like to know about your perceptions of the conversation you just had with your partner. First, we'd like to know how you view the relationship you established with your partner. Second, we'd like to know what you think of your partner and the things he or she said to you. Third, we're interested in how you felt during the conversation. Finally, we just want to learn a little bit about your perceptions of the conversation, in general.

First, we'd like to ask a few questions so we can link your answers to this survey with your other answers.

1. Please enter the FIRST TWO letters of your LAST NAME. _____

2. On what number date were you born? For example, if you were born on June 17th, enter "17." _____

3. Please enter the FIRST TWO letters of your mother's maiden name. _____

4. Did you know (or have you met) your partner at any time BEFORE participating in this study?

_____ Yes, I knew my partner prior to this study

_____ No, I did not know my partner prior to this study

_____ I am not sure if I knew or met my partner prior to this study.

5. During your interaction, were you the discloser or the support provider?

____ Discloser

____ Support provider

6. Perceived homophily

On the scale below, please indicate your feelings about your partner who you just had the conversation with. Choose the number that best represents your feelings.

My partner. . .

		Strongly Disagree	Disagree	Agree some and disagree some	Agree	Strongly Agree
1	Thinks like me	1	2	3	4	5
2	Behaves like me	1	2	3	4	5
3	Is similar to me	1	2	3	4	5
4	Is like me	1	2	3	4	5
5	Has things in common with me	1	2	3	4	5

7. Liking/Attraction

Please indicate the degree to which you agree or disagree with the following statements as they apply to the person you just had the conversation with.

		Strongly Disagree	Disagree	Agree some and disagree some	Agree	Strongly Agree
1	I think he (she) could be a friend of mine	1	2	3	4	5
2	It would be difficult to meet and talk with him (her)	1	2	3	4	5

3	He (she) just wouldn't fit into my circle of friends	1	2	3	4	5
4	We could never establish a personal friendship with each other	1	2	3	4	5
5	I would like to have a friendly chat with him (her)	1	2	3	4	5

This second set of questions will ask you what you think of your partner and the things he or she said during the interaction. The following questions will focus on your impressions of your partner and his or her contributions to the conversation.

8. Appropriateness

Complete the following items about your conversational partner and what he/she said during your conversation. Use the following scale and choose the best number to indicate your feelings.

		Strongly disagree	Disagree	Agree some and disagree some	Agree	Strongly agree
1	My partner said several things that seemed out of place in the conversation					

2	He/she was a smooth conversationalist					
3	Everything he/she said was appropriate					
4	Occasionally, his/her statements made me feel uncomfortable					
5	His/her conversation was very suitable to the situation					
6	Some of the things he/she said were awkward					
7	His/her communication was very proper					
8	He/she said some things that should not have been said					
9	I was embarrassed at times by his/her remarks					
10	Some of his/her remarks were inappropriate					

11	I was comfortable throughout the conversation with his/her remarks					
12	Some of the things he/she said were in bad taste					
13	None of his/her remarks were embarrassing to me					
14	He/she said some things that were simply the incorrect thing to say					
15	He/she did not violate any of my expectations in the conversation					
16	The *way* he/she said some of his/her remarks was unsuitable					
17	The things he/she spoke about were all in good taste as far as I'm concerned					

18	Some of his/her remarks were simply improper					
19	He/she interrupted me in the conversation					
20	At least one of his/her remarks was rude					
21s	He/she communicated in a sensitive manner					
22s	He/she seemed sensitive					
23c	He/she is a good listener					
24c	He/she is easy to talk to					
25c	He/she didn't follow the conversation very well					
26c	He/she is a likeable person					
27c	He/she generally says the right thing at the right time					
28c	He/she is sensitive to others' needs at the moment					

S = sensitivity items

C = communicative competence items

9. Support quality

Thinking of the interaction you just had with your partner, please use the following scale to
indicate how you feel about that conversation

		Strongly disagree	Disagree	Agree some and disagree some	Agree	Strongly agree
1	I think that the conversation was high quality	1	2	3	4	5
2	The conversation was good	1	2	3	4	5
3	I felt supported	1	2	3	4	5
4	That was an excellent supportive conversation	1	2	3	4	5
5	The conversation made me feel better	1	2	3	4	5
6	The conversation made me feel supported	1	2	3	4	5
7	I don't feel any better after that interaction	1	2	3	4	5
8	That interaction made me feel worse	1	2	3	4	5

9	The interaction helped with the problem I was having	1	2	3	4	5
10	The conversation helped me feel better about my problem	1	2	3	4	5

10. Perceptions of a partner's anxiety

The following items describe how people communicate in various situations. Choose the number from the following scale that best describes how you believe *your partner* felt during the conversation you just completed.

		Strongly Disagree	Disagree	Agree some and disagree some	Agree	Strongly Agree
1	My partner seemed tense and nervous	1	2	3	4	5
2	My partner seemed self-confident while talking	1	2	3	4	5
3	While talking, my partner seemed afraid of making an embarrassing or silly slip of the tongue	1	2	3	4	5
4	My partner seemed worried about what I thought of him/her	1	2	3	4	5

5	My seemed calm when he/she was talking	1	2	3	4	5
6	My partner seemed unable to think clearly when he/she spoke	1	2	3	4	5
7	He/she seemed poised and in control while he/she was talking	1	2	3	4	5
8	My partner's words became confused and jumbled when he/she was speaking	1	2	3	4	5
9	My partner seemed relaxed when he/she was talking	1	2	3	4	5

11. Immediacy/Involvement

Below is a series of statements about your perceptions of your conversation and your partner. For each one, please choose a number from 1 to 5, depending on the degree to which you agree or disagree with the statement.

		Strongly disagree	Disagree	Agree some and disagree some	Agree	Strongly agree
1	He/she was intensely involved in our conversation	1	2	3	4	5
2	He/she found the conversation stimulating	1	2	3	4	5
3	He/she acted bored by our conversation	1	2	3	4	5
4	He/she showed enthusiasm while talking to me	1	2	3	4	5
5	He/she seemed involved in the conversation	1	2	3	4	5
6	He/she was distracted during our interaction	1	2	3	4	5
7	He/she appeared attentive to our conversation	1	2	3	4	5

8	He/she seemed interested in talking to me	1	2	3	4	5
9	He/she seemed indifferent to our conversation	1	2	3	4	5

1-4 = immediacy; 5-9 = involvement

For this next section, we'd like you to shift your attention to your own experience of the conversation. The next set of questions will focus on your thoughts and feelings about the conversation.

12. Self-presentational confidence

Please answer the following questions thinking of the conversation you just completed and how well you were able to present yourself to your partner.

		Strongly disagree	Disagree	Agree some and disagree some	Agree	Strongly Agree
1	I could get my partner to think positively of me	1	2	3	4	5
2	I was viewed in a positive light by my partner	1	2	3	4	5
3	I could get my partner to think highly of me	1	2	3	4	5
4	I was able to make a good impression	1	2	3	4	5

5	My partner enjoyed talking with me	1	2	3	4	5
6	I could take a risk during the conversation	1	2	3	4	5
7	I confidently expressed myself	1	2	3	4	5
8	I could speak my mind	1	2	3	4	5
9	I confidently disclosed personal information	1	2	3	4	5
10	I could confidently talk about my personal qualities	1	2	3	4	5

13. Interaction involvement

These are other questions about how you felt during the conversation you just completed. Please select the options that best describes how you felt.

		Strongly disagree	Disagree	Agree some and disagree some	Agree	Strongly Agree
1	I was keenly aware of how my partner perceived me during our conversation	1	2	3	4	5

2	My mind wandered and I often missed parts of what was going on	1	2	3	4	5
3	I wasn't sure what to say. I couldn't seem to find the appropriate lines	1	2	3	4	5
4	I was very observant of my partner's reactions while I was speaking	1	2	3	4	5
5	During our conversation, I listened carefully to my partner and obtained as much information as I could	1	2	3	4	5
6	I wasn't sure what my role was. I wasn't sure how I was expected to relate to my partner	1	2	3	4	5
7	I pretended to listen, when in fact I was thinking of something else	1	2	3	4	5

8	I felt like I know what needed to be said (like accepting a compliment or asking a question), but I hesitated to do so	1	2	3	4	5
9	Sometimes during the conversation, I wasn't what my partner really meant or intended by certain comments	1	2	3	4	5
10	I carefully observed how my partner was responding to me during our conversation	1	2	3	4	5
11	I often felt withdrawn or distant during our conversation	1	2	3	4	5
12	I wasn't sure what my partner's needs were (e.g., a compliment or reassurance, etc.) until it was too late to respond appropriately	1	2	3	4	5

13	I felt confident during our conversation. I was sure of what to say and do.	1	2	3	4	5
14	I was preoccupied during our conversation and didn't pay complete attention to my partner	1	2	3	4	5
15	I felt sort of "unplugged" during the conversation. I was uncertain of my role, my partner's motives, and what was happening	1	2	3	4	5
16	In our conversation, I did not accurately perceive my partner's intentions or motivations	1	2	3	4	5
17	I was very perceptive to the meaning of my partner's behavior in relation to myself and the situation	1	2	3	4	5

18	Often during our conversation, I couldn't think of what to say. I just didn't react quickly enough.	1	2	3	4	5
19	I felt like my partner was really present in the interaction	1	2	3	4	5
20	I felt as though my conversation was involving	1	2	3	4	5
21	I thought about my partner's tone of voice	1	2	3	4	5
22	I paid attention to what was being said	1	2	3	4	5

19-22 = social presence

Ok, just one more section to go. This time, please think of your general perceptions or impressions of the conversation you just had. This last set of items is about how you view the interaction you just completed.

14. Interaction realism

Please use the following scale to indicate how realistic or believable you found the interactions with your partner.

		Strongly disagree	Disagree	Agree some and disagree some	Agree	Strongly agree
1	Our conversation was realistic	1	2	3	4	5
2	Our interaction was similar to others I've had with people	1	2	3	4	5
3	Our interaction does not seem typical to me	1	2	3	4	5
4	Our conversation felt natural	1	2	3	4	5
5	That interaction did not seem realistic	1	2	3	4	5

15. Media Richness

Lastly, please use the following scale to indicate your perceptions of the conversation you just completed.

		Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
1	Our conversation allowed my partner and me to give and receive timely feedback	1	2	3	4	5
2	We were able to tailor our interaction to our own personal requirements	1	2	3	4	5
3	Our interaction allowed my partner and me to communicate in a variety of different cues (such as emotional tone, attitude, or formality)	1	2	3	4	5
4	We were able to use rich and varied language in our conversation	1	2	3	4	5

Appendix H

Dissertation Observational Data Rating Manual

Verbal person-centeredness (VPC) = the extent to which a message "reflects an awareness of and adaptation to the affective, subjective, and relational aspects of communication contexts."

3 main levels:

- Low person-centered (LPC) messages condemn or deny people's feelings. This also includes ignoring emotions and a problem or challenging their legitimacy.

  o LPC messages should be rated 1 – 2 (maybe 3) on the scales below

- Medium person-centered (MPC) messages acknowledge emotions but don't allow people to elaborate on or better understand their feelings. MPC comfort also includes reframing a stressor, often by trying to divert people's attention.

  o MPC messages should be rated 3 – 5 on the scales below

- High person-centered (HPC) messages explicitly acknowledge, elaborate, or explore others' feelings. These messages help people understand their emotions and a problem by helping people gain perspective on how these things fit in a larger context.

  o HPC messages should be rated 6 – 7 (maybe 5) on the scales below

LPC	**MPC**	**HPC**
Change convo to focus on provider's own problems	Acknowledge/paraphrase problem & emotions	Focuses on emotions
Blame the person	Propose an explanation that doesn't blame the person	Empathetic & accepting when emotions are discussed
Claim the situation was meant to happen	Suggest a diversion to get the person's mind off the problem	Reassure person that he/she is a good person; bolster self-esteem

Ignore feelings	Only moderately involving; the support provider is still calm & detached	Explain feelings in a broader context in a sensitive manner
"It's not the end of the world. I'm sure you'll get over this." "Shake it off. Shit happens" "Sometimes things happen and there's nothing we can do about it."	"I'm sorry to hear ____/you're feeling ____." "It's too bad that happened." "Why don't you take a break and _____" "Maybe X caused the problem, not you."	"I totally understand. I feel bad for you." "You seem like a smart person. Hopefully this won't happen again." "I completely understand why you feel that way. I'd feel the exact same way."

We're going to rate these VPC messages on several factors.

- Who they're **centered** on. Whereas LPC messages are often self-centered, HPC messages are totally centered on the other person. MPC messages are mixed. Support providers talking about their own problems is LPC support, unless it's done in a very sensitive and effective manner (maybe to let the person know others have gone through the same thing and were ok). If this is done effectively, then it may be more HPC comfort.

- **Validation.** This concerns whether people confirm or substantiate others' problems or emotions. LPC messages ignore people's problems and emotions and treat them as if they're not a big deal. HPC messages make it seem like a problem or emotions are important and worthy of discussion.

- **Judging.** This dimension focuses on how a support provider makes a receiver feel for feeling a certain way. LPC messages judge another person, challenge the legitimacy of emotions, or make people feel dumb for feeling a certain way. HPC messages let people

know it's normal, natural, or OK to feel a certain way. MPC messages mention emotions but don't provide any sort of judgment.

- **Acknowledgement.** Similar to validation. This dimension concerns the degree to which support providers admit that people's problems are real, true, or important. Whereas HPC messages highlight people's problems/emotions and their importance, LPC messages encourage people to ignore their problems/emotions and consider them to be minor issues. MPC messages slightly recognize problems/emotions, but don't make a big deal out of them.

- **Concern.** This dimension notes how concerned, worried, or bothered a support provider is over a receiver. LPC messages are not overly concerned about other people, their problems, or their emotions. LPC messages may even shift the conversational focus to a support provider's own problems. MPC messages demonstrate a concern for others, but they don't allow other people to elaborate or explore their problems/emotions. HPC messages are totally focused on the other person. They show a great deal or concern for other people and their problems.

- **Emotions.** This variable concerns the emotional content of the conversations. LPC messages ignore, or rarely focus on emotions. MPC messages should at least paraphrase emotions, but they won't dwell on feelings. HPC messages often focus on emotions and do so in a sensitive manner.

- **VPC.** I just want to know what level of VPC you think the support providers' messages are. 1 = very LPC messages or bad support. 7 = very high quality and effective HPC support.

Our goal is to rate how person-centered, sensitive, and supportive you think these conversations are. Social support involves communication (both verbal and nonverbal) that is intended to make a distressed individual feel cared for by others. Further, social support includes

verbal messages that are intended to alleviate or lessen the emotional distress of others. Supportive

or comforting statements can also agree with a person's feelings, statements, or thoughts; provide

information or resources to help a person deal with a problem; offer to do things to help; bolster a

person's self-esteem; or supply positive evidence to 'back up' a distressed person's statements or

feelings. Social support may even involve disagreeing when a person expresses negative opinions

or feelings about him or herself.

Use the following scales to make these judgments.

Self-centered	1	2	3	4	5	6	7	Other-centered
Invalidates	1	2	3	4	5	6	7	Validates
Judges	1	2	3	4	5	6	7	Empathizes
Disregards	1	2	3	4	5	6	7	Acknowledges
Unconcerned	1	2	3	4	5	6	7	Concerned
Ignores emotions	1	2	3	4	5	6	7	Emotion-focused
Very LPC	1	2	3	4	5	6	7	Very HPC
Not at all supportive or neutral	1	2	3	4	5	6	7	Extremely supportive
Insensitive	1	2	3	4	5	6	7	Sensitive
Ineffective	1	2	3	4	5	6	7	Effective

Table 1

Correlations among Variables Rated by Third Party Observers

Variable	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10
V1: Self/Other Centered[a]	---									
V2: Validating[b]	0.91**	---								
V3: Judging[b]	0.90**	0.98**	---							
V4: Acknowledging[c]	0.91**	0.99**	0.98**	---						
V5: Concerned[b]	0.92**	0.98**	0.97**	0.98**	---					
V6: Emotion-focused[b]	0.92	0.97**	0.96**	0.97**	0.98**	---				
V7: VPC[a]	0.94**	0.98**	0.97**	0.98**	0.99**	0.98**	---			
V8: Supportive[c]	0.93	0.97**	0.97**	0.98**	0.98**	0.97**	0.99**	---		
V9: Sensitive[b]	0.91	0.98**	0.98**	0.98**	0.98**	0.98**	0.98**	0.98**	---	
V10: Effective[c]	0.92	0.96**	0.95**	0.96**	0.97**	0.96**	0.97**	0.98**	0.97**	---

Note. The $N = 254$ dyads. The third party observers were unable to rate one dyad due to a malfunction in taping a FtF dyad.

[a] Denotes a code predicted by the person-centeredness factor. [b] Denotes a code predicted by the sensitivity factor. [c] Denotes a code predicted by the supportiveness factor.

$* p < 0.05.$ $** p < 0.01$

Table 2

Correlations among Self-report Variables

Variable	V1	V2	V3	V4	V5	V6	V7
V1: Self-presentational confidence	---						
V2: Ease of message production	0.54**	---					
V3: Sensitivity	0.30**	0.09	---				
V4: Support quality	0.69**	0.62**	0.38**	---			
V5: Appropriateness	0.40**	0.23**	0.56**	0.44**	---		
V6: POSI	-0.05	-0.10	-0.01	0.01	-0.12**	---	
V7: Realism	0.59**	0.57**	0.27**	0.70**	0.40**	-0.01	---

Note. $N = 510$, except for ease of message production ($N = 255$), which was measured only for support providers.

** $p < 0.01$

Table 3

Correlations between Support Providers and Receivers

Variable	R: SPC	R: Ease[a]	R: Support Quality	R: Appropriateness	R: Sensitivity	R: Realism
P: SPC	0.31**	N/A	0.43**	0.26**	0.29**	0.38**
P: Ease	0.12*	N/A	0.26**	0.17**	0.20**	0.21**
P: Support Quality	0.35**	N/A	0.45**	0.32**	0.35**	0.39**
P: Appropriateness	0.16**	N/A	0.10	0.17**	0.21**	0.07
P: Sensitivity	0.08	N/A	0.01	0.11	0.12*	0.05
P: Realism	0.27**	N/A	0.31**	0.18**	0.20**	0.31**

Note. P indicates support provider variables. R indicates support receiver variables. SPC = Self-presentational confidence

[a] Support receivers were not asked about their perceptions of the ease of message production. *N*s ranged from 252 – 254.

* $p < 0.05$. ** $p < 0.01$

Table 4

t-tests Comparing Variables for Males and Females

Variable		Males	Females	*t*
POSI	*M*	2.02	1.93	1.60
	SD	0.73	0.84	
	N	242	267	
Self-presentational confidence	*M*	3.66	3.52	2.43*
	SD	0.60	0.64	
	N	240	266	
Ease of message production	*M*	3.57	3.48	0.88
	SD	0.64	0.68	
	N	122	131	
Support quality	*M*	3.36	3.21	2.09*
	SD	0.83	0.88	
	N	131	266	
Appropriateness	*M*	4.20	4.13	1.62
	SD	0.95	0.98	
	N	240	266	
Sensitivity	*M*	3.65	3.61	0.47
	SD	0.85	0.92	
	N	240	266	
Realism	*M*	3.35	3.35	0.01
	SD	0.86	0.90	

	N	240	266

Note. Ease of message production was measured for support providers only. All variables were measured on 5-point Likert-type scales.

$*p < 0.05$.

Table 5

t-tests Comparing Variables for Communication Channel

Variable		FtF	CMC	*t*
POSI	*M*	1.92	2.03	-1.87
	SD	0.62	0.61	
	N	254	256	
Self-presentational confidence	*M*	3.65	3.52	2.28*
	SD	0.59	0.65	
	N	252	255	
Ease of message production	*M*	3.44	3.61	-1.88
	SD	0.77	0.74	
	N	126	127	
Support quality	*M*	3.29	3.27	0.18
	SD	0.80	0.84	
	N	252	256	
Appropriateness	*M*	4.19	4.13	1.33
	SD	0.53	0.56	
	N	252	255	
Sensitivity	*M*	3.61	3.65	-0.45
	SD	0.75	0.84	
	N	252	255	
Realism	*M*	3.38	3.33	0.75
	SD	0.87	0.89	

N	252	255	

Table 6

Conversational Perceptions Depending on Level of VPC

Variable	*F*	LPC vs. MPC	LPC vs. HPC	MPC vs. HPC
Rated VPC	160.05***	-1.94***	-2.47***	-0.53***
Rated Sensitivity	210.60***	-2.12***	-2.87***	-0.53***
Rated Supportiveness	184.37***	-2.06***	-2.80***	-0.74***
pSupport Quality	37.19***	-0.70***	-0.87***	-0.17
pSPC	34.69***	-0.59***	-0.70***	-0.12
pEase	13.55***	-0.42***	-0.57***	-0.15
rAppropriateness	27.50***	-0.51***	-0.55***	-0.04
rSupport Quality	16.98***	-0.45***	-0.69***	-0.24
rSensitivity	34.80***	-0.81***	-0.88***	-0.07

Note. The lowercase p indicates variables for support providers, and the lowercase r indicates variables for support receivers. pSPC = Support providers' self-presentational confidence. pEase = Support providers' perceptions of their ease of message production. df for all *F*-tests = (2, 253). Values for the cells comparing levels of VPC are mean differences.

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$

Table 7

POSI Scores by Participant Sex, Communication Channel, Experimental Role, and 3-Level VPC Condition

Low VPC	FtF		CMC	
	Support Providers	Support Receivers	Support Providers	Support Receivers
Males	2.12 (0.59)	2.10 (0.74)	2.04 (0.56)	2.31 (0.62)
Females	1.85 (0.66)	1.79 (0.57)	2.02 (0.67)	1.90 (0.54)
Medium VPC	FtF		CMC	
	Support Providers	Support Receivers	Support Providers	Support Receivers
Males	2.02 (0.58)	1.61 (0.50)	2.09 (0.59)	2.04 (0.72)
Females	1.97 (0.59)	1.78 (0.52)	1.79 (0.55)	1.97 (0.49)
High VPC	FtF		CMC	
	Support Providers	Support Receivers	Support Providers	Support Receivers
Males	2.12 (0.87)	1.88 (0.60)	1.89 (0.57)	2.00 (0.57)
Females	1.87 (0.55)	2.00 (0.54)	2.05 (0.80)	2.22 (0.54)

Note. Table entries are means. Parenthetical values are standard deviations. Cell *N*s ranged from 19 - 24.

Table 8

Realism Scores by Provider Sex and 3-Level VPC Condition

Support Providers' Realism	LPC	MPC	HPC
Male Providers'	3.20 (2.93, 3.47)$_a$	3.41 (3.14, 3.69)$_a$	3.57 (3.29, 3.84)$_a$
Female Providers'	2.71 (2.45, 2.97)$_a$	3.61 (3.34, 3.88)$_b$	3.71 (3.46, 3.96)$_b$

Support Receivers' Realism	LPC	MPC	HPC
Male Providers	3.32 (3.07, 3.58)$_a$	3.40 (3.15, 3.66)$_a$	3.54 (3.28, 3.80)$_a$
Female Providers	2.81 (2.57, 3.06)$_a$	3.33 (3.07, 3.58)$_b$	3.68 (3.44, 3.92)$_b$

Dyadic Realism	LPC	MPC	HPC
Male Providers	3.26 (3.06, 3.47)$_a$	3.41 (3.20, 3.62)$_a$	3.55 (3.34, 3.76)$_a$
Female Providers	2.76 (2.57, 2.96)$_a$	3.46 (3.26, 3.67)$_b$	3.70 (3.50, 3.89)$_b$

Note. The scores in each cell are means for realism. Parenthetical values are 95% confidence intervals surrounding those means. Within each row, cells with different subscripts differ at $p < 0.05$.

Table 9

H2b: Raters' Perceptions of Supportive by Communication Channel and 3-Level VPC

Condition Interaction

Rated Sensitivity		LPC	MPC	HPC
	FtF	2.38 (2.12, 2.64)$_a$	4.23 (3.96, 4.49)$_b$	4.85 (4.58, 5.12)$_c$
	CMC	2.45 (2.19, 2.72)$_a$	4.87 (4.60, 5.14)$_b$	5.68 (5.41, 5.94)$_c$
Rated Supportiveness		LPC	MPC	HPC
	FtF	2.43 (2.16, 2.70)$_a$	4.19 (3.92, 4.47)$_b$	4.85 (4.57, 5.12)$_c$
	CMC	2.59 (2.32, 2.86)$_a$	4.95 (4.68, 5.22)$_b$	5.70 (5.43, 5.97)$_c$

Note. The scores in each cell are means. Parenthetical values are 95% confidence intervals surrounding those means. Within each row, cells with different subscripts differ at *p* < 0.05.

Table 10

H4: Support Providers' Perceptions of Communication Efficacy by a Provider Sex and 2-

Level VPC Condition Interaction

Self-presentational Confidence	LPC	HPC
Male Providers	3.33 (3.15, 3.51)$_a$	3.75 (3.62, 3.88)$_b$
Female Providers	2.89 (2.72, 3.07)$_a$	3.76 (3.63, 3.88)$_b$
Ease of Message Production	LPC	HPC
Male Providers	3.32 (3.10, 3.55)$_a$	3.54 (3.38, 3.71)$_a$
Female Providers	2.98 (2.76, 3.20)$_a$	3.74 (3.58, 3.90)$_b$
Support Quality	LPC	HPC
Male Providers	3.10 (2.89, 3.30)$_a$	3.51 (3.37, 3.66)$_b$
Female Providers	2.40 (2.20, 2.60)$_a$	3.55 (3.40, 3.69)$_b$

Note. The scores in each cell are means. Parenthetical values are 95% confidence intervals surrounding those means. Within each row, cells with different subscripts differ at $p <$ 0.05.

Table 11

H5: Raters' Perceptions of Conversational Quality by a Provider Sex and 3-Level VPC

Condition Interaction

Rated Level of VPC	LPC	MPC	HPC
Male Providers	3.10 (2.83, 3.36)$_a$	4.65 (4.39, 4.92)$_b$	5.05 (4.78, 5.33)$_b$
Female Providers	2.67 (2.41, 2.92)$_a$	4.99 (4.72, 5.25)$_b$	5.58 (5.33, 5.83)$_c$

Rated Sensitivity	LPC	MPC	HPC
Male Providers	2.58 (2.32, 2.85)$_a$	4.35 (4.08, 4.61)$_b$	4.98 (4.70, 5.26)$_c$
Female Providers	2.25 (1.99, 2.51)$_a$	4.75 (4.49, 5.02)$_b$	5.55 (5.29, 5.80)$_c$

Rated Supportiveness	LPC	MPC	HPC
Male Providers	2.71 (2.44, 2.96)$_a$	4.35 (4.07, 4.62)$_b$	4.98 (4.69, 5.26)$_c$
Female Providers	2.31 (2.04, 2.57)$_a$	4.80 (4.52, 5.07)$_b$	5.57 (5.31, 5.83)$_c$

Note. The scores in each cell are means. Parenthetical values are 95% confidence intervals surrounding those means. Within each row, cells with different subscripts differ at $p < 0.05$.

Table 12

H6: Support Receivers' Perceptions of Conversational Quality by a Receiver Sex and 2-

Level VPC Condition Interaction

Conversational Appropriateness	LPC	HPC
Male Receivers	3.96 (3.80, 4.12)[a]	4.33 (4.21, 4.45)[b]
Female Receivers	3.61 (3.45, 3.77)[a]	4.31 (4.20, 4.42)[b]

Support Quality	LPC	HPC
Male Receivers	3.18 (2.44, 2.90)[a]	3.44 (3.26, 3.61)[b]
Female Receivers	2.67 (2.19, 2.60)[a]	3.52 (3.36, 3.68)[b]

Note. The scores in each cell are means. Parenthetical values are 95% confidence intervals surrounding those means. Within each row, cells with different subscripts differ at $p <$ 0.05.

Table 13

H7: Support Providers' Perceptions of Ease of Message Production by a Provider Sex,

Receiver Sex, and 2-Level VPC Condition Interaction

Ease of Message Production	LPC	HPC
Male Provider/Male Receiver	3.09 (2.76, 3.42)	3.61 (3.37, 3.85)
Female Provider/Male Receiver	3.07 (2.76, 3.37)$_a$	3.74 (3.51, 3.97)$_b$
Male Provider/Female Receiver	3.53 (3.23, 3.83)	3.49 (3.27, 3.70)
Female Provider/Female Receiver	2.88 (2.57, 3.20)$_a$	3.75 (3.54, 3.96)$_b$

Note. The values in each cell are means for support providers' ease of message production.

Parenthetical values are 95% confidence intervals surrounding those means. Within each

row, cells with different subscripts differ at $p < 0.05$.

Table 14

ANOVA Results for Support Providers' Dependent Variables

	SPC	Ease	Support Quality
Intercept	7827.86***	4841.81***	4713.37***
rSex	6.51**	0.13	2.17
pSex	8.50**	0.52	14.12***
Channel	1.45	5.98*	0.14
VPC	69.23***	26.43***	73.10***
rSex*pSex	0.07	1.60	0.60
rSex*Channel	0.01	1.09	0.08
pSex*Channel	0.44	1.32	0.12
rSex*pSex*Channel	0.75	0.01	0.78
rSex*VPC	1.82	0.91	0.19
pSex*VPC	8.84**	7.51**	16.26***
rSex*pSex*VPC	0.03	3.67*	0.07
Channel*VPC	0.75	0.50	0.00
rSex*Channel*VPC	0.01	1.13	0.30
pSex*Channel*VPC	3.07†	0.09	0.43
rSex*pSex*Channel*VPC	0.10	1.76	0.25

Note. Values are *F* statistics. The lowercase p indicates variables for support providers, and the lowercase r indicates variables for support receivers. SPC represents self-presentational confidence.

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

Table 15

ANOVA Results for Third Party Observers' Ratings as Dependent Variables

	Level of VPC	Sensitivity	Supportiveness
Intercept	6419.04***	5514.68***	5349.90***
rSex	0.35	0.01	0.01
pSex	1.82	3.68*	3.56†
Channel	36.10***	22.19***	27.74***
VPC	190.55***	245.76***	219.59***
rSex*pSex	0.09	0.02	0.06
rSex*Channel	2.94†	2.68†	2.75†
pSex*Channel	0.06	0.45	0.29
rSex*pSex*Channel	1.68	3.76*	3.50*
rSex*VPC	0.28	0.60	0.52
pSex*VPC	7.37**	6.46**	7.76***
rSex*pSex*VPC	1.06	0.78	0.74
Channel*VPC	1.62	4.31**	3.72*
rSex*Channel*VPC	0.80	0.28	0.74
pSex*Channel*VPC	1.53	1.74	1.50
rSex*pSex*Channel*VPC	7.17***	6.94***	7.70***

Note. Values are *F* statistics. The lowercase p indicates variables for support providers, and

the lowercase r indicates variables for support receivers.

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$. $^{\dagger} < 0.10$.

Table 16

H11: Third Party Observers' Perceptions of Conversational Sensitivity by a Provider Sex, Receiver Sex, Communication

Channel, and 3-Level VPC Condition Interaction

Rated Level of VPC

Channel: FtF	Male Providers		Female Providers	
	Male Receivers	Female Receivers	Male Receivers	Female Receivers
LPC	2.87 (2.33, 3.40)	2.86 (2.36, 3.37)	2.28 (1.77, 2.79)	2.74 (2.23, 3.25)
MPC	4.90 (4.34, 5.46)	3.91 (3.40, 4.42)	4.19 (3.66, 4.73)	4.83 (4.33, 5.34)
HPC	4.09 (3.50, 4.69)	4.93 (4.40, 5.47)	5.39 (4.90, 5.88)	5.17 (4.68, 5.65)
Channel: CMC	Male Providers		Female Providers	
	Male Receivers	Female Receivers	Male Receivers	Female Receivers
LPC	3.27 (2.71, 3.83)	3.38 (2.90, 3.87)	3.09 (2.60, 3.58)	2.56 (2.03, 3.09)
MPC	4.83 (4.27, 5.40)	4.97 (4.48, 5.45)	5.70 (5.14, 6.27)	5.22 (4.73, 5.70)
HPC	5.93 (5.36, 6.49)	5.26 (4.75, 5.77)	5.92 (5.38, 6.45)	5.86 (5.38, 6.35)

Rated Sensitivity

Channel: FtF	Male Providers		Female Providers	
	Male Receivers	Female Receivers	Male Receivers	Female Receivers
LPC	2.48 (1.94, 3.02)	2.47 (1.96, 2.99)	1.98 (1.46, 2.49)	2.58 (2.06, 3.09)
MPC	4.56 (3.99, 5.13)	3.69 (3.18, 4.21)	4.00 (3.46, 4.54)	4.65 (4.14, 5.17)
HPC	4.06 (3.46, 4.67)	4.78 (4.24, 5.32)	5.30 (4.80, 5.79)	5.25 (4.76, 5.75)
Channel: CMC	Male Providers		Female Providers	
	Male Receivers	Female Receivers	Male Receivers	Female Receivers
LPC	2.47 (1.90, 3.04)	2.91 (2.42, 3.41)	2.57 (2.07, 3.06)	1.87 (1.33, 2.41)
MPC	4.50 (3.90, 5.07)	4.63 (4.14, 5.12)	5.48 (4.91, 6.05)	4.87 (4.38, 5.37)
HPC	5.81 (5.24, 6.38)	5.28 (4.76, 5.79)	5.74 (5.20, 6.28)	5.89 (5.40, 6.39)

Rated Supportiveness

Channel: FtF	Male Providers		Female Providers	
	Male Receivers	Female Receivers	Male Receivers	Female Receivers
LPC	2.58 (2.03, 3.14)	2.56 (2.03, 3.09)	2.03 (1.50, 2.56)	2.54 (2.01, 3.06)
MPC	4.59 (4.01, 5.17)	3.55 (3.02, 4.08)	3.94 (3.39, 4.49)	4.69 (4.16, 5.22)
HPC	3.96 (3.34, 4.58)	4.87 (4.32, 5.43)	5.26 (4.76, 5.77)	5.29 (4.79, 5.80)
Channel: CMC	Male Providers		Female Providers	
	Male Receivers	Female Receivers	Male Receivers	Female Receivers
LPC	2.72 (2.13, 3.30)	2.99 (2.49, 3.50)	2.63 (2.12, 3.13)	2.04 (1.49, 2.59)
MPC	4.48 (3.90, 5.07)	4.77 (4.26, 5.27)	5.59 (5.01, 6.17)	4.97 (4.46, 5.47)
HPC	5.82 (5.24, 6.41)	5.26 (4.73, 5.79)	5.81 (5.26, 6.37)	5.92 (5.41, 6.42)

Note. The scores in each cell are means. Parenthetical values are 95% confidence intervals surrounding those means.

Table 17

ANOVA Results for Support Receivers' Dependent Variables

	Appropriateness	Support Quality	Sensitivity
Intercept	13100.30***	3792.00***	5247.12***
rSex	6.75**	4.10*	2.20
pSex	0.12	1.56	0.18
Channel	1.39	1.87	0.51
VPC	57.21***	28.40***	75.82***
rSex*pSex	1.50	0.20	2.74†
rSex*Channel	0.01	0.00	0.26
pSex*Channel	0.02	0.04	0.98
rSex*pSex*Channel	6.37**	1.14	12.83***
rSex*VPC	5.42*	8.21**	2.98†
pSex*VPC	2.92†	6.80**	8.42**
rSex*pSex*VPC	1.77	0.01	0.68
Channel*VPC	0.45	3.43†	6.72**
rSex*Channel*VPC	0.30	0.00	0.14
pSex*Channel*VPC	0.01	2.08	2.53
rSex*pSex*Channel*VPC	3.56†	0.01	3.92*

Note. Values are *F* statistics. The lowercase p indicates variables for support providers, and the lowercase r indicates variables for support receivers.

* $p < 0.05$. ** $p < 0.01$. ** $p < 0.001$. † < 0.10.

Table 18

H12: Support Receivers' Perceptions of Conversational Sensitivity by a Provider Sex, Receiver Sex, Communication Channel,

and 2-Level VPC Condition Interaction

Low VPC	FtF		CMC	
	Male Providers	Female Providers	Male Providers	Female Providers
Male Receivers	3.60 (3.15, 4.06)	3.23 (2.79, 3.66)	3.00 (2.52, 3.48)	3.21 (2.79, 3.62)
Female Receivers	3.00 (2.57, 3.43)	3.23 (2.79, 3.66)	3.46 (3.04, 3.87)	2.10 (1.65, 2.56)
High VPC	FtF		CMC	
	Male Providers	Female Providers	Male Providers	Female Providers
Male Receivers	3.75 (3.41, 4.09)	3.86 (3.54, 4.17)	3.81 (3.47, 4.15)	4.34 (4.01, 4.67)
Female Receivers	3.79 (3.47, 4.10)	4.04 (3.74, 4.34)	3.98 (3.68, 4.28)	4.04 (3.75, 4.34)

Note. The scores in each cell are means. Parenthetical values are 95% confidence intervals surrounding those means.

Table 19

The Regression of Support Providers' Conversational Perceptions onto Receiver Sex,

Provider Sex, Communication Channel, Providers' POSI, and the 2-level VPC Variable

	Self-presentational Confidence	Ease of Message Production	Support Quality
Step 1 R^2	0.23***	0.12***	0.24***
rSex β	---	0.02	---
pSex β	-0.11*	0.01	-0.14*
Channel β	-0.05	0.14*	0.02
pPOSI β	-0.02	-0.10†	-0.01
VPC β	0.46***	0.30***	0.47***
Step 2 $R^2 \Delta$	0.05**	0.05	0.06**
rSex β	---	0.23	---
pSex β	-0.56**	-0.54*	-0.65**
Channel β	-0.40†	0.08	-0.16
pPOSI β	0.01	-0.22	-0.02
VPC β	0.57**	0.23	0.45*
rSex*pSex β	---	-0.09	---
pSex*VPC β	0.30**	0.34**	0.43***
pSex*Channel β	0.14	0.13	0.06
pSex*pPOSI β	0.18	0.30	0.20
rSex*VPC β	---	-0.10	---
rSex*Channel β	---	-0.12	---

rSex*pPOSI β	---	-0.03	---
Channel*VPC β	0.10	-0.08	0.01
pPOSI*VPC β	-0.36†	-0.02	-0.23
pPOSI*Channel β	0.21	0.11	0.14
Step 3 $R^2 \Delta$	0.03**	0.06†	0.01
rSex β	---	1.13*	---
pSex β	0.14	0.35	-0.40
Channel β	0.61	1.28**	0.43
pPOSI β	0.33†	0.28	0.10
VPC β	1.16***	0.62	0.57
rSex*pSex β	---	-0.37	---
pSex*VPC β	-0.14	-0.22	0.51
pSex*Channel β	-0.79*	-0.52	-0.60†
pSex*pPOSI β	-0.39	-0.50	-0.01
rSex*VPC β	---	-0.47	---
rSex*Channel β	---	-1.32**	---
rSex*pPOSI β	---	-0.80	---
Channel*VPC β	-0.72†	-0.16	-0.34
pPOSI*VPC β	-0.88**	-0.23	-0.31
pPOSI*Channel β	-0.69†	-1.15*	-0.42
pSex*rSex*Channel β	---	0.01	---
pSex*rSex*pPOSI β	---	-0.03	---
pSex*pPOSI*VPC β	0.21	0.35	-0.18

pSex*Channel*pPOSI β	0.68*	0.73*	0.58†
rSex*Channel*VPC β	---	0.16	---
rSex*pPOSI*VPC β	---	0.01	---
rSex*pPOSI*Channel β	---	1.20**	---
pPOSI*Channel*VPC β	0.62†	0.01	0.27
pSex*rSex*VPC β	---	0.41*	---
pSex*Channel*VPC β	0.36*	-0.08	0.14

Note. Values are standardized Betas. Model steps 4 and 5 were not significant for any outcome variable and there were no hypothesized interactions at these steps; therefore, results for these steps are not reported. Receiver sex is excluded in the analyses for self-presentational confidence and support quality because it produced significant main effects or interaction effects in neither the ANOVA analyses nor the regression analyses. The lowercase p indicates variables for support providers, and the lowercase r indicates variables for support receivers.

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$. $^{\dagger} < 0.10$.

Table 20

The Slopes for the Regression of Providers' Ease of Message Production onto Providers'

POSI by Provider Sex and Communication Channel

	FtF	CMC
Male	-0.04	-0.29*
Female	-0.20	0.05

Note. Values are standardized Betas representing the slope terms of support provides' and

receivers' POSI.

* $p < 0.05$. ** $p < 0.01$. [†] < 0.10.

Table 21

The Slopes for the Regression of Providers' Ease of Message Production onto Providers'

POSI by Receiver Sex, Provider Sex, and the 2-Level VPC Condition Variable

	LPC		HPC	
	Male provider	Female provider	Male provider	Female provider
Male receiver	-0.31	0.03	-0.04	-0.08
Female receiver	0.04	-0.39†	-0.29*	0.03

Note. Values are standardized Betas representing the slope terms of support provides' and

receivers' POSI.

* $p < 0.05$. ** $p < 0.01$. $^{\dagger} < 0.10$.

Table 22

The Regression of Third Party Observers' Conversational Perceptions onto Receiver Sex, Provider Sex, Communication Channel, Provider POSI, and the 3-level VPC Condition Variable

Variable	Level of VPC	Sensitivity	Supportiveness
Step 1 R^2	0.61***	0.66***	0.63***
rSex β	-0.02	0.01	0.01
pSex β	0.05	0.06†	0.06
Channel β	0.22***	0.16***	0.19***
pPOSI β	-0.03	-0.02	-0.02
VPC Dummy1 β	0.64***	0.65***	-0.63***
VPC Dummy2 β	0.18***	-0.23***	0.23***
Step 2 $R^2 \Delta$	0.05*	0.04**	0.04**
rSex β	-0.08	-0.03	-0.03
pSex β	0.31*	0.37**	0.33*
Channel β	0.27†	0.24†	0.28*
pPOSI β	-0.11	-0.03	-0.08
VPC Dummy1 β	-0.86***	-0.74***	-0.75***
VPC Dummy2 β	0.06	0.11	0.08
rSex*pSex β	0.05	0.03	0.04
pSex*VPC Dummy1 β	-0.18**	-0.17**	-0.19**
pSex*VPC Dummy2 β	0.05	0.04	0.04
pSex*Channel β	-0.03	-0.05	-0.05

pSex*pPOSI β	-0.23[†]	-0.25*	-0.21
rSex*VPC Dummy1 β	0.02	0.04	0.02
rSex*VPC Dummy2 β	0.03	0.06	0.06
rSex*Channel β	-0.11	-0.10	-0.11
rSex*pPOSI β	0.10	0.04	0.05
Channel*VPC Dummy1 β	-0.08	-0.13[†]	-0.14*
Channel*VPC Dummy2 β	0.03	0.05	0.02
pPOSI*VPC Dummy1 β	0.41**	0.26[†]	0.34*
pPOSI*VPC Dummy2 β	0.06	0.03	0.07
pPOSI*Channel β	0.07	0.06	0.06
Step 3 R^2 Δ	0.03	0.02	0.02
rSex β	-0.44	-0.37	-0.37
pSex β	-0.27	-0.07	-0.22
Channel β	0.50	0.29	0.35
pPOSI β	-0.09	-0.03	-0.10
VPC Dummy1 β	-1.01**	-1.01**	-1.05**
VPC Dummy2 β	0.20	0.23	0.15
rSex*pSex β	0.42	0.28	0.27
pSex*VPC Dummy1 β	0.40	0.37	0.40
pSex*VPC Dummy2 β	0.44	0.29	0.42
pSex*Channel β	0.16	0.23	0.25
pSex*pPOSI β	0.20	0.01	0.18
rSex*VPC Dummy1 β	0.26	0.28	0.28

rSex*VPC Dummy2 β	0.09	0.13	0.15
rSex*Channel β	0.19	0.25	0.25
rSex*pPOSI β	0.28	0.22	0.21
Channel*VPC Dummy1 β	-0.51†	-0.34	-0.39
Channel*VPC Dummy2 β	-0.37	-0.28	-0.34
pPOSI*VPC Dummy1 β	0.42	0.41	0.52
pPOSI*VPC Dummy2 β	-0.29	-0.23	-0.16
pPOSI*Channel β	-0.35	-0.18	-0.20
pSex*rSex*Channel β	-0.13	-0.19*	-0.19†
pSex*rSex*pPOSI β	-0.18	-0.03	-0.03
pSex*pPOSI*VPC Dummy1 β	-0.47†	-0.40	-0.48*
pSex*pPOSI*VPC Dummy2 β	-0.22	-0.10	-0.25
pSex*Channel*pPOSI β	-0.02	-0.05	-0.09
rSex*Channel*VPC Dummy1 β	-0.08	-0.05	-0.06
rSex*Channel*VPC Dummy2 β	-0.11	-0.06	-0.10
rSex*pPOSI*VPC Dummy1 β	-0.10	-0.12	-0.14
rSex*pPOSI*VPC Dummy2 β	0.15	0.04	0.07
rSex*pPOSI*Channel β	-0.12	-0.17	-0.15
pPOSI*Channel*VPC Dummy1 β	0.57*	0.33	0.37
pPOSI*Channel*VPC Dummy2 β	0.58*	0.48*	0.54*
pSex*rSex*VPC Dummy1 β	-0.11	-0.11	-0.10
pSex*rSex*VPC Dummy2 β	-0.15	-0.09	-0.11
pSex*Channel*VPC Dummy1 β	-0.06	-0.09	-0.08

pSex*Channel*VPC Dummy2 β	-0.11	-0.13	-0.11
Step 4 $R^2 \Delta$	0.03*	0.02*	0.03*
rSex β	-0.30	-0.37	-0.37
pSex β	-0.11	-0.20	-0.31
Channel β	0.17	-0.12	-0.11
pPOSI β	0.08	0.01	-0.03
VPC Dummy1 β	0.64	-0.75[†]	-0.76[†]
VPC Dummy2 β	0.60	0.33	0.29
rSex*pSex β	0.41	0.53	0.54
pSex*VPC Dummy1 β	0.04	0.22	0.22
pSex*VPC Dummy2 β	0.07	0.28	0.38
pSex*Channel β	0.75	0.98*	1.05*
pSex*pPOSI β	-0.17	0.03	0.12
rSex*VPC Dummy1 β	-0.17	-0.11	-0.12
rSex*VPC Dummy2 β	-0.16	0.11	0.14
rSex*Channel β	0.72	0.71	0.81
rSex*pPOSI β	-0.08	0.09	0.05
Channel*VPC Dummy1 β	-0.48	-0.36	-0.35
Channel*VPC Dummy2 β	-0.22	0.01	-0.04
pPOSI*VPC Dummy1 β	-0.06	0.12	0.16
pPOSI*VPC Dummy2 β	-0.97[†]	-0.54	-0.53
pPOSI*Channel β	-0.21	0.10	0.08
pSex*rSex*Channel β	-1.05**	-1.08**	-1.18**

pSex*rSex*pPOSI β	0.13	-0.10	-0.04
pSex*pPOSI*VPC Dummy1 β	0.00	-0.22	-0.21
pSex*pPOSI*VPC Dummy2 β	0.50	0.16	0.09
pSex*Channel*pPOSI β	-0.33	-0.64	-0.65
rSex*Channel*VPC Dummy1 β	-0.10	0.13	0.03
rSex*Channel*VPC Dummy2 β	-0.37	-0.30	-0.40
rSex*pPOSI*VPC Dummy1 β	0.44	0.32	0.36
rSex*pPOSI*VPC Dummy2 β	0.77	0.34	0.41
rSex*pPOSI*Channel β	-0.37	-0.44	-0.46
pPOSI*Channel*VPC Dummy1 β	0.65	0.40	0.43
pPOSI*Channel*VPC Dummy2 β	0.78	0.47	0.55
pSex*rSex*VPC Dummy1 β	0.28	0.14	0.17
pSex*rSex*VPC Dummy2 β	0.03	-0.16	-0.19
pSex*Channel*VPC Dummy1 β	-0.21	-0.28	-0.32
pSex*Channel*VPC Dummy2 β	-0.40	-0.57	-0.57
pSex*rSex*Channel* VPC Dummy1 β	0.13	0.04	0.13
pSex*rSex*Channel* VPC Dummy2 β	0.60***	0.52***	0.58***
pSex*rSex*pPOSI*VPC Dummy1 β	-0.53	-0.29	-0.39
pSex*rSex*pPOSI*VPC Dummy2 β	-0.68	-0.32	-0.36
pSex*rSex*pPOSI*Channel	0.60	0.69[†]	0.71[†]
pSex*pPOSI*Channel*VPC Dummy 1 β	0.02	0.16	0.14
pSex*pPOSI*Channel*VPC Dummy 2 β	-0.16	0.09	0.05
rSex*pPOSI*Channel*VPC Dummy 1 β	-0.11	-0.24	-0.22

| rSex*pPOSI*Channel*VPC Dummy 2 β | -0.20 | -0.16 | -0.15 |

Note. Values are standardized Betas. Model step 5 was not significant for any outcome variable and there were no hypothesized interactions at this step; therefore, results for this step are not reported. VPC Dummy1 represents a dummy coded variable that contrasts LPC and more VPC support. VPC Dummy2 represents a dummy coded variable that contrasts HPC and less VPC support. The lowercase p indicates variables for support providers, and the lowercase r indicates variables for support receivers.

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$. $^{†} < 0.10$.

Table 23

The Slopes for the Regression of Rated Person-Centeredness onto Providers' POSI by

Communication Channel and the 3-Level VPC Condition Variable

	FtF	CMC
LPC	0.05	0.25**
MPC	0.02	-0.24*
HPC	-0.19*	0.02

Note. Values are standardized Betas representing the slope terms of support provides' and

receivers' POSI.

* $p < 0.05$. ** $p < 0.01$. † < 0.10.

Table 24

The Slopes for the Regression of Rated Conversational Sensitivity onto Providers' POSI by

Communication Channel and the 3-Level VPC Condition Variable

	FtF	CMC
LPC	0.08	$0.16^{\dagger}$
MPC	0.03	-0.15
HPC	-0.14	0.07

Note. Values are standardized Betas representing the slope terms of support provides' and

receivers' POSI.

* $p < 0.05$. ** $p < 0.01$. $^{\dagger} < 0.10$.

Table 25

The Slopes for the Regression of Rated Conversational Supportiveness onto Providers'

POSI by Communication Channel and the 3-Level VPC Variable

	FtF	CMC
LPC	0.09	0.18†
MPC	0.01	-0.20†
HPC	-0.16†	0.07

Note. Values are standardized Betas representing the slope terms of support provides' and

receivers' POSI.

$* p < 0.05. ** p < 0.01. ^{\dagger} < 0.10.$

Table 26

The Slopes for the Regression of Rated Conversational Supportiveness onto Providers'

POSI by Providers' Sex and the 3-Level VPC Condition Variable

	Male	Female
LPC	0.29**	-0.04
MPC	-0.13	-0.06
HPC	0.02	-0.11

Note. Values are standardized Betas representing the slope terms of support provides' and

receivers' POSI.

$* p < 0.05. ** p < 0.01. ^{\dagger} < 0.10.$

Table 27

The Regression of Support Receivers' Conversational Perceptions onto Receiver Sex,

Provider Sex, Communication Channel, Receivers' POSI, and the 2-level VPC Condition

Variable

Variable	Appropriateness	Support Quality	Sensitivity
Step 1 R^2	0.21***	0.11***	0.22***
rSex β	-0.11*	-0.06	-0.05
pSex β	0.02	-0.02	0.03
Channel β	-0.03	-0.05	0.02
rPOSI β	-0.13*	0.05	-0.02
VPC β	0.42***	0.33***	0.46***
Step 2 $R^2 \Delta$	0.04	0.09**	0.07**
rSex β	-0.35	-0.39	-0.03
pSex β	0.15	0.04	0.12
Channel β	-0.18	-0.57*	-0.29
rPOSI β	-0.13	-0.09	0.16
VPC β	0.16	-0.42†	0.40†
rSex*pSex β	-0.09	0.04	-0.15
pSex*VPC β	0.15	0.27*	0.33**
pSex*Channel β	-0.02	0.06	-0.02
pSex*rPOSI β	-0.20	-0.32	-0.26
rSex*VPC β	0.32**	0.34**	0.15
rSex*Channel β	-0.02	0.02	-0.06

rSex*rPOSI β	0.10	0.05	0.02
Channel*VPC β	0.08	0.22†	0.31**
rPOSI*VPC β	-0.05	0.33	-0.38†
rPOSI*Channel β	0.13	0.35	0.16
Step 3 R^2 Δ	0.05†	0.04	0.05
rSex β	-1.06**	-0.74†	-0.40
pSex β	0.38	0.04	0.69
Channel β	0.15	-0.74	-0.59
rPOSI β	-0.14	-0.22	0.14
VPC β	0.09	-0.44	0.37
rSex*pSex β	-0.30	0.54	-0.18
pSex*VPC β	-0.25	-0.34	-0.49
pSex*Channel β	0.28	0.32	0.01
pSex*rPOSI β	-0.42	-0.20	-0.78†
rSex*VPC β	1.26**	0.76†	0.52
rSex*Channel β	-0.05	-0.21	0.35
rSex*rPOSI β	1.05*	0.40	0.38
Channel*VPC β	-0.46	0.14	0.40
rPOSI*VPC β	0.12	0.50	-0.20
rPOSI*Channel β	-0.38	0.63	0.36
pSex*rSex*Channel β	-0.20	-0.21	-0.41**
pSex*rSex*rPOSI β	-0.06	-0.45	0.06
pSex*rPOSI*VPC β	0.22	0.38	0.49

pSex*Channel*rPOSI β	-0.03	-0.40	0.07
rSex*Channel*VPC β	0.08	0.05	-0.02
rSex*rPOSI*VPC β	-1.33**	-0.50	-0.55
rSex*rPOSI*Channel β	0.09	0.36	-0.12
rPOSI*Channel*VPC β	0.58	-0.18	-0.23
pSex*rSex*VPC β	0.41*	0.04	0.26
pSex*Channel*VPC β	-0.04	0.33	0.26

Note. Values are standardized Betas. Model steps 4 and 5 were not significant for any outcome variable and there were no hypothesized interactions at these steps; therefore, results for these steps are not reported. The lowercase p indicates variables for support providers, and the lowercase r indicates variables for support receivers.

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$. $^\dagger < 0.10$.

Figure 1

Interaction among Providers' Sex, Providers' POSI, and Communication Channel

Predicting Providers' Self-Presentational Confidence
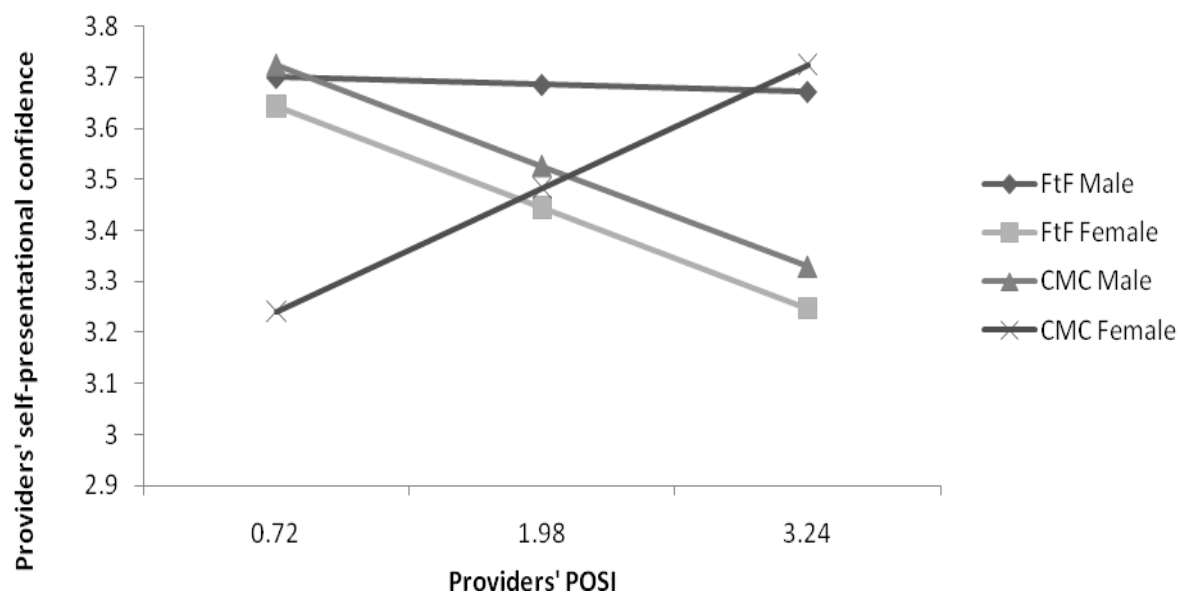
Figure 2

Interaction among Providers' Sex, Providers' POSI, and Communication Channel

Predicting Providers' Ease of Message Production
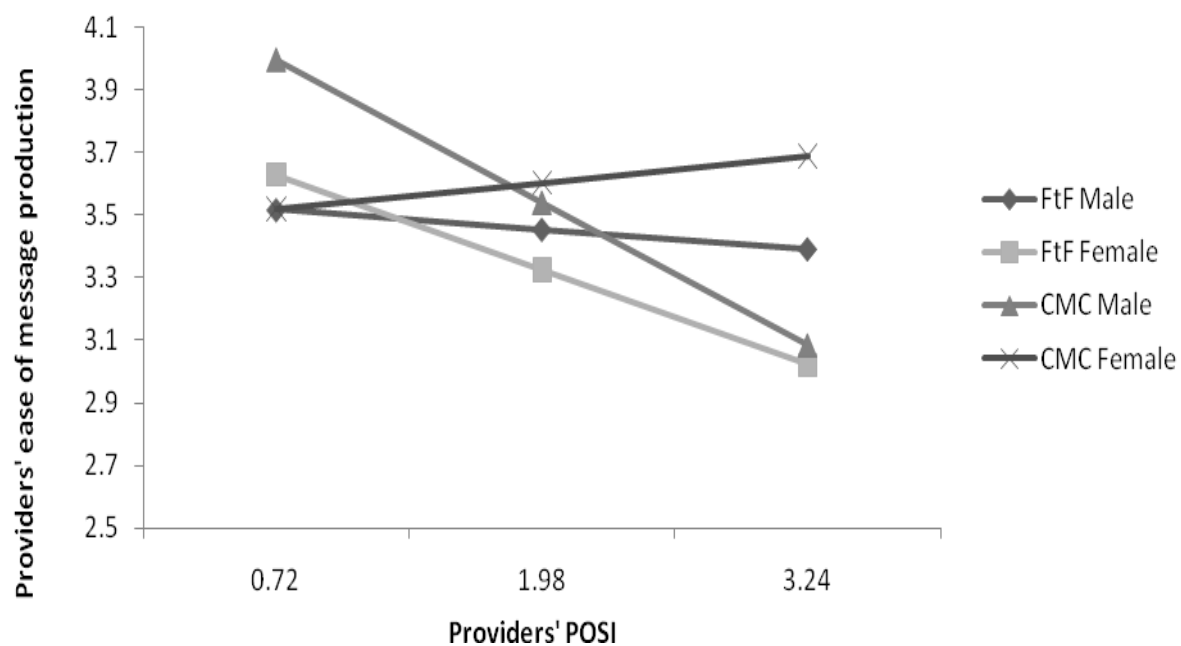
Figure 3

Interaction among Receivers' Sex, Providers' POSI, and Communication Channel
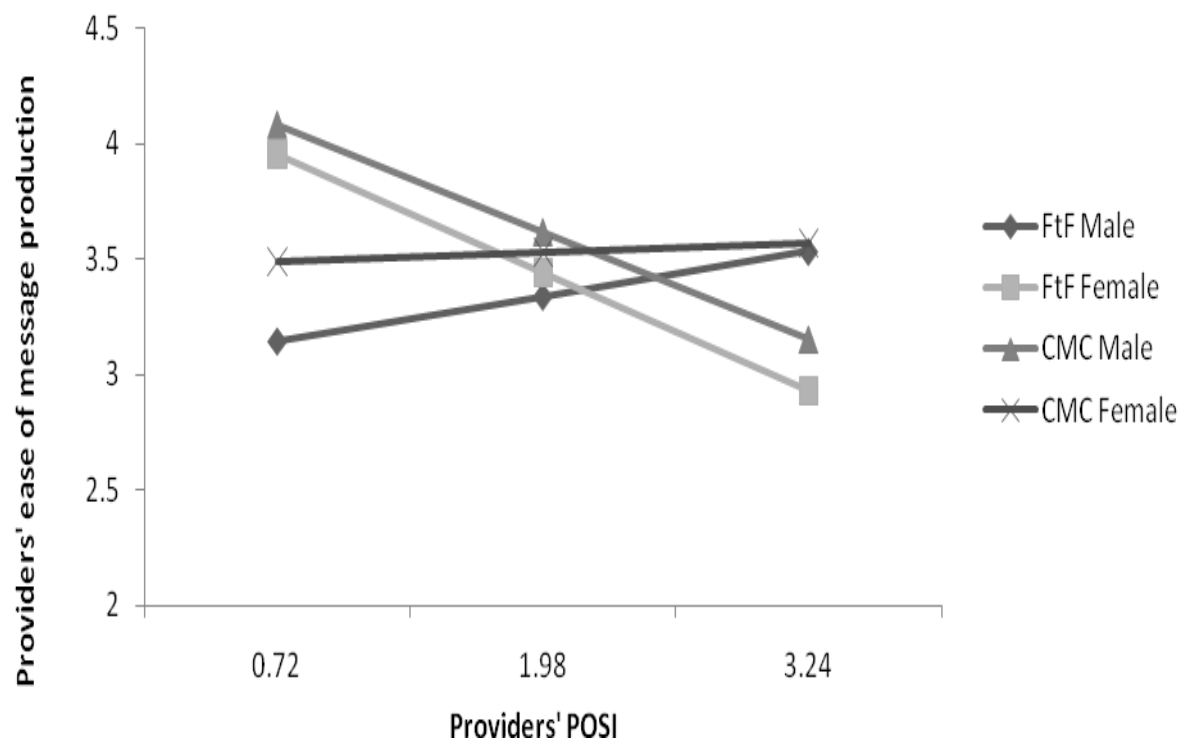
Predicting Providers' Ease of Message Production

Figure 4

Interaction among Providers' POSI, Communication Channel, and the 3-level VPC
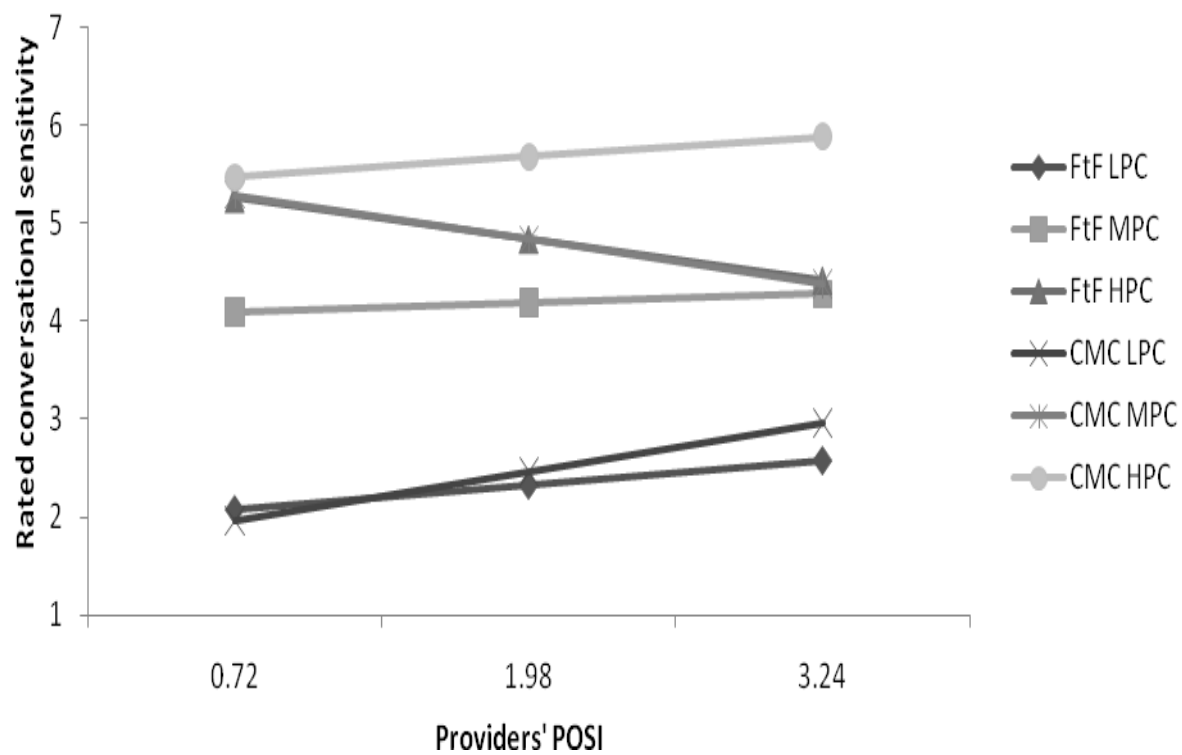
Condition Variable Predicting Rated Level of Person-Centeredness
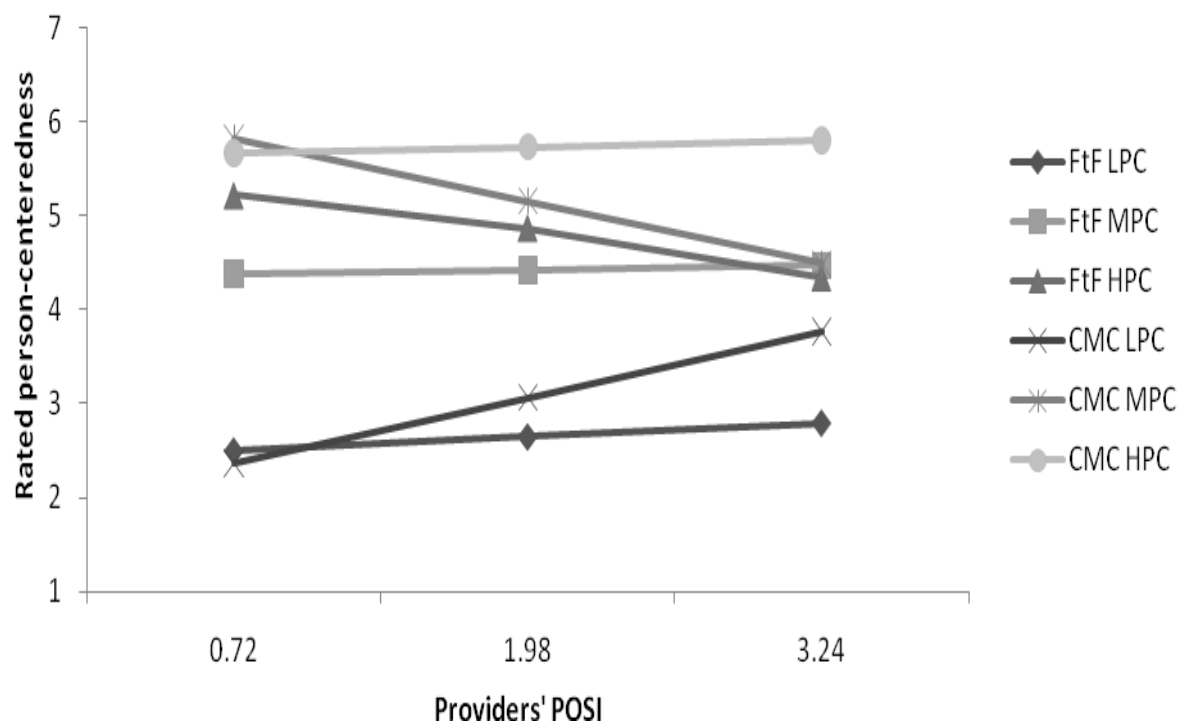
Figure 5

Interaction among Providers' POSI, Communication Channel, and the 3-level VPC
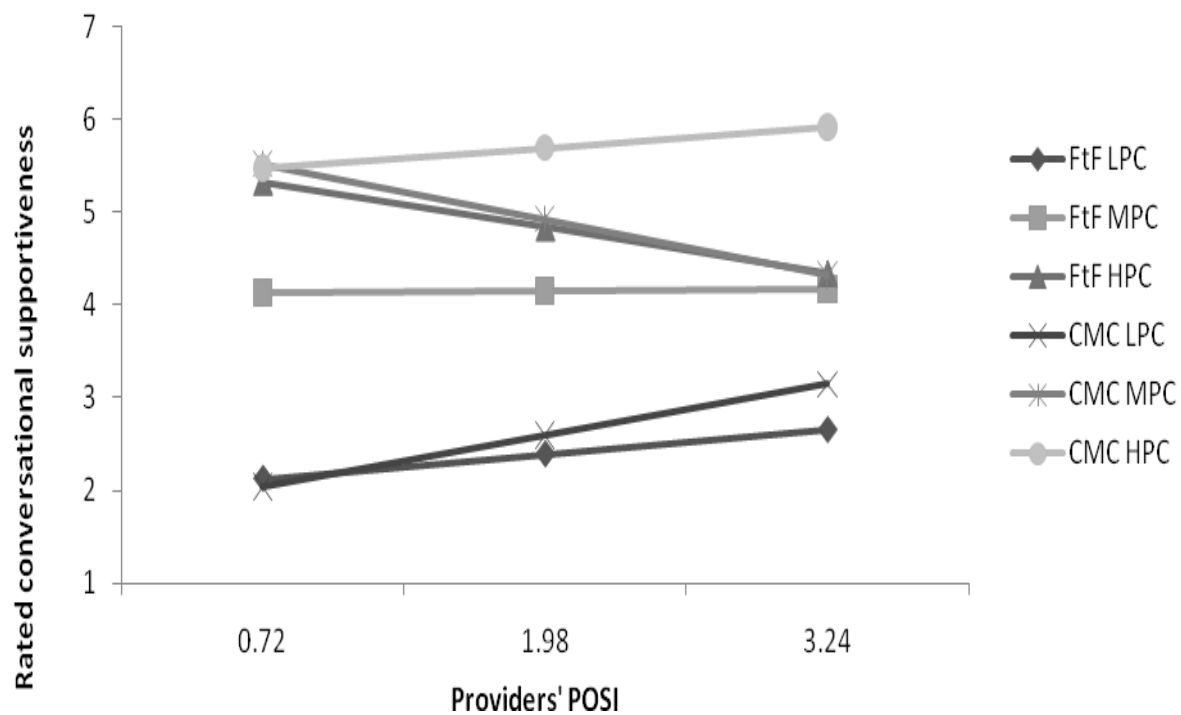
Condition Variable Predicting Rated Conversational Sensitivity

Figure 6

Interaction among Providers' POSI, Communication Channel, and the 3-level VPC

Condition Variable Predicting Rated Conversational Supportiveness

Figure 7

Interaction among Providers' Sex, Providers' POSI, and the 3-level VPC Condition
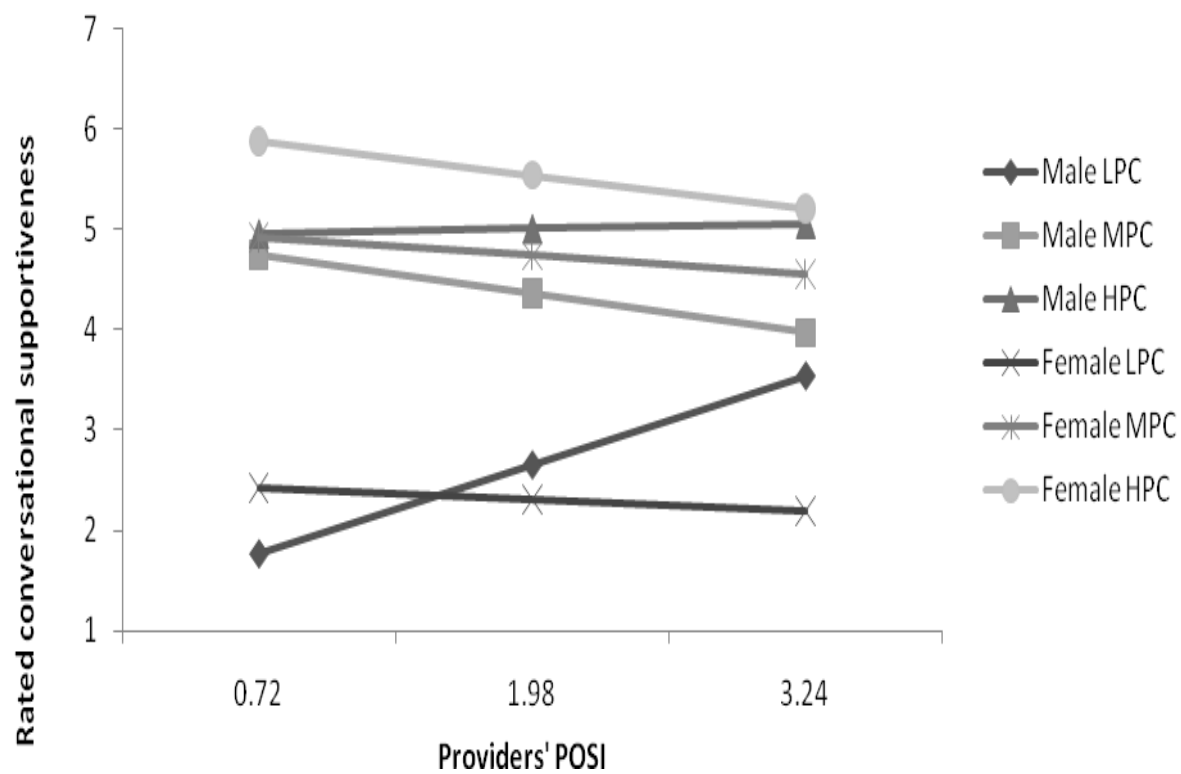
Variable Predicting Rated Conversational Supportiveness

Figure 8

Interaction among Providers' POSI and the 3-level VPC Condition Variable Predicting
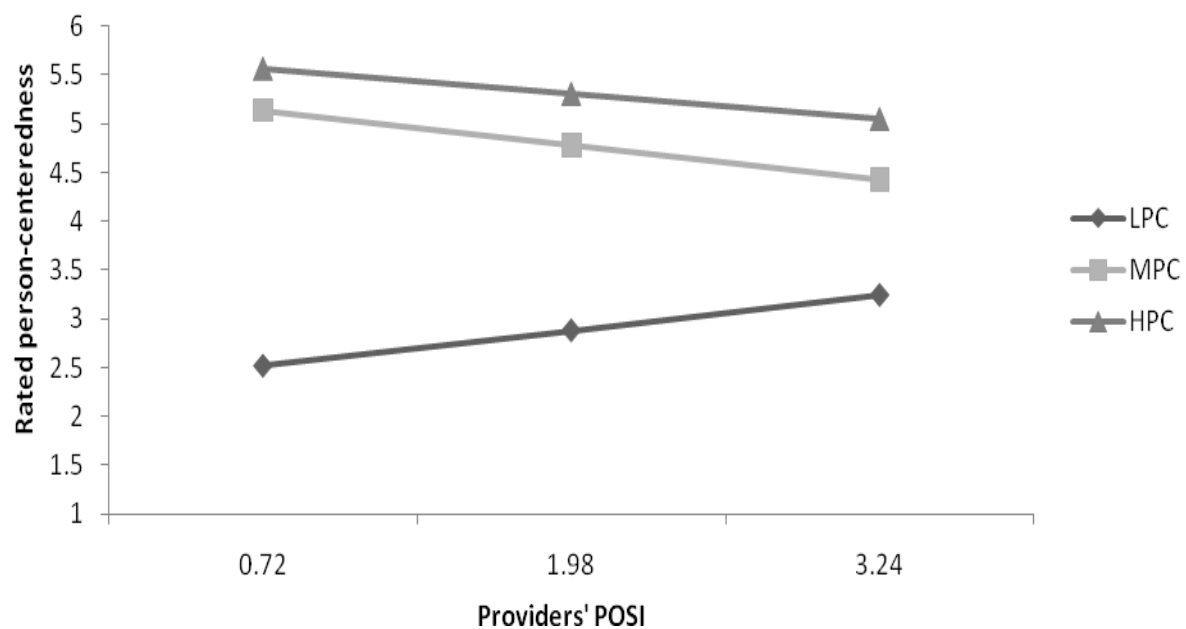
Rated Conversational Person-Centeredness

Figure 9

Interaction among Providers' POSI and Providers' Sex Predicting Rated Conversational
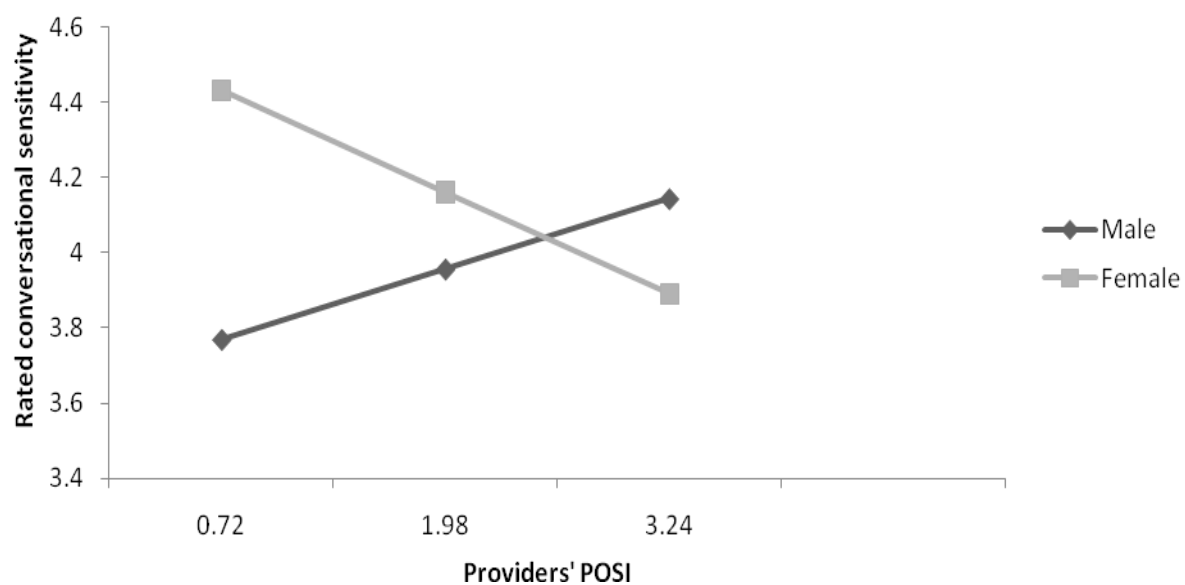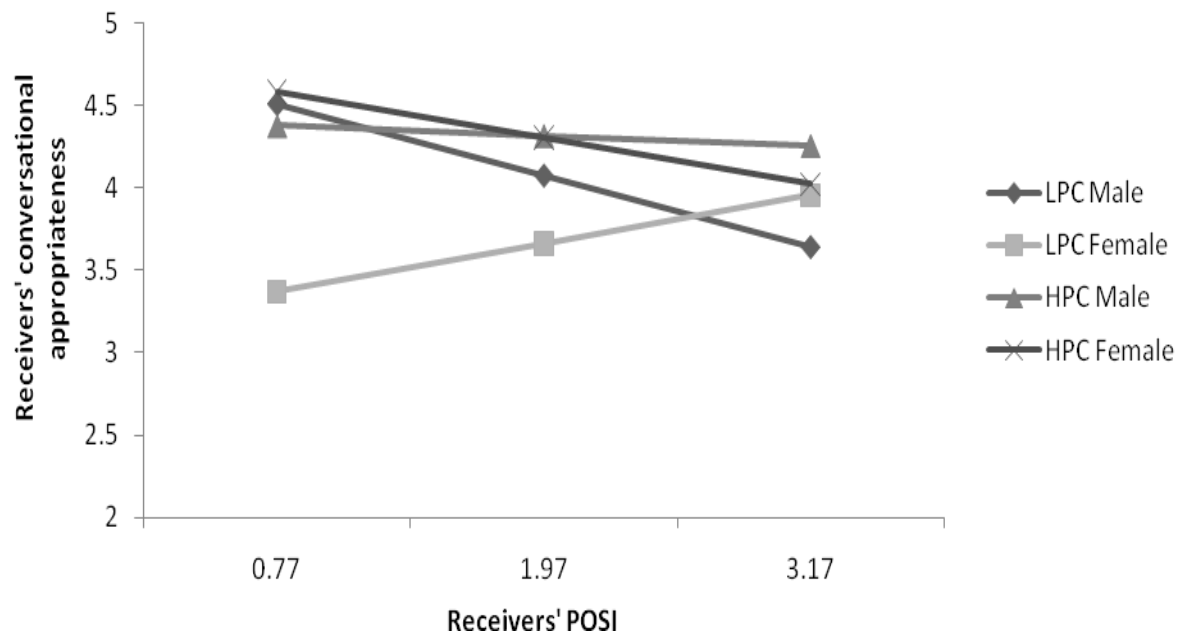
Sensitivity

Figure 10

Interaction among Receivers' POSI, Receivers' Sex, and the 2-level VPC Condition

Variable Predicting Receivers' Perceptions of Conversational Appropriateness

CURRICULUM VITAE

Andrew C. High

The Pennsylvania State University	130 Farmstead Lane
Department of Communication Arts and Sciences	Apartment #104
316 Sparks Building	State College, PA 16803
University Park, PA 16802	ach208@psu.edu

Education

Ph.D., The Pennsylvania State University   May 2011
 Department of Communication Arts and Sciences
 Chair: Dr. Denise Haunani Solomon
 Committee: Dr. James Dillard, Dr. Jon Nussbaum, Dr. Shyam Sundar, Dr. Chip
 Gerfen
 Dissertation Title: *The production and reception of verbal person-centered social*
 support in face-to-face and computer-mediated dyadic conversations

M.A., The University of Delaware   May 2006
 Department of Communication

B.A., The University of Delaware   May 2004

Academic and Professional Experience

Graduate Teaching and Research Assistant   2006 – present
The Pennsylvania State University

Undergraduate Advisor   Summer 2005, 2006
The University of Delaware

Graduate Teaching Assistant   2004 – 2006
The University of Delaware