Explicating Presence and Immediacy:

An Examination of Two Overlapping Constructs

Thesis

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By

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The purpose of this study was threefold. First, it sought to conceptually compare two constructs that have numerous similarities, social presence and mediated immediacy. Second, it attempted to empirically test the relationship between those constructs after determining that the conceptual similarities suggested an overlapping relationship. Third, the study sought to determine if aspects of the communicative message, such as the type of target or level of interactivity, influenced how socially present or immediate an individual perceived that message to be. Confirmatory factor analyses, independent groups t-tests, and ANCOVAs were utilized to test the research questions that were posed. The results indicated no uniform effect of target or interactivity on ratings of social presence and mediated immediacy. Additionally, the confirmatory factor analysis pointed toward the independent relationship proposed in existing research as the best model. Limitations such as poor measurement scales and group characteristics could have influenced these findings. Thus, more research attempting to identify the relationship between social presence and mediated immediacy is warranted.
ACKNOWLEDGEMENTS

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Everyone who has been a part of my graduate career, I could not have done it without you.
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CHAPTER 1: Introduction

Explicating Presence and Immediacy:

An Examination of Two Overlapping Constructs

Both the concepts of presence and immediacy have been looked at in depth throughout academic research, yet defining lines have not been drawn between the two. There are a number of overlapping components within each concept, especially when looking at their subcomponents, yet researchers have not investigated precisely where the differences lie or how they affect the relationship between the concepts. Numerous authors have discussed the lack of clarity present in research for both presence and immediacy (Biocca, Harms, & Burgoon, 2003; Lee, 2004; Wirth et al., 2007). Many of the defining characteristics of each concept are diminished when their subcomponents social presence and mediated immediacy are considered. Because neither concept has a widely agreed upon conceptual definition, the myriad of definitions provided by scholars across disciplines has created significant overlap and semantic confusion. This work intends to organize the existing literature to determine whether mediated immediacy and social presence are describing different communicative phenomena or merely different terms used to describe the same phenomenon. The goals of this paper are threefold. First, I will compare the conceptual definitions of presence and immediacy. This comparison will serve as a background for the conceptual comparison of the constructs of interest:
social presence and mediated immediacy. Ultimately, social presence and mediated immediacy were found to be most similar and consequently became the major focus of this work. Next, I will compare the operational definitions of the constructs in order to determine whether they are used in the same ways throughout various research contexts. Third, I will conduct a confirmatory factor analysis to assess the factor structure of the constructs and gain better understanding of the relationship between the two. By comparing the uniqueness of the constructs both conceptually and empirically, needed synthesis will be provided, and a more solid foundation for future research will be established.
CHAPTER 2: Literature Review

Presence and immediacy are both multifaceted concepts that can be compared at multiple levels. For the purposes of this work, immediacy and presence will be compared in order to provide a foundation for the comparison on the constructs of interest: mediated immediacy and social presence. Although both concepts have been explored extensively, this work will only provide an overview in order to set the groundwork for the explication of the more specific sub-constructs. Numerous academics have acknowledged that presence has not been well defined in the past and bears similarities to various related communication concepts (Biocca et al., 2003; Wirth et al., 2007). Similarities in the conceptual definitions will illustrate that immediacy is one of those related concepts. Because these overarching concepts are not the focus of this work, the number of conceptualizations provided for both presence and immediacy will be limited for the sake of conciseness. See Table 1 for a listing of the major conceptualizations. After providing the existing definitions for each concept, a discussion of the conceptualizations of social presence and mediated immediacy will be included before the constructs are compared.

Presence

Presence research can be divided into two streams depending on whether the interactions are assumed to occur in a mediated environment or not. An important
<table>
<thead>
<tr>
<th>Author</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Minsky (1980); Sheridan (1992)</td>
<td>Telepresence in its original meaning—&quot;being there&quot;</td>
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<tr>
<td>Short, Williams, &amp; Christie (1976)</td>
<td>&quot;media as having a high degree of social presence are judged as being warm, of a medium person, sensitive, and sociable&quot;</td>
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<tr>
<td>Lemish (1982); Lombard (1995)</td>
<td>The degree to which users illogically overlook the mediated or artificial nature of social interaction with an entity within a medium &quot;a sense of being there&quot; which occurs when part or all of a person's perception fails to accurately acknowledge the role of technology that makes it appear that s/he is in a physical location and environment different from her/his actual location and environment in the physical world&quot;</td>
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<td>International Society for Presence Research (2000)</td>
<td></td>
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<tr>
<td><strong>Social Presence</strong></td>
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<tr>
<td>Short, Williams, &amp; Christie (1976)</td>
<td>&quot;degree of salience of the other person in the interaction and the consequent salience of the interpersonal relationships&quot;</td>
</tr>
<tr>
<td>Gunawardena &amp; Zittle (1997)</td>
<td>&quot;the degree to which a person is perceived as a ‘real person’ in mediated communication&quot; (p. 9)</td>
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<td>Lee (2004)</td>
<td>&quot;degree to which a person feels ‘socially present’&quot;</td>
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<td>Christophel (1990); Gorham (1988); Kearney, Plax, &amp; Wendt-Wasco (1985);</td>
<td>&quot;teacher immediacy&quot; in the classroom</td>
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<td>Garrison (1997)</td>
<td>&quot;the degree to which participants are able to project themselves affectively within the medium the sense of &quot;being together with another,&quot; including primitive responses to social cues, simulations of “other minds,” and automatically generated models of the intentionality of others (people, animals, agents, gods, and so on).</td>
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<td><strong>Immediacy</strong></td>
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<td>Mehrabian (1969)</td>
<td>&quot;the extent to which communication behaviors enhance closeness to and nonverbal interaction with another,&quot;</td>
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<td>Gunawardena &amp; Zittle (1997)</td>
<td>&quot;measure of the psychological distance that a communicator puts between himself or herself and the object of his/her communication&quot; (p. 9).</td>
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<tr>
<td>O'Sullivan, Hunt, &amp; Lippert (2004)</td>
<td>any of the cues exchanged in a mediated environment that contribute to a feeling of psychological closeness between interactants. a teacher, through the use of certain cues, could reduce the perceived distance between instructor and learners and thereby influence certain classroom outcomes, especially student learning.</td>
</tr>
<tr>
<td>Allen, Witt, &amp; Wheless (2006)</td>
<td></td>
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<tr>
<td>Mehrabian (1971)</td>
<td>the construct of immediacy involves behavior patterns that can draw people &quot;toward persons and things they like, evaluate highly, and prefer&quot;</td>
</tr>
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Table 1: Definitions of Presence, Social Presence, and Immediacy
consequence of the context shifting is that the target of evaluation changes from a physical person to either the technology itself or an individual as perceived through the technology. Because of researchers’ interests in understanding how people interact with and through communication technology, the amount of previous work focusing specifically on mediated environments far outweighs the work that does not. This unequal distribution of research is not recent. Even in one of the original definitions, Minsky (1980) described what he termed telepresence as the sense of “being there” in the context of unheard of technological instruments such as mechanical extensions of the body. In a work that described futuristic technological instruments, presence was already being connected to mediated environments despite the uncommon use of virtual reality, the Internet, or mobile technology.

Although work on presence within mediated environments may be more prominent, there are a number of domains in which presence has been studied. Biocca (1997) explained that presence exists within physical, virtual, and imagined environments. More specifically, this could be thought of as face-to-face environments, mediated environments, and imagination. Conceptualizations that describe interaction in face-to-face environments focus on the target individual as driving feelings of presence. Riva, Waterworth, and Waterworth (2004) proposed that presence is an “evolved biocultural mechanism that helps the self in organizing streams of sensory data” (p. 402). This suggests that presence is a psychological phenomenon that assists individuals in processing the information in the world around them. Further, they proposed that presence is not tied to certain mediums and cannot be thought of as a simple response to a
particular type of media. Behavior and characteristics of the communicative partners play the most important role in inducing presence, according to these researchers. If presence occurs as a result of personal characteristics, then the type of environment, whether mediated or not, should not matter.

However, another stream of presence research assumes that characteristics of the mediated environment are more important in inducing presence. Presence is thought to be at the core of all mediated experience, which, during this modern time, is an integral part of nearly every individual’s day (Lee, 2004). Interaction within mediated environments differs from interaction in the physical world in one important way. In a mediated environment, individuals perceive two unique environments at the same time (Steuer, 1992). They take in the physical world in which they are present as well as the mediated world. Virtual reality, traditional media, distance education, and social media are all examples of mediated environments. Modern definitions of presence that incorporate mediated environments are purposefully vague, ensuring that the concept will be applicable as technology progresses. Lee (2004) argued that presence does not specify existence within a certain technological domain as to avoid only describing a small subset of technology. This means that researchers avoid citing specific technologies in their conceptualizations in order to prevent their work from becoming obsolete when the technology inevitably does.

Although presence researchers do not specify any one type of technology, many conceptualizations include a mediated environment as one of the essential components. Mediated environments often mirror the physical world. For some researchers, presence
describes transportation from the physical world into a mediated world (Lombard & Ditton, 1997). According to Biocca (1997), presence refers to the sensory feeling of being in a location regardless of position in a physical or virtual world. This involves an individual’s feeling that they have been transported to another place, temporarily forgetting their physical surroundings. Not only do the individuals feel that they have been transported, they also perceive all things in that new environment to be physically real. Lee (2004) defined presence as “a psychological state in which virtual (para-authentic or artificial) objects are experienced as actual objects in either sensory or nonsensory ways,” (p. 37). One major component of these conceptualizations is the way in which individuals ignore the simulated nature of this new environment. It is, “the degree to which users illogically overlook the mediated or artificial nature of social interaction with an entity within a medium,” (Lombard, 1995). In other words, it can be thought of as, “the perceptual illusion of non-mediation,” (Ravaja et al., 2004, p. 339). In these cases, the interaction is so realistic that individuals experience the mediated environment in the same way they experience everyday non-mediated life.

Presence as transportation is just one of many conceptualizations set forth by researchers. With such large amounts of conflicting presence conceptualizations existing in research, many authors have attempted to organize them. Lombard and Ditton (1997) developed six categories to classify existing conceptualizations: presence as social richness, realism, transportation, immersion, a social actor within a medium, and mediums as social actors. Although all of these categories assume that the interaction takes place in a mediated environment, they highlight very different aspects of the
interaction and medium. Each category name highlights the main idea that the conceptualization presents. “Presence as social richness” focuses on aspects of the medium that make an interaction with others warm, intimate, personal or sociable. The ability of a medium to create realistic representations of objects, events, and people describes “presence as realism.” Transportation describes a phenomenon in which a person perceives that they are either in another place, objects are transported to them from another location, or two people are together simultaneously transported to another common location. Similar to transportation, immersion describes a phenomenon in which individuals lose all perceptions of reality and becomes fully immersed within the world they are experiencing. This can describe both experiences with virtual reality settings as well as traditional media experiences (e.g., reading a book). Presence as a social actor within a medium focuses on the perception of social actors within mediated environments as real despite the lack of colocation. Conversely, the last conceptualization of presence describes mediated interactions in which an individual responds to the medium as if it were a social actor. Overall, these conceptualizations indicate that the key components of presence are a shift in sensory perception where the way in which one experiences objects, their environment, or others, whether physically or virtually existent, is altered. Lombard and Ditton (1997) provide an overview of the many ways in which presence can be conceptualized. Although not every conceptualization of presence was elaborated on or discussed in depth, this review should provide an idea of the many ways in which presence can be defined in research. The aforementioned research should have set the groundwork to allow for an in-depth explanation of the construct of interest: social
presence.

**Social Presence**

Under the umbrella of presence are multiple domains that mirror the three types of real experience: virtual, social, and self-presence (Lee, 2004). Just as a person would feel present in a social setting due to the feedback of others, understand the presence of a projection of themselves in a virtual setting, and acknowledge that they exist as an individual in everyday life (i.e., self-presence), these feelings can also exist in online settings. These domains are the basis for defining the many sub-components of the construct. Within the concept of presence exist many subcomponents (i.e., social presence, telepresence, copresence, virtual presence, mediated presence). Each subcomponent hones in on a specific aspect of presence. Within the field of communication, human interaction is the fundamental building block on which research is based. One of the reasons for this is the way in which social interaction satisfies a basic human need. Not only does it satisfy a basic need, but it also assists in reaching communicative goals in ways that other forms of presence, such as co-location or perception of transportation, cannot (Nowak, 2001). Therefore, social presence, which primarily focuses on social interaction, can be considered the most important subcomponent of presence. Social presence also holds more similarities with immediacy than other components, as will be illustrated in the comparison section. For these reasons, the remainder of this work will focus on social presence rather than the larger concept of presence.

Just as with presence, social presence is conceptualized differently depending on
the context. Although all definitions of social presence focus on interactions with another being, there are discrepancies in whether a mediated environment is a necessary component of the social presence conceptualization. The conceptualization of social presence has shifted over time from including aspects of the medium that induce social presence to characteristics of the communication interaction (Biocca et al., 2003).

Originally, researchers believed that the type of medium determined the level of presence (Lombard & Ditton, 1997). This conceptualization is supported in some areas of research today. Shen and Khalifa (2008) initially conceptualized social presence as “the phenomenal nature of the medium as perceived by users,” (p. 728) whereas it can also be seen as the “subjective quality of the medium,” which places an emphasis on the individual’s appreciation of the technology (Short et al., 1976, p. 65).

Significant disagreement exists regarding whether social presence results from the individual, the technology, or both. The many conceptualizations of social presence can either be uni-dimensional, in suggesting that it stems from only the individual or the technology, or multidimensional, which suggests that both influence the level of social presence. A number of researchers cite the perceptions of the individual as the sole driver of social presence. Heeter (2003) proposed that presence actually focuses on the experience, which is constantly changing, rather than some aspect of technology. The author even went further to argue that users can learn how to be ‘present.’ Banos et al., (2004) shared similar views: “Media obeys laws of the mind. Presence is a user experience. It is not intrinsically bound to any specific type of technology, but is rather a product of the mind” (p. 739). Although social presence is a user experience that is not
dependent on the type of technology utilized, it still requires the presence of a communicative partner. Biocca, Harms, and Gregg (2001) stated that social presence is “the moment-by-moment awareness of the co-presence of another sentient being accompanied by a sense of engagement with the other” (p. 2). Short et al. (1976) defined social presence as the “degree of salience of the other person in the interaction and the consequent salience of the interpersonal relationships” (p. 65). All of these conceptual definitions focus solely on the experience of the individual while in a communicative interaction. However, these conceptualizations represent only one stream of social presence research that focuses on the uni-dimensionality of the construct.

Multidimensional conceptualizations describe both the medium and the experience of the individual as contributors to perceptions of social presence in an interaction. Biocca et al. (2003) proposed that the social presence of the communicative partner is mediated through some form of technology and, therefore, mediated social presence is a more appropriate title for the construct. However, this term is not widely used and the concept will continue to be referred to as social presence throughout the work. The phrase mediated social presence suggests that an individual perceives his or her partner as present in the interaction although he or she is not physically present. A conceptualization such as this cites both the medium and the individual as inducing social presence. Researchers have also conceptualized presence as “the degree to which a person is perceived as a ‘real person’ in mediated communication” (Gunawardena & Zittle, 1997, p. 9) or the “degree to which a person feels ‘socially present’” (Leh, 2001, p. 110). In these cases, social presence fits into the category of presence as realism.
Individuals perceive mediated projections as physically existent because of the characteristics of the technology and the behaviors of the communicative partner. In the context of education, social presence is conceptualized as, “the degree to which participants are able to project themselves affectively within the medium” (Garrison, 1997, p. 6). It becomes clear that the context of research does not alter the focus on how individuals are perceived when they communicate through some mediated technology. After some refinement, Shen and Khalifa (2008) described presence as, “the awareness of the other sentient beings accompanied by affective and cognitive engagement with others in computer-mediated social spaces” (p. 729). Both of these authors focused on the social richness of the environment that creates a sense of warmth and intimacy despite the limited cues available in the mediated environment (Lombard & Ditton, 1997). However, the definitions are not limited to the medium as the sole inducer of social presence. There is a clear divide in whether social presence in a uni- or multi-dimensional construct that makes determining the number of factors that social presence holds to be difficult.

In attempting to determine the factors that lie within social presence, Tu (2002) proposed that social context, online communication, and interactivity comprise the concept. After further investigation, the researcher concluded that those factors instead act as antecedents that contribute to feelings of social presence. Copresence, involvement, and behavioral engagement are also cited as components of social presence (Biocca et al., 2001). Behavioral engagement refers to a perception that the actions of the users affect others in some way whereas copresence can be defined as co-location and involvement as
focused attention. Shen and Khalifa (2008) argued that these factors are not applicable in all settings and instead proposed that awareness, affective social presence, and cognitive social presence are sufficient factors. In sum, there is not consensus among researchers regarding the factors that make up social presence.

In addition to variations in the ways researchers propose the structure of social presence, researchers from difference research domains also operationalize the construct in many ways. Across distance education research, elements of the course design and actions of the instructor are used as means of operationalizing social presence (Aragon, 2003). Specifically, instructors can contribute to discussion boards, answer emails in a timely manner, provide feedback, use humor, share personal anecdotes, address the students by their first names, and start conversations with students on topics that are not related to class, when appropriate, to express a feeling of closeness. Voice inflection and facial expressions have also been cited as indicators of social presence (Biocca et al., 2001). Within a virtual environment, social presence has been operationalized using four dimensions: intimateness, spatial co-presence, behavioral contingency, and social attentiveness (Bente, Ruggenberg, Kramer, & Eschenburg, 2008). Behavioral contingency refers to the degree to which the other person’s behavior and mood affected the conversation partner, whereas social attentiveness refers to the perception that attention was paid to the partner. Spatial co-presence can be described as the perception that the other is in the same location. Lastly, intimateness refers to the personal nature of the interaction. Another virtual reality study found that the perceived physical distance between the user and another avatar correlated with self-reported levels of social presence.
(Bailenson, Blascovich, Beall, & Loomis, 2001). This illustrates that the nonverbal indicators of social presence (i.e. proxemics) translate into mediated environments. Just as proxemics act as a presence indicator in face-to-face interactions, it also increases the perception of social presence in mediated environments.

From this review, it is clear that the social presence conceptualizations presented include a number of common themes: a focus on perceived distance, interaction with a communicative partner, a mediated environment, and distortions in perception. There is significant disagreement regarding the number of dimensions within the construct. However, both characteristics of the technology and behaviors of the communicative partner have been shown to induce this phenomenon. Social presence is only one of the two constructs of interest in this study and the same amount of explanation provided for this first construct needs to occur for mediated immediacy before any comparison can occur.

**Immediacy**

Before comparing the two constructs of interest, immediacy and mediated immediacy require thorough explanation. Fewer differences exist between mediated immediacy and immediacy, but the conceptualizations of immediacy are still limited because this concept is not the focus of this work. Just as with presence, immediacy describes a phenomenon where individuals perceive their communication partners as close, both in physical and mediated environments. Immediacy was originally defined without mention of technology; however, the concept has been increasingly applied to understand mediated social interaction. The concept was first used to describe an
interaction between two communication partners who were physically proximate. Mehrabian (1969) defined it as “the extent to which communication behaviors enhance closeness to and nonverbal interaction with another,” (p. 203). The conceptualization was later redefined to include those behaviors that reduce the physical or psychological distance between individuals as well as foster affiliation (Mehrabian, 1971). Specifically, immediacy includes behaviors that attract people “toward persons and things they like, evaluate highly and prefer” (p.1). According to Gunawardena and Zittle (1997), immediacy is a “measure of the psychological distance that a communicator puts between himself or herself and the object of his/her communication” (p. 9). The previous authors all place importance on the physical distance that is perceived by one individual in the interaction as a result of the other’s behavior or communication. Nonverbal behaviors, such as physical distance between interactants, eye contact, and body language, are cited as influencing the level of immediacy (Burgoon & Hale, 2013). Additionally, vocal inflection, gestures, physical contact, and smiling have been found to increase perceptions of immediacy (Santilli & Miller, 2011). Ultimately, these behaviors assist an individual in conveying warmth and approachability in order to develop personal relationships with others (O’Sullivan, Hunt, & Lippert, 2004).

However, there are unique challenges when immediacy behaviors are displayed in mediated environments such as online classrooms, videoconferences, or virtual reality. A large portion of the work on immediacy focuses on distance education (i.e., online classrooms) as the context. Researchers in this area are particularly interested in immediacy because of the association with positive outcomes including increased
cognitive and affective learning (Allen, Witt, & Wheeless, 2006) as well as teacher liking (Teven, 2007). The conceptualizations of immediacy in relation to distance learning do not change significantly other than specifically focusing on the classroom environment as the context. Allen et al. (2006) described immediacy as a reduction of perceived distance between the instructor and the learner due to certain cues made by the instructor. Additionally, they proposed that the level of immediacy could be reduced or increased based on the behavior of the instructor and his or her level of competency. The social cognitive framework has been utilized to explain the increased learning that results from perceived immediacy in two ways: motivation to learn resulting from receiving either reward/punishment or reinforcement from associating with a powerful individual. This framework assumes that a student can be motivated to learn by either providing or withholding desired behaviors such as praise, attention, etc. Another motivator would be association with the instructor, who holds the most power in a learning environment. Ultimately, this illustrates that a teacher’s display of immediate behavior(s) can increase affective learning, which, in turn, increases cognitive learning.

The behaviors that have been linked to perceived immediacy within a classroom environment are very similar to those behaviors used in every day interactions to indicate closeness. Using students’ names when addressing them, providing praise, and attending to student input have all been cited as verbal immediacy behaviors (Gorham, 1988; LaRose & Whitten, 1998; O’Sullivan et al., 2004). Self-disclosure is another important verbal immediacy behavior that has been examined within classroom environments (Hackman & Walker, 1990; Mazer, Murphy, & Simonds, 2007). The amount of self-
disclosure and personal nature of that disclosure have been shown to positively influence the perceptions of the teacher and the classroom environment, as well as levels of anticipated motivation and affective learning. Nonverbal behaviors such as smiling, touching, altering vocal expressions, and conveying relaxed body language have also been found to increase immediacy between an instructor and student. Certain behaviors that have been associated with social power have been shown to increase perceptions of immediacy. These nonverbal behaviors include eye contact, touch, proximity, gestures, and body orientation (Hall, Coats, & LeBeau, 2005). Within mediated environments, many of the aforementioned immediacy behaviors are difficult to convey due to the constraints of the medium. Regardless of context, immediacy behaviors all function as a means of achieving social connection. However, individuals have adapted to these environments and compensated for these constraints, as will be discussed in the mediated immediacy section.

**Mediated Immediacy**

Since the early definitions that focused on face-to-face conversations, researchers have introduced a slight variation on the original concept of immediacy, calling it-mediated immediacy. Unlike social presence, all of the mediated immediacy definitions indicate that the communicative interactions must occur within mediated environments, hence the inclusion of the mediated environment qualifier. Specifying this context has many influences on the conceptualization, including removal of all nonverbal behaviors that induce immediacy and require individuals to be collocated. Additionally, individuals must compensate for the presumed lack of cues in mediated environments in order to
communicate immediacy to their communicative partners. However, the context is the only point of difference between mediated immediacy and immediacy, making the conceptualizations of the large concept of immediacy that take mediated environments into account applicable in the discussion of mediated immediacy.

O’Sullivan et al., (2004) conceptualized mediated immediacy as any of the cues exchanged in a mediated environment that contribute to a feeling of psychological closeness between interactants. These authors determined that approachability and regard for others are two macro categories underlying mediated immediacy. Mediated immediacy is largely assessed in distance education settings. Hackman and Walker (1990) investigated learning within a televised classroom and found that immediacy behaviors had the same positive outcomes as in physical classrooms. Still, mediated environments introduce unique barriers for conveying immediacy. Feedback delays, video quality, and limits on nonverbal behaviors are just a few of the limitations (LaRose & Whitten, 1998). However, users have learned to adapt to the limited cues available, as outlined by social information processing (SIP) theory (Walther, 1992). Perceptions of immediacy in online environments are largely affected by the motivations of the individuals involved in the interaction instead of the type of medium utilized. This provides support for the SIP perspective and illustrates that levels of immediacy are not dependent upon the characteristics of the medium. Despite utilization of online settings as contexts, many scholars still use the conceptualization of immediacy that was designed for physical settings. This indicates that there are few differences between the conceptualization of mediated immediacy and immediacy other than the context.
For immediacy, many of the operationalizations of the construct focus on specific behaviors that an individual exhibits during communication. This can include communicative cues such as increased proximity, smiling, body contact, body orientation, and amount of leaning in a face-to-face setting (Walther, Loh, & Granka, 2005). Self-disclosure, expressiveness, accessibility, informality, similarity, familiarity, humor, attractiveness, and expertise are all cited as predictors of immediacy (O’Sullivan et al., 2004). All of these are personality traits or behaviors that individuals can display to increase the perception of immediacy whether in a mediated or face-to-face environment.

Within an online environment, these communicative cues take a different form because of the lack of cues present. In a mediated environment, immediacy behaviors include explicit positive statements of affection, changing the subject, and praise. In a study that looked at how a student’s viewing of their teacher social media pages would affect impressions, Mazer et al. (2007) operationalized immediacy as the amount of self-disclosure a teacher displayed on his or her social media profile. The quantity of information that the instructor shared, as well of the relevance and valence of messages, were varied to produce different levels of mediated immediacy. Ultimately, these researchers found that verbal cues were more important in CMC settings than face-to-face settings in establishing immediacy.

Because of the few differences between mediated immediacy and immediacy, the operationalizations for each should be considered in combination. This review of the literature reveals that many of the operationalizations that have been set forth for mediated immediacy are communicative or physical behaviors, which bear many
similarities to those for social presence. Though many conceptualizations have been presented for each construct and larger concept, one definition needs to be decided as the best representation of the concept for the purposes of comparison and scale selection.

**Conceptualizations**

For the purpose of statistical comparison and explication, one definition for social presence and mediated immediacy will be set forth. Social presence will be defined as “the sense of being together’ with another including primitive response to social cues, simulations of ‘other minds,’ and automatically generated models of intentionality of others (people, animals, agents, gods, and so on)” as originally proposed by Biocca et al. (2003, p. 456). This conceptualization includes all of the necessary components for describing social presence: another individual, implication of a shortening of distance, a perceptual shift, as well as the possibility of occurring in either a mediated or physical setting. The conceptual definition set forth by O’Sullivan et al. (2004) for mediated immediacy will be utilized in this study. The researchers define mediated immediacy as any of the cues exchanged in a mediated environment that contribute to a feeling of psychological closeness between communicative partners. This conceptualization provides the most concise explanation of immediacy while still including all of the essential components: a shift in perception, distance, a mediated environment, and a communication partner. From these conceptualizations, it is clear that there are a number of similarities between the two that will be discussed in detail below.

**Comparison**

Within the larger concepts of presence and immediacy lie constructs that hone in
on specific aspects of the communicative interaction, which, in this case, is the social exchange in a mediated environment. Social presence describes the social aspects of presence when communicating with another being whereas mediated immediacy focuses on the feelings of immediacy within a mediated environment. Some scholars agree that the concepts of social presence and immediacy are associated with each other (Gunawardena & Zittle, 1997) although extensive analysis has not been done to date. Presence as measured in mediated contexts focuses primarily on the perception of the environment whereas immediacy focuses on the perception of the ‘other’ or the relationship with that ‘other.’ However, social presence, as a sub-component, also focuses on the ‘other’ and the environment in which the interaction takes place. Social presence and mediated immediacy measures focus on assessing the presence of the communicative partner as experienced through the medium, rather than the affordances of the medium that induce social presence. Therefore, a comparison of social presence and immediacy removes the main difference that lies between presence and immediacy, the target of evaluation.

Beyond similarities in definition, researchers have made it clear that the constructs are similar by using the terms interchangeably. In what is considered to be one of the original social presence works, Short et al. (1976) used the term immediacy in the conceptualization of social presence (Biocca et al., 2003). Researchers often utilize definitions that were originally used to describe one concept (i.e., immediacy) in explanation of the other concept (i.e., social presence). This illustrates that the constructs are so similar that they act as great descriptions of each other. Tu and McIsaac (2002)
even concluded that immediacy is a sub-concept of social presence. From these examples, it is clear that a precedence surrounding the interchangeable nature of these constructs has been set by researchers, which is even more of a reason to organize the existing research.

The similarities between the immediacy and presence conceptualizations are numerous. In order to lay the groundwork for the comparison of social presence and mediated immediacy, these larger concepts must first be compared. Since social presence and mediated immediacy are just refined versions of presence and immediacy, the similarities of the larger concepts apply for the more specific constructs. First, both conceptualizations focus on a perception of distance between an individual and another object. There is considerable variation in whether the definitions refer to physical or virtual distance, but the underlying concept of space is present in both. Mehrabian (1969), Mehrabian (1971), Biocca (1997), and Gunawardena and Zittle (1997) all reference some aspect of distance through use of phrases such as “closeness,” “psychological distance,” or “in a location.” Although in the use of “closeness” the distance refers to that of a relational nature, the underlying similarities remain the same. Second, both concepts also describe a psychological phenomenon in which perception is altered in some way. Presence focuses on distortion of the perception of reality and physical location through failure to recognize the existence of the mediated environment in which the situation takes place. Lee (2004) emphasized this point in an argument that presence is not technology specific because it is actually a “perceptual process of technology-generated stimuli,” (p. 30). The individual’s perception is more important than any specific
technological characteristic. Immediacy focuses on the perceptions of closeness and distance between individuals in mediated environments. Whether in an online classroom setting or face-to-face conversation, immediacy refers to a perception of the degree to which people perceive others as near. In both cases, there is a change in perception regarding the individual’s relation to space or objects.

When honing in on the specific subcomponents mediated immediacy and social presence, the number of similarities increases because the number of dissimilarities between the constructs decreases. In addition to the similar themes of distance and shift in perception, the inclusion of another individual in the communicative interaction and a mediated context become key distinctions in comparing these constructs. Because social presence specifically focuses on the feeling of presence in interactions with another being, the definition becomes even more similar to that of immediacy. There is still a focus on the amount of distance between the two individuals within the interaction, but many scholars also acknowledge the salience of the relationship between the two. With the introduction of mediated settings, mediated immediacy is only slightly different from the original conceptualization. It is increasingly common for researchers to specifically refer to only mediated environments in their definitions of presence, making mediated immediacy and social presence nearly interchangeable. Perhaps, the addition of a mediated environment and ‘other’ are the key factors that cause social presence and mediated immediacy to intersect.

**Outcomes**

Some other important considerations in addition to the conceptual similarities...
between social presence and mediated immediacy are the outcomes and variables associated with each construct that could provide evidence of convergent validity. Considering the variety of disciplines that have utilized these constructs for research, there are some very different outcomes, although all are primarily positive. If both constructs have the same outcomes and are associated with similar variables, this could provide more evidence for conceptual overlap. On the other hand, if the variables are independent, then the associated variables and outcomes should differ. Overall, social presence and mediated immediacy predict outcomes that can be placed into three categories. First, these constructs have been reported to increase student achievement in education contexts. Second, satisfaction has been cited as an outcome of both mediated immediacy and social presence behaviors. Lastly, these constructs have a positive effect on the evaluations of others, whether it is instructors, coworkers, or communicative partners. Ultimately, the types of outcomes and associations that have been reported in the literature for these constructs are largely similar.

**Student Achievement.** Both social presence and mediated immediacy have been associated with positive learning outcomes. Student achievement has primarily been defined as cognitive or affective learning and has been cited in the literature for both constructs. Various types of presence behaviors have been shown to increase student learning. Shea et al. (2003) found that teacher presence was linked to student learning. Additionally, when social presence was defined as the quantity and quality of online disclosures, it was associated with higher levels of student learning (Jiang & Ting, 2000). Although measured as perceived learning, Hackman and Walker (1990) reported a
connection between the level of social presence and learning. Immediacy behaviors also produce many of the same outcomes in student learning. Teacher immediacy has been shown as contributing to a student’s increased motivation for learning, which, in turn, increases the likelihood of mastering the course material (Allen et al., 2006). Correlations were stronger for the affective component of learning (i.e., motivation) in comparison to cognitive learning for this study. However, Gorham (1988) provided evidence that the nonverbal and verbal behaviors of teachers, together known as teacher immediacy, contribute significantly to learning. O’Sullivan et al., (2004) also confirmed this relationship when they identified a positive relationship between immediacy and affective learning. In addition to an increase in positive attitudes towards the course, they found that immediacy reduced levels of uncertainty and increased motivation toward the course. It is clear that social presence and mediated immediacy, as well as the larger concepts presence and immediacy, contribute to positive student achievement outcomes such as affective and cognitive learning.

**Satisfaction.** Another one of the many outcomes of social presence and mediated immediacy that have been identified by researchers can be grouped under the category of overall satisfaction. Social presence has been found to directly predict satisfaction in multiple contexts. Gunawardena and Zittle (1997) found that social presence predicted satisfaction within mediated teleconferencing environments. In education settings, this comes in the form of perception of a learning environment as desirable, which increases satisfaction with the overall experience. In addition, social presence has been connected to outcomes that could contribute to satisfaction with the experience. Aragon (2003)
stated that regardless of context, social presence behaviors are primarily used to create a level of comfort with the instructor and other participants. Students view the experience as having quality when social presence is high (Newberry, 2001). Hackman and Walker (1990) found that both social presence and immediacy had a positive relationship with satisfaction in the classroom environment. Additionally, many of the findings related to increases in affective learning found in the previous section can relate to satisfaction. According to Allen et al. (2006), affective learning describes attitudes toward the teacher and course. It can also include attitudes about the learning experience, which would likely be measured in terms of satisfaction. However, satisfaction can apply in other settings beyond education. In an organizational setting, researchers found that immediacy was positively correlated to attitude toward the job and motivation to perform the job (Richmond & McCroskey, 2000b). Social presence and mediated immediacy both contribute to satisfaction with some type of experience as an outcome, in addition to student achievement and target evaluation.

**Interpersonal Evaluation.** The third outcome that is related to both social presence and mediated immediacy deals with evaluations of the target with whom the individual interacts. Social presence relates to increased perceptions of positive traits that are generally used to evaluate a person. Bente et al. (2008) found a positive correlation between social presence and measures of interpersonal trust, closeness, and attention within a virtual environment. In addition to evaluating the communicative partner more positively, social presence also increases perceptions of warmth, collegiality, and approachability for learning environments. Within organizational communication
research, there have been findings that immediate behaviors from a supervisor have positive correlations to multiple interpersonal attraction measures (Richmond & McCroskey, 2000a). In addition to higher levels of interpersonal attraction when a supervisor displayed immediacy, subordinates also reported higher levels of credibility, which included measures of competence, goodwill, and trustworthiness. Although the names of the traits used to evaluate another are not exactly the same in social presence and mediated immediacy research, they still both have positive interpersonal correlates.

Based on the review of the outcomes that are associated with the two constructs social presence and mediated immediacy, it follows that the current independent relationship prescribed in the extant literature may not be accurate. Especially when combining findings from across disciplines, it becomes clear that these constructs relate to nearly all of the same positive outcomes: achievement, positive evaluation of another, and satisfaction. Constructs that are truly independent should not share so many outcomes, as this suggests an overlap. This illustration of the overlap in outcome measures is only one piece of the argument for a different relationship between these constructs than has been reported in past literature.

**Research Questions**

This review of the extant presence and immediacy research illustrates that the conceptualizations and operationalizations presented thus far include many similarities. Although many researchers have pointed out the issues with conceptual clarity and similarity between the constructs, there has not been a study completed to empirically test the relationship between social presence and mediated immediacy. Besides promoting
semantic confusion, it is detrimental to the field to have such ambiguity regarding these constructs. This ambiguity increases the risk of the “wheel reinvention” problem (Herbst, 2008). Instead of building on previous research, scientists end up working toward false breakthroughs that have already been discovered in other research areas under a different construct name. Because communication has been named a postdisciplinary field, this issue of recreating the findings of other fields is quite prevalent. It is necessary to clarify the meanings and structure of constructs as widely used as presence and immediacy. This work intends to provide organizing power by introducing structure into the extant research and presenting a clearer explanation of the relationship between these two constructs (Chaffee & Berger, 1987). The present study will attempt to introduce clarity by answering the following research question regarding these concepts:

**RQ 1: Are mediated immediacy and social presence distinct constructs?**

**Theorized Model**

In the theorized model, social presence and mediated immediacy are presented as independent latent constructs (see Figure 1). Existing research presents these constructs as unique; therefore this model, which is based on the existing presence and immediacy theory, will reflect that. There are a total of 27 observable indicators for the two constructs: 17 unique indicators for social presence and 10 for mediated immediacy. The social presence indicators originate from two subscales and will consequently be labeled as such. Those items originating from the first subscale will include a one (e.g., SP1_1) whereas the items from the second subscale will include a two (e.g., SP2_1). Although
Figure 1: The Theoretical Model of Social Presence and Mediated Immediacy
Figure 2: The Competing Model of Social Presence and Mediated Immediacy
these constructs are unique, they will be allowed to co-vary.

**Competing Model**

In order to stringently test the theorized model, I have also put forth a competing model. Muliak (2004) proposed that in addition to determining fit of the hypothesized model, comparison with competing models provides a greater level of understanding regarding the hypothesized model’s fit. This competing models acts as a point of comparison for model fit statistics. In this model, social presence and mediated immediacy are combined into one latent variable because of the lack of theoretical and conceptual differentiation in the literature (see Figure 2). The two constructs seem to overlap so greatly that they are part of one larger concept. All of the 27 indicators will have paths that are linked to the one latent variable.

**Target**

In addition to testing the relationship between social presence and mediated immediacy, the present work intends to determine whether certain aspects of the communication message influence perceived levels of social presence and mediated immediacy. A majority of the existing research concentrates on evaluations of an individual, such as an instructor or some conversational partner. With increased popularity of social media and online activity, the types of communicators on the Internet have expanded beyond just individuals. It is not uncommon to come across businesses and organizations that have created online profiles. In a survey of more than 2,100 businesses, Harvard Business Review found that more than half currently used social media and nearly a quarter had plans to begin using it in the future (2010).
great numbers of non-individual accounts on social media and the Internet, it is necessary
to determine whether entities can induce social presence and mediated immediacy.
Although the existing conceptualizations do not specify that presence or immediacy
cannot occur during an interaction with an entity, empirical research has not tested this
possibility. Existing definitions of presence have indicated that the phenomenon can
occur during interactions with an “entity,” (Lombard, 1995) or “others,” (Biocca et al.,
2003). Conceptualizations of mediated immediacy also do not specify that the
communicative partner needs be an individual (Gunawardena & Zittle, 1997; O’Sullivan et al.,
2004), so the following research question will be tested:

RQ 2: Do ratings of social presence and mediated immediacy change with
differences in the type of target being evaluated?

Interactivity

Another component of the communicative exchange that could affect how
socially present or immediate the user perceives his or her partner to be is the amount of
interaction that occurs. Interactivity has been cited as an important component of face-to-
face interactions. Tu (2002) specifically named interactivity as an indicator of social
presence. Although reported under different terms, the main idea of interactivity (i.e.,
increased attention) has also been connected to the constructs. Bente et al. (2008)
included social attentiveness as one of the key dimensions of social presence. Social
attentiveness was measured as perception of the amount of attention that the interaction
partner paid to the target individual. Within mediated environments, the lack of cues
makes judging the attentiveness of a communicative partner significantly more difficult.
However, the number of times that the partner comments or references another in their communications could serve as an indicator of attentiveness in mediated settings. Interactivity is also included as an important indicator of immediacy, although it has not been looked at in mediated environment. Interactive, affective, and cohesive communications from a teacher in a distance classroom were found to be predictors of social presence in a qualitative analysis (Christen, Fall, & Kelly, 2012). Providing praise and attending to the input of students were also outlined as immediacy behaviors (O’Sullivan et al., 2004). A classroom environment in which there is a give and take between the students and instructor could be described as interactive. The give and take of a face-to-face conversation occurs in similar ways online. Conversations in online settings are composed of strings of comments that can include most all of the social presence and immediacy behaviors previously outlined. Although interactivity has been included in lists of behaviors that induce the constructs of interest, it has not been experimentally manipulated in mediated environments. However, Tu and McIsaac (2002) found that when online, the social context, level of online communication, and interactivity are predictors of social presence. Because interactivity is one of the defining features of new media and clearly a characteristic that induces social presence and mediated immediacy, this gap needs to be addressed (Eveland, 2003). Based on the research that cites interactivity as a component of both of the constructs of interest, the following research question is posed:

**RQ 3: Do ratings of social presence and mediated immediacy change with differences in the level of interactivity?**
CHAPTER 3: Method

Experimental Design

A 2 (target) x 2 (interactivity) between-subjects experimental design was utilized to test the proposed research questions. In order to extend the previous research and measure the variables in a new setting, this study utilized social media as the context. To introduce variability, the target generating social media posts on Twitter was either an entity or an individual. For the entity condition, the Tweets appeared to come from a local fictitious business named Columbus Soft Pretzel Company. Tweets from Phil Bates, the Columbus Soft Pretzel Company owner, were utilized for the individual condition. The two conditions of interactivity differed in whether or not the target actively responded to others’ posts or only generated their own posts. The content of the Tweets was constant across conditions. The high interactivity condition had multiple users convey the same amount of information that was Tweeted by Phil Bates alone in the individual condition. The content of the Tweets was manipulated by incorporating the factors that have been shown to produce social presence and mediated immediacy in other settings. To induce mediated immediacy, Tweets included self-disclosure (Mazer et al., 2007), personal examples (Gorham, 1988), and encouragement (Hackman & Walker, 1990). Personal anecdotes, humor (Aragon, 2003), and phrasing that indicated understanding (Shen & Khalifa, 2009) was utilized to induce social presence. See
Appendix D for full listing of the stimuli.

**Participants**

Two hundred and seventy-one participants were recruited from undergraduate communication classes at a large Midwestern university. There is a great deal of disagreement regarding what is considered an adequate sample size to obtain meaningful results in confirmatory factor analysis. Comfrey and Lee (1992) proposed a minimum sample size guideline stating that “the adequacy of sample size might be evaluated very roughly on the following scale: 50 – very poor; 100 – poor; 200 – fair; 300 – good; 500 – very good; 1000 or more – excellent” (p. 217). According to that guideline, the present study would have fit into the ‘good’ category. However, few researchers agree that a sample size guideline can be used across studies that vary in item length and, instead, support the use of a subject-to-item ratio. Nunnally (1978) presents the ratio of 10:1 subjects to items as desirable for confirmatory factor analysis, but this ratio has no published empirical support. MacCallum, Widaman, Zhang, and Hong (1999) found that sample size rules of thumb are less important in factor analysis than the level of communality, convergence, and determination of the factor. However, this project required selection of sample size before the previous statistics could be obtained, so rules of thumb were relied on. In order to obtain significant results in this confirmatory factor analysis, a goal of 10 participants per item was utilized. Between the two social presence and mediated immediacy scales, there was a total of 27 items, which set the desired number of participants at 270.

Of the 271 participants, more than half were female (64.9%, n = 176). A majority
of the participants were Caucasian (82.7%, n = 224), with 2.2% identifying as Hispanic (n = 6), 7.0% as African-American (n = 19), 6.3% as Asian – Pacific Islander (n = 17), and 1.8% specifying another ethnicity (n = 5). Participants ranged in age from 18 to 65 (M = 20.55, SD = 3.86). More than 90% of the sample was under the age of 22, as was expected with a college sample. A majority of the participants agreed that they were familiar with the social media website Twitter (M = 6.17, SD = 1.23), with nearly all participants (92.3%) indicating that they have actually used the website before (n = 250). The participants who reported they were Twitter users indicated that they visited the site for roughly 60 minutes per day on average (M = 53.9, SD = 74.878), although the variation in answers was quite high (minimum = 0, maximum = 500). Those surveyed indicated that they have been Twitter users for quite some time. Participants said that, on average, they had used the site for more than 24 months (M = 26.5, SD = 17.8).

**Procedures**

Participants were recruited through the School of Communication undergraduate subject pool that awards students either course or extra credit in return for participation in research studies. After viewing the recruitment letter (see Appendix A), participants elected to participate and then were directed to the online survey via www.Qualtrics.com. All respondents completed the survey on a computer of their choice that was not provided by the researcher. Participants then gave informed consent electronically before viewing the stimuli (see Appendix B for the consent form). Each participant was randomly assigned to a condition by the Qualtrics software. The fake Tweets were created using a website named www.simitator.com which allows the manipulation of Twitter user name,
photo, handle, Tweet content, as well as the meta-data shown with the Tweet. The content of the Tweets remained constant across all conditions. However, the highly interactive Tweets utilized multiple users to convey the same information that was found in the low interactivity conditions. For example, a Tweet in the low interactivity condition read “Join us tomorrow, #columbusfriends! Unveiling event @ everyone’s favorite shop down the street. Sounds like a great time!” which came solely from Phil Bates, whereas the high interactivity condition split the content so that “Sounds like a great time!” came from a user who commented on Phil’s original post. An image of a pretzel found through a Google Image search was used as the profile image in all conditions. The dates that the Tweets appeared to be published were randomly altered to make the Tweets seem to have been posted on different days with comments following the original posts chronologically. After viewing five Tweets from one of the four conditions, participants rated those Tweets on scales measuring social presence, mediated immediacy, Twitter familiarity, need for connection, willingness to transact, likelihood of future Twitter interaction, overall evaluation of the target, as well as questions regarding demographics. Participants were then thanked for their time and directed to a separate survey that gathered their name and email for assignment of course credit purposes. Overall, the survey took participants no more than 15 minutes to complete.

Measures

The primary variables of interest in this study were social presence and mediated immediacy. Willingness to transact, evaluation of the target, and likelihood of future Twitter interaction were also measured as outcome variables. A variety of scales assessed
individuals experience with the social media website Twitter such as familiarity, need for connection on Twitter, amount of Twitter use per day, and length of Twitter membership. A full listing of these scales can be found in Appendix C.

**Social Presence.** Many of the social presence scales that were reviewed in the explication stage of this project either evaluated a technology or an individual after interaction in a virtual setting. These scales do not measure social presence as it is defined in the final conceptual definition that was previously presented. A portion of Nowak’s (2001) presence scale that measured four components of the concept on a 7-point Likert-type scale ranging from “Strongly Disagree” to “Strongly Agree” was utilized. Although the selected components were presented as measures of copresence ($\alpha = .9$) and self-reported copresence ($\alpha = .78$) by the original author, the items captured the main components of social presence presented in Biocca et al.’s (2003) definition. Items related to the “sense of distance between” the participant and target served as indicators of the “sense of being together” referenced in the definition. The participant was viewed as simulating “others’ minds” by answering strongly agree on items asking whether they perceived that the target “showed enthusiasm” or “was intensely involved” with their social media posts. Finally, the item asking whether the target “was unwilling to share personal information/feelings” was used as an indicator of the component of the social presence definition referencing intentionality. Nowak’s (2001) scale was modified to assess the target despite the lack of direct interaction. An example of this change in wording is the alteration of item six to read: “Phil Bates willingly shared personal information.” This change provided clarity and made the scale logically fit with the
present study. A Principal Component Analysis of the entire scale indicated the presence of four factors with eigenvalues above one, although items only loaded onto two factors above an acceptable level (i.e., greater than 0.5). These results supported the decision to run a forced two-factor direct oblimin rotated solution (see Table 2 for factor loadings). In this forced factor structure, the presence of the two subscales outlined by the original authors was confirmed with 52.9% of the variance explained. All items from the first subscale that were expected to load on the first factor did so at an acceptable level (i.e., 0.51 to .79). Those items from the second subscale that were expected to load on the second factor did so as well (i.e., .60 to .87). Together, these items achieved high inter-item reliability ($\alpha = .86$).

**Mediated Immediacy.** Because many of the commonly used immediacy scales focus on nonverbal behaviors that are not important in a mediated setting, O’Sullivan et al.’s (2003) scale was selected to specifically measure mediated immediacy. The present scale was selected due to the high apparent face validity in operationalizing the perception of relational closeness and warmth. This is accomplished by asking participants to assess the target using adjectives related to the mediated immediacy variable. The scale utilized ten 7-point semantic differential items with end points such as “Inviting-Uninviting,” and “Engaging-Detached.” The scale was recoded so that positively worded adjectives were placed on the higher end of the scale, so a high score indicated a high rating of mediated immediacy. A Principal Component Analysis indicated the presence of two factors that explained 53.8% and 10.2% of the variance, respectively. Only one item loaded on the second factor at a sufficient level. See Table 3
for full listing of factor loadings. The reliability analysis indicated that the same factor that loaded on the second factor negatively impacted the Cronbach’s alpha level ($\alpha = .88$). Therefore, the MI_3 item that included “Non-disclosing – Disclosing” endpoints was removed, increasing the reliability by 0.03. After this deletion, another Principal Component Analysis was utilized and revealed the presence of only one factor with eigenvalues above one. Therefore, the decision to remove this item introduced clarity into the factor structure and increased reliability for the entire scale ($\alpha = .91$). However, the item remained in the scale for the confirmatory factor analysis because of the necessity of testing the models as originally proposed with all items included.

**Twitter Familiarity.** Participant’s familiarity with the social media website Twitter was assessed using six Likert-type items ranging from “Strongly Disagree” to “Strongly Agree” that were adapted from Bhattacherjee’s (2002) scale. Participants were asked to indicate whether they were familiar with Twitter functions such as “the process of Tweeting,” “using hashtags” and “the term trending in relation to Twitter.” In addition, they were asked to rate their familiarity with the website as a whole. The scale was adapted by including functions that were specific to Twitter because the original scale focused solely on e-commerce behaviors. A Principal Component Analysis revealed the presence of one factor with an eigenvalue above one. This factor explained 86.04% of the variance. Together, these six items achieved high inter-item reliability ($\alpha = .95$).

**Need for Connection.** To assess the participants’ need for connection on Twitter, five Likert-type items that were developed by Chen (2011) were utilized.
### Table 2: Pattern and Structure Matrix for PCA with Oblimin Rotation for Four-Factor Solution of Social Presence

<table>
<thead>
<tr>
<th>Item</th>
<th>Pattern Matrix</th>
<th>Structure Matrix</th>
<th>Communalities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Component 1</td>
<td>Component 2</td>
<td>Component 3</td>
</tr>
<tr>
<td>SP1_1</td>
<td>0.030</td>
<td>-0.012</td>
<td>-0.814</td>
</tr>
<tr>
<td>SP1_2</td>
<td>-0.023</td>
<td>-0.172</td>
<td>-0.838</td>
</tr>
<tr>
<td>SP1_3</td>
<td><strong>0.908</strong></td>
<td>0.021</td>
<td>0.021</td>
</tr>
<tr>
<td>SP1_4</td>
<td><strong>0.853</strong></td>
<td>0.114</td>
<td>-0.002</td>
</tr>
<tr>
<td>SP1_5</td>
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<td>0.029</td>
<td>0.010</td>
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<td>SP1_6</td>
<td><strong>0.583</strong></td>
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<td>0.069</td>
</tr>
<tr>
<td>SP1_7</td>
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<tr>
<td>SP2_6</td>
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<td><strong>0.865</strong></td>
<td>-0.038</td>
</tr>
</tbody>
</table>

**Note:** Major loadings for each item are bolded.
Items such as “I feel I am connected to other users on Twitter,” and “I feel like I belong in the Twitter community,” were rated on a seven-point scale ranging from “Strongly Disagree” to “Strongly Agree”. This scale had one factor with eigenvalues above one that accounted for 84.8% of variance, according to a Principal Component Analysis. The five items together had strong reliability ($\alpha = .96$).

**Likelihood of Interaction on Twitter.** Five items were constructed to measure the participants’ likelihood of future interaction with the target on the Twitter website.

These items were set to a seven-point Likert-type scale ranging from “Extremely Unlikely” to “Extremely Likely”. The scale included items asking participants to rate the likelihood that they would engage in activities such as “following” or “direct messaging”
the target in the future. A Principal Component Analysis revealed the presence of only one factor that explained 72.26% of the variance. Together, these items achieved high inter-item reliability ($\alpha = .90$).

**Willingness to Transact.** Three items were adapted from Bhattacherjee (2002) and combined with three original items to measure the participants’ willingness to transact with Columbus Soft Pretzel Company after interacting on Twitter. The three five-point Likert-type items that were adapted included phrases such as “I would consider visiting Columbus Soft Pretzel Company for some of my future purchases” with responses ranging from “Strongly Disagree” to “Strongly Agree”. The items were reworded to reference Twitter instead of the e-commerce website originally included. Three items were added to gain a more comprehensive understanding of the participant’s willingness to interact with this business. Items such as “I would visit the Columbus Soft Pretzel Company store location,” and “I would feel comfortable purchasing products from Columbus Soft Pretzel Company,” were added. To test the factor structure, a Principal Component Analysis was utilized which revealed the presence of one factor that explained 75.23% of the variance. All scale items achieved high inter-item reliability ($\alpha = .93$).

**Evaluation of Target.** A total of ten items were created to determine how the participants evaluated the personality of the target after viewing the Tweets that they posted. The items were seven-point semantic differentials with endpoints including “Funny-Dull”, “Nice-Mean”, and “Exciting-Boring”. The positively worded adjectives were placed on the lower end of the scale, so a low score indicated a positive evaluation
of the target. Those items that did not follow this coding scheme were reverse coded. The Principal Component Analysis revealed that there were two factors with eigenvalues above one, although all ten items had high factor loadings on the first item. The first factor explained 54.85% of the variance whereas the second factor only added 13% to the total variance explained. Therefore, the decision to restrain the factor structure to one factor was made. These ten items together had high inter-item reliability ($\alpha = .90$).

**Twitter Use.** To measure the participants’ Twitter use, three items were adapted from the scale developed by Papacharissi and Rubin (2000). The first item acted as a screening question and asked whether the participant had used Twitter before. If the participant answered yes, they were then asked to indicate the number of minutes that they use the site per day as well as the number of months that they had been a Twitter user. All of the items utilized an open-ended response box.

**Demographics.** Three single-item measures assessed the demographics of the participants. One item asked the participant’s age using an open-ended response box. Another item asked the participant to indicate their gender from the two responses provided: “male” and “female.” Lastly, participants were asked to choose their ethnicity from a list including White/Caucasian, African American, Native-American, Asian – Pacific Islander, Hispanic, or Other. If the participant chose ‘Other’, they were asked to specify their ethnicity in an open response box.

**Analyses**

A confirmatory factor analysis (CFA) was performed to assess the factor structure of the mediated immediacy and social presence variables using AMOS 21. Two models
of the relationship between the variables of interest were tested using CFA. One model assumed independence of mediated immediacy and social presence, as is outlined in all of the previous literature. The second model proposed that mediated immediacy and social presence overlap enough to be considered one factor. Because of issues with the error terms when running the models with all items included independently, the decision to run the models with parcels was made (Matsunaga, 2008). Using a random number generator, the items were assigned to a parcel in roughly even numbers (i.e., three or four item parcels). The parcels were created using a mean of the aggregated items. For the social presence latent indicator, the items were parcelled so that items from each subscale remained together. Overall, there were eight parcels with three or four items in each. Parceling allowed the original measures to be tested and meaningful results to be gained without error terms skewing the results. Each model was assessed using a number of fit indices. The acceptable levels for those fit indices are as follows. A small Chi Square value and a non-significant \( p \) value are statistics that can be used to compare models. Additional fit indices were utilized because of the sensitivity of the chi-square statistic to sample size (Kline, 1998). According to Hu and Bentler (1999) acceptable levels for the comparative fit index (CFI) and root mean square error of approximation (RMSEA) are \(<.06\) and \(\geq .95\), respectively. The standardized root mean square residual (SRMR) should ideally be as small as possible, but a value below .08 indicates good fit. If the SRMR equals zero, the model fits perfectly. Additionally, the change in chi-square test will be assessed to determine if the model modifications are significant.

In addition to testing the relationship between the variables with a confirmatory
factor analysis, the correlations of both scales with a number of outcome variables was assessed to determine the level of convergent validity. Convergent validity illustrates that two measures that should be related, in fact are. By testing each scale side by side with the outcome variables, this correlation matrix revealed whether both constructs correlated with the outcomes in a similar way, as would be predicted if the constructs overlapped, or differently in the way that would be expected if they were independent. Because the competing model hypothesizes that the constructs overlap enough to be considered one factor, a combination of the two scales was inserted into the correlation matrix. If this combination index behaved in the same way as each scale independently, this should provide support for an overlapping relationship. Lastly, the correlation matrix was used to illustrate how the scales and subscales correlate with each other. If the constructs are independent, the scales would correlate somewhat but the magnitude would not be high. A high correlation was expected to show that the constructs are so similar and overlap was occurring.

The research questions were tested first with independent groups t-tests and then with ANCOVAs to control for various demographics and Twitter use variables. The independent t-test allowed the conditions to be split and means to be compared for each. Because this test assumes that the means are the same, a significant result illustrated that the independent variable produced significantly different ratings in the dependent variable. As for the ANCOVA, this test showed how the independent variables affected the ratings of social presence and mediated immediacy when certain variables were controlled for. An acceptable significance level for these tests is \( p < .05 \) (Fisher, 1925).
CHAPTER 4: Results

Confirmatory Factor Analysis

Theoretical model. Based on previous research, the first model involved 27 observable variables that served as indicators of two latent variables (i.e., mediated immediacy and social presence). Because of issues with error terms, the items in each model were aggregated into eight parcels. The chi-square value for the overall model fit was significant, $\chi^2(19) = 111.88, p < .001$. However, $\chi^2$ has been criticized for sensitivity to large sample size, so additional fit indices were assessed (Kline, 1998). Examination of these other indices showed acceptable model fit, CFI = .93, RMSEA = .14, and SRMR = .08. The modification indices provided by AMOS indicated that the error terms between parcels four and five should be co-varied in order to improve the chi-square value. See figure 3 for the modified theoretical model. After co-varying the error terms for both models, the indices revealed increased fit. The chi-square value decreased but remained significant, $\chi^2(18) = 45.96, p < .001$. The rest of the model fit indices provided further evidence of good model fit: CFI = .98, RMSEA = .08, and SRMR = .04. See Table 4 for the fit indices for all of the models.

Competing Model. The second model proposed that one latent variable had paths linking to all 27 of the indicators. Items were also aggregated into eight parcels for this model. This model did not fit the data as well. The chi-square value was also significant,
\( \chi^2 (20) = 203.90, p < .001 \). Because the sample size was large, additional fit indices were assessed to provide a more complete view of the model fit. These indices provided further support for a poor fitting model: CFI = .85, RMSEA = .19, and SRMR = .09. All of these indices are below the acceptable levels. To provide consistency in comparison, the same error terms from parcel four and five were co-varied, \( \chi^2 (20) = 136.90, p < .001 \). See figure 4 for the modified competing model. Although this improved the model fit, many of the fit indices did not surpass the thresholds of acceptability: CFI = .91, RMSEA = .15, and SRMR = .05.

**Convergent Validity**

In order to test convergent validity and provide further support for the relationship (or lack thereof) between mediated immediacy and social presence, a correlation matrix was assembled. This matrix included an index of the entire social presence scale as well as both social presence subscales and the mediated immediacy scale. It also assessed correlations with willingness to transact with the target, evaluation of the target, and likelihood of participating in future Twitter activities with the target. Mediated immediacy and social presence were significantly correlated,

<table>
<thead>
<tr>
<th></th>
<th>( \chi^2 )</th>
<th>( \chi^2/df )</th>
<th>CFI</th>
<th>RMSEA</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theoretical Model</td>
<td>111.88**</td>
<td>5.89</td>
<td>0.93</td>
<td>0.14</td>
<td>0.08</td>
</tr>
<tr>
<td>Competing Model</td>
<td>203.90**</td>
<td>10.2</td>
<td>0.85</td>
<td>0.19</td>
<td>0.09</td>
</tr>
<tr>
<td>Theoretical Model with co-varied error terms</td>
<td>45.96**</td>
<td>2.55</td>
<td>0.98</td>
<td>0.08</td>
<td>0.04</td>
</tr>
<tr>
<td>Competing Model with co-varied error terms</td>
<td>136.90**</td>
<td>7.2</td>
<td>0.91</td>
<td>0.15</td>
<td>0.05</td>
</tr>
</tbody>
</table>

*Note: ** p < .001

Table 4: Goodness-of-Fit Indicators for Models of Social Presence and Mediated Immediacy
Figure 3: The Theoretical Model of Social Presence and Mediated Immediacy with Error Terms Co-varied

Figure 4: The Competing Model of Social Presence and Mediated Immediacy with Error Terms Co-Variated
(Pearson’s $r = .68, p < .001$). This correlation indicated that an increase in positive evaluations of mediated immediacy would follow an increase in positive social presence ratings. When the social presence subscales were separated, the correlations with mediated immediacy differed in magnitude. Although both correlated significantly, the first subscale correlated at a higher level (Pearson’s $r = .75, p < .001$) compared to the second subscale (Pearson’s $r = .20, p = .001$). Steiger’s Z-test revealed that the difference between these correlations was statistically significant, $Z = 9.23, p < .001$ (Steiger, 1980). Therefore, each subscale correlated with a third variable, mediated immediacy, in a statistically different way, which suggests uniqueness of the constructs measured by these subscales.

The correlations of the mediated immediacy and social presence scale with the outcome variables also provided evidence of the relationship between the two constructs. Social presence positively correlated with willingness to transact (Pearson’s $r = .56, p < .001$), and mediated immediacy also positively correlated with this variable (Pearson’s $r = .50, p < .001$). Higher levels of social presence and mediated immediacy both produced greater willingness to transact with the target. Similarly, likelihood to engage in future Twitter interaction had a positive relationship with both social presence (Pearson’s $r = .50, p < .001$) and mediated immediacy (Pearson’s $r = .20, p = .001$). If the participant rated the target as high on the mediated scale, then they were more likely to indicate that they would interact with them on Twitter in the future. A high social presence rating also meant that the participant was more likely to have Twitter interactions in the future. For target evaluation, social presence (Pearson’s $r = .67, p < .001$) and mediated immediacy
were both positively correlated (Pearson’s $r = .73, p < .001$). Increases in both mediated immediacy and social presence accompanied increases in target evaluation.

In addition to testing the correlations of each scale, an index was created that combined the mediated immediacy and social presence scales in order to determine how it associated with the outcome variables. This index correlated with all of the outcome variables in the same way as each of the scales independently. The combination scale was significantly correlated with evaluation of the target (Pearson’s $r = .75, p < .001$). Both willingness to transact (Pearson’s $r = .58, p < .001$) and likelihood of future Twitter interaction (Pearson’s $r = .41, p < .001$) were also positively correlated with this combination index. Not only were the directions the same for the subscales and the combination, but the strength of the correlation was nearly identical for all but the likelihood to interact on Twitter in the future scale. The mediated immediacy scale was significantly positively correlated (Pearson’s $r = .88$) but the magnitude of the association was not as great as the social presence and combination scales. It is also interesting to note that the social presence subscales correlated with this combined index at different magnitudes. The first social presence subscale was highly correlated (Pearson’s $r = .89, p < .001$) whereas the second subscale was moderately correlated (Pearson’s $r = .51, p < .001$). Steiger’s Z-test revealed that the difference between these correlations was statistically significant, $Z = 12.23, p < .001$ (Steiger, 1980). Therefore, each subscale correlated with the combination scale in a statistically different way, which suggests uniqueness of the constructs measured by these subscales.
Research Question 2: Target Type

Model fit was only one part of the research questions posed in this study. Statistical analysis was also utilized to investigate how manipulations of the communicative message influenced ratings of the constructs of interest. In order to test whether the type of target had an effect on the participant’s rating of social presence and mediated immediacy, an independent t-test was utilized. This test revealed no difference in the ratings of social presence between the individual and entity conditions, $F(269) = 1.56, p = .68$. The type of target did not have an effect even after amount of Twitter use per day, Twitter familiarity, length of Twitter membership, age, gender, and ethnicity were controlled, $F(1, 256) = .11, p = .63$. However, this effect improved when the two social presence subscales were assessed separately.

Subscales. Participants who viewed Tweets from an entity did not provide significantly different social presence ratings than those who viewed Tweets from an individual for the first social presence subscale, $F(269) = 4.41, p = .082$. However, this effect improved when controlling for the amount of Twitter use per day, Twitter familiarity, gender, age, and ethnicity, $F(1, 257) = 2.16, p = .056, \eta^2_{\text{partial}} = .01$. Those participants in the entity condition ($M = 5.44, SE = .07$) provided higher ratings of social presence than those in the individual condition ($M = 5.25, SE = .07$), when only the first subscale was considered. Target did not have an effect on ratings of the second social presence subscale, $F(269) = .44, p = .08$. Controlling for demographics (i.e., age, gender, ethnicity) and Twitter variables (i.e., amount of Twitter use per day, Twitter familiarity) did not improve this effect, $F(1, 257) = 3.34, p = .09, \eta^2_{\text{partial}} = .01$. 
**Mediated Immediacy.** There was not a significant difference in ratings on the mediated immediacy scale between those who viewed Tweets generated by an individual and by an entity, $F(269) = .28, p = .18$. Controlling for demographics (i.e., age, gender, ethnicity) and Twitter variables (i.e., amount of Twitter use per day, Twitter familiarity, length of Twitter membership) did not significantly improve this effect, $F(1, 256) = 1.73, p = .10$.

Apart from the first social presence scale, the data seems to indicate that the type of target does not have an effect on perceptions of social presence or mediated immediacy on Twitter. Neither the whole social presence subscale nor mediated immediacy scale were influenced by the type of target. In addition to testing whether the type of target affected how participants rated the levels of social presence and mediated immediacy, the effect of the target on a number of outcome variables was also assessed.

**Evaluation of Target.** The evaluation of the target was not affected by the type of target, $F(269) = 4.75, p = .10$. However, those participants who viewed Tweets from an individual ($M = 4.99, SE = .24$) provided more positive evaluations of the target than those who viewed Tweets from the entity ($M = 5.39, SE = .22$), when controlling for gender, age, and Twitter familiarity, $F(1, 264) = 3.57, p = .06, \eta^2_{\text{partial}} = .03$.

**Willingness to Transact.** The type of target did not alter participants’ indications of whether they would be willing to interact with the target in a business context in the future, $F(269) = .48, p = .21$. Controlling for demographics (i.e., age, gender, ethnicity) and Twitter variables (i.e., amount of Twitter use per day, Twitter familiarity, need for connection on Twitter, length of Twitter membership) did not improve this effect, $F(1,$


256) = .91, p = .34.

**Likelihood to Interact on Twitter in the Future.** Just as with willingness to transact, target did not have a significant effect on participants’ likelihood of interacting with the target on Twitter in the future, F (269) = 1.7, p = .082. Controlling for age, gender, ethnicity, Twitter familiarity, and need for connection on Twitter actually worsened this effect, F (1, 262) = 1.89, p = .17.

**Research Question 3: Level of Interactivity**

Independent t-tests were also used to test whether the level of interactivity had an effect on the social presence and mediated immediacy ratings. There was no difference in the ratings for the social presence scale between high and low interactivity conditions, F (269) = .21, p = .88. An ANCOVA revealed that after controlling for Twitter familiarity, the amount of Twitter use per day, and length of Twitter membership as well as demographics, interactivity did have a significant effect on ratings of social presence, F (1, 256) = 4.53, p = .04, η² partial = .02. When the aforementioned Twitter variables were held constant, participants in the high interactivity condition (M = 4.78, SE = .06) rated the target as more socially present than those in the low interactivity condition (M = 4.60, SE = .06).

**Subscales.** Additionally, when the social presence subscales were separated, the effect of interactivity improved. Participants in the high interactivity condition (M = 5.44, SD = .86) provided higher ratings of the target’s social presence than those from the low interactivity condition (M = 5.24, SD = .85), when only the first social subscale was considered, F (269) = .09, p = .06. After controlling for amount of daily Twitter use,
Twitter familiarity, gender, age, and ethnicity, the effect of interactivity on the first social presence subscale notably increased, $F(1, 257) = 5.423, p = .02, \eta^2_{\text{partial}} = .02$. Participants in the high interactivity condition ($M = 5.45, SE = .07$) provided higher ratings for the first social presence subscale than those in the low interactivity condition ($M = 5.23, SE = .07$). Support was not found for a difference in ratings of the second social presence subscale depending on interactivity even after controlling for a variety of demographic and Twitter variables, $F(1, 255) = .70, p = .43$.

**Mediated Immediacy.** Interactivity did not effect participants’ ratings of mediated immediacy, $F(269) = .08, p = .31$. Controlling for demographics and Twitter variables did not improve this effect, $F(1, 255) = 2.36, p = .13$.

Overall, interactivity had an effect on both the entire social presence scale as well as the first social presence subscale when it was assessed independently. However, it did not influence mediated immediacy. Additional tests were run to determine whether interactivity levels influenced outcome variables such as willingness to transact with the target in the future, likelihood of future Twitter interaction, and overall target evaluation.

**Evaluation of Target.** Interactivity did not have a significant effect on most of the outcome variables. The target was not evaluated differently by those participants in the two interactivity conditions, $F(269) = .47, p = .21$. This effect did not improve significantly after controlling for demographic variables (i.e., age, gender) and Twitter variables (i.e., Twitter familiarity), $F(1, 264) = 2.82, p = .09$.

**Willingness to Transact.** Willingness to transact with the target also did not receive different ratings from participants depending on the interactivity of the Tweet, $F$
(269) = 3.89, \( p = .52 \). Even after controlling for demographics (i.e., gender) and Twitter variables (i.e., Twitter familiarity, amount of Twitter use per day, need for connection on Twitter), there still was no effect of interactivity on willingness to transact, \( F (1, 258) = 1.44, p = .23 \).

**Likelihood of Future Twitter Interaction.** The likelihood of future Twitter interaction with the target was not significantly different for participants depending on the interactivity of the Tweet, \( F (269) = .76, p = .17 \). Participants in the high interactivity condition (\( M = 3.34, SE = .12 \)) indicated that they were more likely to interact with the target on Twitter in the future compared to those who were in the low interactivity condition (\( M = 3.01, SE = .12 \)), when Twitter familiarity, amount of Twitter use per day, need for connection on Twitter, length of Twitter membership, gender, and age were controlled for, \( F (1, 256) = 3.44, p = .065, \eta^2_{\text{partial}} = .01 \).

**Interactions.** The data provided no evidence to support any interaction between the type of target and level of interactivity. Social presence was not affected by the interaction between those two variables, even after controlling for demographics and the Twitter variables that have been described, \( F (1, 259) = .8, p = .37 \). Mediated immediacy was also not affected by the interaction between target and interactivity when holding demographics and Twitter variables constant, \( F (1, 260) = .03, p = .87 \). As expected, there was no effect of the interaction on the outcome variables since mediated immediacy and social presence were not affected. The model expected that target type and interactivity level would affect social presence or mediated immediacy, which would then affect the outcome variables. Since mediated immediacy and social presence were not
affected, the interaction between target and interactivity level did not affect the participants’ indication of their likelihood to interact with the target on Twitter in the future, \(F(1, 256) = 1.02, p = .31\), willingness to transact, \(F(1, 258) = .01, p = .93\), or evaluation of the target, \(F(1, 264) = .00, p = .99\).
CHAPTER 5: Discussion

The purpose of this study was to test the relationship between two highly similar constructs, social presence and mediated immediacy. As the literature illustrated, the conceptualizations that have been set forth have many overlapping components suggesting that the constructs may not be unique. This section will explain the results of the present study by analyzing the findings as well as the implications of those results for the field of communication. Then, I will acknowledge the limitations of the study and present suggestions for future directions in the research on presence and immediacy.

Findings

Confirmatory factor analysis revealed that the data clearly fit one model better than the other after items were combined using the parceling method. For both models, the number of error terms that needed to be co-varied when the models included all of the items individually was quite high, indicating the need for parceling. Based on the reviewed literature, the theorized model presented mediated immediacy and social presence as independent constructs. All of the fit indices assessed indicated that this model was the best fit for the data. The SRMR, CFI, and CMIN/df were the closest to the thresholds of acceptability. In order to stringently test the relationship between social presence and mediated immediacy, I also proposed a competing model in which the constructs overlapped so greatly that they became one larger construct from which all of
the indicators stemmed. This model did not fit the data as well. All of the model fit indices fell below the threshold of acceptability.

It was clear that there were issues with redundancy of items in the original scales. Many of the items included in the scales seemed to be measuring identical aspects of the latent constructs, which is problematic in confirmatory factor analysis. Even after parceling, which normally takes care of the co-variance of error terms that result from redundancy, some of the parcel error terms required co-variation. This indicates that after taking care of redundancy, redundancy between the parcels still influenced the model fit. However, co-varying this problematic error term across both models produced increased model fit that supported the theoretical model even further. After co-varying the error terms connected to the fourth and fifth social presence parcel, the theoretical model was considered a good fit of the data; \( \chi^2(18) = 45.96, p < .001, \text{CFI} = .98, \text{RMSEA} = .08, \text{and SRMR} = .04 \). All of the fit indices surpassed the threshold of acceptability. Although co-varying the error terms in the competing model improved fit, it still did not fit as well as the theoretical model; \( \chi^2(20) = 136.90, p < .001, \text{CFI} = .91, \text{RMSEA} = .15, \text{and SRMR} = .05 \).

To provide further evidence for the relationship between social presence and mediated immediacy, a correlation matrix was utilized to provide evidence of convergent validity. The mediated immediacy scale was significantly negatively correlated with social presence (Pearson’s \( r = -.65, p < .001 \)), as well as both subscales. However, after considering the way in which the mediated immediacy scale was coded (i.e., with positive adjectives on the low end of the scale), this was actually interpreted as a positive
relationship. Nearly 43% of the variance in one variable was explained by the other variable, which is quite high, $R^2 = .42$. This significant correlation provided support for the competing model, which hypothesized that social presence and mediated immediacy overlap to form a larger concept. If the constructs were truly independent, they may have correlated at some level but not with such great magnitude. Therefore, the increase in social presence ratings that accompanied increases in ratings of mediated immediacy (when scale direction was matched) was as expected, when assuming overlap of the constructs. An additional piece of evidence supporting the overlapping relationship was the way in which the combination of the two scales correlated with the outcome variables in the same way as the independent scales. This suggests that a combination of the items, which is essentially a representation of the conceptual overlap, functions in the same way as each scale independently. Although the model fit was not as good as expected, this evidence together supports the overlapping relationship over the independent relationship. Measurement issues may explain the contradiction between the confirmatory factor analysis and the correlation matrix results. Differences in how the subscales were worded and the perspective of the participant could have affected the results. This issue will be explained further in the limitations section.

In addition to the fit of the model, the effect of target type and interactivity on ratings of social presence and mediated was tested to provide answers to research question two and three. Target had a slight effect on the constructs, but not uniformly across the two constructs. The type of target did not influence the mediated immediacy scale. The effect of target on the overall social presence scale was non-existent. However,
when the social presence scale was broken into the two original subscales, an effect emerged. The type of target did have an influence on ratings of the first social presence subscale. The type of target did not influence the second social presence subscale. Overall, there is little evidence that the type of target influences how individuals rate the Tweets of others in terms of being social present or immediate. Results were similar for the third research question. The level of interactivity of the Tweets influenced the entire social presence scale, as well as the first social presence subscale. In both cases, participants in the high interactivity condition rated the level of social presence higher. The level of interactivity did not affect mediated immediacy. Neither manipulation (i.e., target or interactivity) altered the participants’ ratings of mediated immediacy. Although the manipulations were not uniform in their effects, the results did provide support for the independent model proposed in the literature. The differences in how target and interactivity affected mediated immediacy and social presence could indicate that they are independent constructs. However, this is just one piece of evidence supporting that model which could be explained by error in method or measurement.

A number of the statistical tests utilized provided evidence that the second social presence subscale is measuring something other than social presence. All but one of the items from the second subscale was removed in the modified model, resulting in an increase in model fit. Therefore, it was shown that these items did not correlate as well with mediated immediacy as the first social presence subscale. Additionally, the ANCOVAs illustrated that the first social presence subscale was affected by the target and interactivity manipulation whereas the second social presence subscale was not. If
both subscales were measuring social presence, the effect of the manipulations should have been more uniform. Because the scales are only indicators of the latent factor, the effect of the manipulation would not change based on item wording, given those two scales were actually measuring the same thing. Finally, both subscales significantly correlated with the mediated immediacy variable but at largely different magnitudes (Pearson’s r = .75 and .20, respectively). Steiger’s z-test revealed that the difference between these correlations was statistically significant. The first subscale correlated with mediated immediacy in a statistically different way than the second subscale did. If the subscales were measuring the same construct, then they should correlate with a third variable in the same way. Overall, it is clear that the second social presence subscale was measuring a different concept and therefore should be used carefully when attempting to measure social presence in future research.

**Implications**

An explication of these concepts has great implications for the field of communication technology and communication at large. Presence and immediacy are increasingly important constructs with the rise in use of mediated technology. As communication across digital channels becomes more and more common, the issue of social presence and mediated immediacy as perceived in those conversations will be key in understanding modern relationships and business. Lee (2004) introduced the problem that comes from scholars using different terms in “non-interchangeable ways” in one of the first explications of presence (p. 28). He outlines the idea that the use of different phenomenological terms stunts the communication between scholars because they lack a
common language. As previously mentioned, this interchangeable use of terms also increases the risk of the “wheel reinvention” problem (Herbst, 2008). Researchers focus their energy on producing breakthroughs in their respective field that have already been discovered in other areas under a different name. In order to prevent these problems, extant research needs to be organized and conceptual clarity needs to be a key focus in research projects going forward. In an effort to begin that organizing process, this project has outlined the many areas of similarity present in the current conceptualizations of social presence and mediated immediacy, as well as presence and immediacy. However, statistical analysis supported the independent relationship between social presence and mediated immediacy for this data. The results have provided evidence for more careful use of the second social presence subscale crafted by Nowak (2001). Numerous tests indicated that this scale appears to be measuring some communicative concept other than social presence. Despite the limitations, this work should function as a call to action for future researchers to recognize the issues with these poorly conceptually differentiated constructs and work to repair this problem.

Limitations

Although this work acted as a starting point for future research that investigates the relationship between these similar constructs, a number of limitations likely affected the results. First, the use of a student sample may have influenced the fit of the models. Because students are quite homogenous in terms of demographics and familiarity with technology, they may have a unique perception of the social presence and mediated immediacy conveyed in the stimuli. With more than 90% of the participants reporting
previous experience with Twitter, there may be differences in their responses versus those who do not have any experience. Although it is hoped that random assignment took care of this issue, a replication of this study with a representative population of Internet users would indicate whether the sample was a major issue in this work. Next, the artificiality of the organization and individual used in the stimuli may have altered the evaluations of participants. However, this also may have created a more stringent test of the constructs because the participants did not have prior knowledge or relationships with the targets. Lastly, it is not possible to determine whether the interactivity manipulation was successful because a manipulation check was not included. The non-significant results of interactivity on the mediated immediacy variable could be a result of the variance not being properly maximized. In addition to including a manipulation check, a number of future directions can be provided as a guide for future researchers in this area.

One final limitation is the issue of poor measurement. This data supported the relationship that has been described in the extant literature in which social presence and mediated immediacy are independent constructs. One explanation for these statistical findings, which contradict the similarities found in the conceptual comparison, is that the scales used to measure the constructs of interest were measuring different communication phenomenon. The item stems utilized for the social presence subscales differed in whether they asked the participant to rate actual interactivity or perceived interactivity. The first subscale includes questions asking the participant to rate how socially present the target was in interacting with people on Twitter. The second subscale asked about the participant’s willingness to interact with the target in the future based on viewing the
target’s interaction with others on Twitter. These two subscales appeared to measure perceptions of social presence based on being an observer versus a participant. Because these two subscales were combined to act as an indicator of the social presence latent construct, the confirmatory factor analysis may have not been comparing social presence as conceptualized to the mediated immediacy construct. Therefore, it is possible that the data pointed to an independent relationship because of issues with measurement. Further testing with different measurement scales is warranted.

**Future Directions**

In order to improve on the current study a number of changes should be made in future projects. Because organization of such large bodies of research, such as those for presence and immediacy, is generally not completed in a single study, future research is required to add more evidence to point to the type of relationship that exists between mediated immediacy and social presence. Beyond that, it is necessary to understand how presence and immediacy as larger concepts are related if their subcomponents are not independent. A number of suggestions can be provided for future researchers who intend to continue this line of research. The selection of more valid scales to measure social presence and mediated immediacy should be of primary concern. Especially since social presence was measured using a combination of two subscales, issues arose in the factor structure. It also became clear that the perspective of the participant differed in the two subscales. Additionally, these subscale garnered different results when separated as compared to when considered together in the research question testing. In addition to throwing out the second social presence subscale, the first social presence subscale and
mediated immediacy scales should be tested considerably. Creation of original items would even be advised. Issues of perspective, whether or not actual interaction took place, and the type of target should be considered during item creation.

Another change that would likely produce clearer results would be separation of the factor structure component of this project and the testing of these variables in a new environment. Going forward, a thorough investigation of the factor structure and relationship between the variables using multiple scales should be accomplished in one study. After a thorough understanding of the constructs and relationship is achieved, then researchers should move on to testing them in multiple contexts and assessing whether components of the communicative message affect social presence or mediated immediacy. It is important to understand the constructs fully before testing how they function in new settings.

Conclusion

Clearly, a closer look into the relationship between social presence and mediated immediacy is warranted based on the many rationales presented. Organizing power is a fundamental component of communication theory. Therefore, areas of research, such as the literature on presence and immediacy that have clarity issues deserve significant attention. This thesis sought to begin the organization process and examine how two proposed models of the relationship between these constructs held up in a confirmatory factor analysis. To accomplish this purpose, an experiment was conducted within the context of social media. This experiment manipulated the type of target and level of interactivity to determine the effect on social presence and mediated immediacy. The
results indicated that the independent relationship proposed by previous research is the best fit of the data. However, measurement issues may have affected these results and should be investigated in future projects. The target and interactivity manipulations did not have significant effects on both social presence and mediated immediacy. In the final section, the findings were considered with regards to the literature base, and limitations and directions for future research were presented.
References


Appendix A: Recruitment Flyer

You have the opportunity to participate in a study and receive course/extra credit. You will earn 0.5 credits for participating and your instructor will determine how much credit this is worth for your course. The study is an online survey that takes approximately 15 minutes. You will be asked to view Tweets from a business and the owner. Next, you will be asked to answer questions about the content and yourself.

We will ask for your name, but this information will only be used to identify you to the instructor for your course credit in exchange for participating. This information will be completely separate from your other responses in order to ensure that they remain completely anonymous.

You can choose not to participate without penalty. If you agree to participate, you can withdraw from the study at any time, and there will be no penalty. If you have any questions please email Nicole Easley at Easley.45@osu.edu.

If you do not decide to participate, you may complete an alternative assignment to receive the same amount of course credit. This assignment will involve writing a short research paper on the present use of social media. This assignment is designed to require a similar amount of time to complete as the research study. This is entirely voluntary; if you don’t wish to participate there will be no penalty.

If you would like to participate, please follow the below link:

https://osucomms.qualtrics.com/SE/?SID=SV_eaK8OausnPYimKp
Appendix B: Informed Consent

For this experiment, you will be asked to view a website with Tweets from a company and their CEO that researchers at the Ohio State University created to better understand how people judge others on social media. The content you will view is a series of postings from a social media website. If you decide to participate in this study, you will be asked to answer questions related to how you feel about the Tweet and/or creator based on the information provided on the Tweet. It is anticipated that the study will take no more than 15 minutes to complete.

In order to help make you comfortable in providing honest responses, we are employing a survey system that records all your answers anonymously. That is, no one can ever know who gave the answers that we collect. No individual participant can ever be identified with his/her answers. Although we are taking many precautions to ensure that your responses remain accessible only to the researchers, such as 128-bit SSL encryption and intrusion detection software, confidentiality cannot be guaranteed.

In return for your participation in this research activity you will earn 0.5 research credits. The amount of extra credit or course credit that this research credit is worth will be determined by the instructor of the course in which you learned about this study. You will receive that credit within one week of participation or by the end of the semester. Your participation is voluntary, and if you start, you may stop participating at any time without any consequences to you. If you don't like anything about the materials, you can stop participating by closing the browser. It won't hurt anything, lower your course grade, or affect your relationships with anyone at Ohio State University. You can refuse to answer any particular question at anytime. If you choose to discontinue participation, you will still receive 0.5 research credits for your course.

A separate survey will be used to record your name so that you will receive the appropriate amount of credit for your time. The survey is completely separate from the questionnaire in order to ensure that your responses are collected in an entirely anonymous fashion. There are no other immediate benefits to you for participating,
although the lessons we may learn from the research are likely to help understand how people judge others in online settings. There are no risks to participating in this study beyond what you might encounter viewing any other form of social media.

If you have any questions, concerns, or complaints about the study you may contact Dr. David DeAndrea via email at deandrea.1@osu.edu or Nicole Easley via email at easley.45@osu.edu.

For questions about your rights as a participant in this study or to discuss other study-related concerns or complaints with someone who is not part of the research team, you may contact Ms. Sandra Meadows in the Office of Responsible Research Practices at 1-800-678-6251.

If you agree to participate you should click the ">>" button below to the left to continue.
Appendix C: Survey Instrument

17-item Social Presence Individual Condition Scale

1. Phil was intensely involved in interacting with people on Twitter.
2. Phil seemed to find interacting with people on Twitter stimulating.
3. Phil communicated coldness rather than warmth when interacting with people on Twitter.
4. Phil created a sense of distance from other people on Twitter.
5. Phil seemed detached.
6. Phil was unwilling to share personal information with people on Twitter.
7. Phil makes his interaction with people on Twitter seem intimate.
8. Phil created a sense of closeness with people on Twitter.
9. Phil acted bored by his interaction with people on Twitter.
10. Phil was interested in interacting with people on Twitter.
11. Phil showed enthusiasm.
12. I do not want a deeper relationship with Phil.
13. I want to maintain a sense of distance between Phil and myself on Twitter.
14. I am unwilling to share personal information with Phil.
15. I want to make future Twitter interaction with Phil more intimate.
16. I will try to create a sense of closeness between Phil and myself.
17. I am interested in talking to Phil on Twitter.

17-item Social Presence Entity Condition Scale

1. Columbus Soft Pretzel Company was intensely involved in interacting with people on Twitter.
2. Columbus Soft Pretzel Company seemed to find interacting with people on Twitter stimulating.
3. Columbus Soft Pretzel Company communicated coldness rather than warmth when interacting with people on Twitter.
4. Columbus Soft Pretzel Company created a sense of distance from other people on Twitter.
5. Columbus Soft Pretzel Company seemed detached.
6. Columbus Soft Pretzel Company was unwilling to share personal information with people on Twitter.
7. Columbus Soft Pretzel Company makes their interaction with people on Twitter seem intimate.
8. Columbus Soft Pretzel Company created a sense of closeness with people on Twitter.
9. Columbus Soft Pretzel Company acted bored by their interaction with people on Twitter.
10. Columbus Soft Pretzel Company was interested in interacting with people on Twitter.
11. Columbus Soft Pretzel Company showed enthusiasm.

12. I do not want a deeper relationship with Columbus Soft Pretzel Company.
13. I want to maintain a sense of distance between Columbus Soft Pretzel Company and myself on Twitter.
14. I am unwilling to share personal information with Columbus Soft Pretzel Company.
15. I want to make future Twitter interaction with Columbus Soft Pretzel Company more intimate.
16. I will try to create a sense of closeness between Columbus Soft Pretzel Company and myself.
17. I am interested in talking to Columbus Soft Pretzel Company on Twitter.

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10-item Mediated Immediacy Scale

Inviting _ _ _ _ _ _ Uninviting
Open _ _ _ _ _ _ Closed
Disclosing _ _ _ _ _ _ Nondisclosing
Distant _ _ _ _ _ _ Close
Engaging _ _ _ _ _ _ Detached
Inaccessible _ _ _ _ _ _ Accessible
Expressive _ _ _ _ _ _ Nonexpressive
Friendly _ _ _ _ _ _ Unfriendly
Warm _ _ _ _ _ _ Cold
Kind _ _ _ _ _ _ Unkind

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Twitter Use:

1. Have you ever used the social networking site Twitter before?
   a. Yes
   b. No
If yes, please indicate the number of minutes per day that you use Twitter:

________ minutes per day

Please indicate how long you have been a Twitter user:

________ months

6-item Twitter Familiarity Scale

1. I am familiar with the process of Tweeting on Twitter.
2. I am familiar with reading the Tweets of others on Twitter.
3. I am familiar with replying to the Tweets of others on Twitter.
4. I am familiar with hashtags.
5. I am familiar with the term trending in relation to Twitter.
6. Overall, I am familiar with Twitter.

5-item Twitter Uses and Gratifications Scale

1. I feel I am connected to other users on Twitter.
2. I feel like I fit in on Twitter.
3. I have made connections to other people on Twitter.
4. I feel comfortable communicating with other people on Twitter.
5. I feel like I belong in the Twitter community.

10-item Overall Target Impression Scale

Good ___________ Bad
Pleasant ___________ Unpleasant
Attractive ___________ Unattractive
Desirable ___________ Undesirable
Likable ___________ Unlikable
Funny ___________ Dull
Exciting ___________ Boring
Smart ___________ Dumb
Articulate ___________ Inarticulate
Nice ___________ Mean
7-item Willingness to Transact Scale

1. I would consider visiting Columbus Soft Pretzel Company for some of my future purchases.
2. I would be inclined to purchase food from Columbus Soft Pretzel Company.
3. I would utilize the services provided by Columbus Soft Pretzel Company.
4. I would feel comfortable purchasing products from Columbus Soft Pretzel Company.
5. I would buy products from Columbus Soft Pretzel Company.
6. I would visit the Columbus Soft Pretzel Company store location.

5-item Likelihood of Twitter Interaction Scale

Please rate the likelihood that you would engage in the following activities with Phil Bates on Twitter:

1. Follow
2. Mention in a Tweet
3. ReTweet one of their posts
4. Direct Message
5. Use in a hashtag
Appendix D: Stimuli
Figure 5: Stimuli for the High Interactivity x Individual Target Condition
Figure 6: Stimuli for the Low Interactivity x Individual Target Condition
Figure 7: Stimuli for the High Interactivity x Entity Target Condition
Figure 8: Stimuli for the Low Interactivity x Entity Target Condition