Exploring the Hyperpersonal Model: Determining the inflated nature of feedback in computer-mediated communication

Dissertation

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By

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Abstract

This research explores the hyperpersonal model of computer-mediated communication (CMC; Walther, 1996). Seeking to explore the largely unknown tenant of the model, the inflated feedback loop, two studies are conducted to find empirical support for the inflated nature of interpersonal communication in computer-mediated environments. Study 1 provides a clean distinction between CMC and face-to-face (FTF) communication, asking participants to communicate in one of the two channels and utilizing an ‘identity shift’ (Gonzales & Hancock, 2008; Walther et al., 2011) as the dependent variable of interest. If inflated communication does in fact exist in CMC then results should show a significantly larger shift in participants’ self reports of the assigned personality trait in the CMC conditions than in the FTF conditions. Study 2 explores a mechanism by which inflated communication can occur in computer-mediated environments. Looking at behavioral confirmation, this experiment replicates the traditional study (Snyder, Tanke, & Berscheid, 1977) in a computer-mediated environment and again measures ‘identity shift’ to determine the extent to which behavioral confirmation might explain the inflated shift of self-expressions that occurs in CMC. The impact these results have on the hyperpersonal model and the general field of CMC, are discussed.
Dedication

This work is dedicated to my parents, my husband, and to Him who is able to do more than we could ever ask or imagine.
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This document and this life that I have would not exist if it were not for my amazing parents, without whom I would not be the woman I am today. They always told me I could be anyone and anything I could dream of, taught me to make good choices in life, and loved me through all the highs and lows. I could not have made it here and would never have believed I could have made it here without them. They are my light and inspiration, thank you from the bottom of my heart mom and dad; I love you both so much.

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effect in dyadic communication: examining the effect of avatar appearance in
computer-mediated dyadic interaction. Communication Research, XX, pp-pp.

versus photographic self-presentation on impression formation in
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Chapter 1: Introduction

Scholars have been studying online communication for years, since the Internet became common place in society for both business and interpersonal purposes. Traditional research concerning the influence of this mediated form of communication initially focused on the lack of nonverbal cues (Kiesler, Siegel, & McGuire, 1984) and other concerns about how communication ends up being impersonal when it occurs through this channel (Culnan, & Markus, 1987). Since then, there has been a significant amount of theorizing and developing in the field of computer mediated communication (CMC) that has led researchers to believe that communication in this mediated form is more productive, effective, and relationally rich than originally thought (Walther, 1992; Reicher, Spears, & Postmes, 1995; Parks, & Floyd, 1996; Walther, 1996; Hancock & Dunham, 2001). At present, there are significant calls to advance, refine, and challenge existing CMC theories in order to make them stronger and more resilient as the field continues to develop. The present research is concerned with advancing a particular model used in CMC since 1996; the hyperpersonal model of CMC (Walther, 1996).

The hyperpersonal model addresses how individuals communicate interpersonally online. The theory presents predictions as to how individuals present themselves in an environment rich with unique ways to present the self to others, how other individuals both inside and outside of their network evaluate that individual, as well as how these
interactions may create an inflated reciprocal spiral of exchanges resulting in subsequently inflated (or exaggerated) relationships. Although research in the field of CMC has expanded immensely in recent years, the field is lacking clean support for some tenants of this very popular model. This research will address the tenant of interpersonal feedback in CMC, specifically looking to support and better understand the mechanisms that predict the argument that in computer-mediated relationships, interpersonal feedback can result in inflated or exaggerated interpersonal responses.

In addition to the theoretical work that will be done in this research, there is also an important practical reason for exploring the influence of interpersonal interactions and interpersonal feedback online. Much of the hype concerning Internet communication such as Facebook and Twitter focuses on the ways in which it is making the world a worse place, stating that Internet use is a significant cause of loneliness (Marche, 2012) and leads to other negative behaviors such as cyberbullying (Chen, 2012). However, there are many ways in which the Internet and CMC make the world a much better place. There are a variety of empirical research studies that support this more optimistic result of utilizing the Internet for interpersonal communication. Bargh and McKenna (2004) found that Internet use is strongly associated with maintaining and strengthening existing relationships. They also found that in terms of social support, the Internet fosters a safe space to express the self and receive support that may not be available in one’s current social circles or that may not be accessible to an individual in a socially restricting circumstance. Similar others who can provide much needed empathy and understanding are much easier to find online, especially if one has a marginalized-concealable aspect of their identity (McKenna & Bargh, 1998). These very practical uses for CMC indicate that
the medium is an important location to situate research concerning how individuals interact and are affected by the medium itself and the communication that occurs there.

Before proceeding into a more in-depth review of the literature supporting the concept of inflated feedback itself, it is important to understand the landscape in which the hyperpersonal model was first developed and why interpersonal feedback is important to this model. Initial research concerning CMC focused on the deficiencies of the medium, which was thought to produce inadequate communication outcomes especially when compared to face-to-face (FTF) communication (Kiesler, Siegel, & McGuire, 1984). As research progressed, some posited that there were key characteristics missing in the existing research in order to make adequate and fair comparisons between the two media. Walther (1992) specifically noted that research was failing to account for important differences between the media. The first variable of note was time; CMC users were found to take longer in making decisions than traditional FTF groups (Hiltz, Johnson, & Turoff, 1986; Hancock & Dunham, 2001), but did eventually reach group decisions comparable to decisions made in FTF contexts. Walther (1992) argued that at best, the traditional “cues-filtered-out” perspective (Culnan & Markus, 1987), which argued that CMC lacked enough cues to form relationships and accomplish group tasks, was to be relevant only with initial interactions between unacquainted partners.

These arguments created the foundation for the social information processing theory (SIPT; Walther, 1992). SIPT states that over time, computer-mediated spaces have relatively limited effects on relational communication when compared to FTF interactions. Individuals actively process relational information in computer-mediated contexts in ways that foster relational outcomes as well as task outcomes that are
comparable to outcomes in FTF contexts. SIPT was, to the same degree, corroborated by a number of empirical studies in years immediately following the creation of the theoretical perspective (Walther & Burgoon, 1992; Walther, Slovacek, & Tidwell, 2001; Hancock & Dunham, 2001) as well as more recently (Ramirez, 2007; DeAndrea & Walther, 2011; Walther, 2007; Van Der Heide, D’Angelo, & Schumaker, 2012).

SIPT made significant strides to support the idea that communication in computer-mediated contexts could be extremely interpersonal and just as successful as traditional FTF communication. Continued theorizing about CMC led to questions concerning the sometimes extreme, or hyperpersonal, influence that this medium for interactive communication can have on the communication process over time, and throughout the course of a relationship. Accounting for this, Walther posited the hyperpersonal perspective of CMC (Walther, 1996). This model states that due to the affordances provided by the medium, CMC creates the opportunity for relational communication that can be more intense than traditional FTF communication; positing that selective self-presentation, idealized interpretation, channel selection, and inflated interpersonal feedback lead to communication outcomes that cannot as readily exist in traditional communication settings.

Research has shown significant support for certain facets of this model including both selective self-presentation and idealized interpretations (Walther, Slovacek, & Tidwell, 2001; DeAndrea & Walther, 2011; Hancock & Toma, 2009; Toma, Hancock, & Ellison, 2008). Even as recent research has attempted to address the concept of the inflated feedback loop specifically in computer-mediated settings (Walther, Liang,
DeAndrea, Tong, Carr, Spottswood, & Amichai-Hamburger, 2011) the concept has not yet been fully supported; thus, the inflated feedback loop is the focus of this research.

This research aims to contribute to the call to advance and challenge existing theories in CMC in hopes that this work will contribute to the explanatory power of the hyperpersonal model and provide important predictions concerning how individuals interact online. This research will focus specifically on the importance of interpersonal feedback in general and how interpersonal feedback influences CMC outcomes specifically. If it is true that feedback processes differ by mode of communication, one should see differences when traditional FTF communication is compared with CMC. Thus, in study 1 both online and offline interpersonal feedback processes will be reviewed, providing a clean media distinction comparing FTF communication with CMC to seek support for the inflated nature of communication in online settings. A second study will explore a mechanism by which individuals might respond to interpersonal feedback specifically focusing on how online communication behaviors might have an exaggerated influence on self-expressions and subsequent internalization of those expressions. Study 2 tests behavioral confirmation (Snyder, Tanke, & Berscheid, 1977) as an explanatory mechanism by which inflation, or increased internalization, of interpersonal feedback occurs. As a whole, this research will center on advancing the theoretical assumptions made about inflated interpersonal feedback in CMC as originally proposed in the hyperpersonal model (Walther, 1996).
Chapter 2: Theoretical Justification

Before forwarding an in-depth explication of the hyperpersonal model, support for the unique communication available to computer-mediated users must be reviewed. There are a variety of different affordances that one can use in a computer-mediated context with which to express the self and present the self to others; those affordances make interpersonal communication online possible and make computer-mediated spaces attractive while at the same time, provide unique settings for interpersonal interactions. Although not uniquely or individually tested in the present study, the affordances that allow for effective CMC are important to consider as this research is interested specifically with the outcomes of the communication process occurring in this medium, which is a result of the variety of affordances utilized to communicate in the space.

Early in the course of research concerning the more productive, effective, and relationally rich view of CMC, Walther and Burgoon (1992) found that those participants interacting in computer-mediated interactions acted more socially than their FTF counterparts. Specifically, research found that “when CMC and FTF groups are allowed to continue over time and accumulate numerous messages, this continuity has significant effects on groups’ relational communication, and social penetration effects occur” (Walther & Burgoon, 1992, pp. 77). The communication mode (CMC or FTF) specifically made a significant difference for the variable of task-social orientation, where
CMC participants communicated more socially than their FTF counterparts. This research also found that over time any initial differences in relational communication between CMC and FTF are eliminated. CMC users were able to converse at their convenience and also had more time to probe for interpersonal effects aside from the devotion they needed to complete the assigned task whereas in FTF groups, any chit chat was seen as negative as it made their group take longer and prevented them from leaving the research site faster. The researchers concluded that the combination of uncertainty and asynchronous communication facilitate more positive relational communication. These findings began a focus on the unique aspects, or affordances, of CMC (e.g. asynchronicity or anonymity) that allow for comparable as well as equally effective communication as FTF. It is these affordances that give CMC the same potential for effective interpersonal communication as FTF communication.

To emphasize more specifically some affordances that play a major role in online communication, a few are outlined here. One affordance was highlighted by Bargh and McKenna (2004), who focused on highlighting the influence of anonymity in communication conducted via the Internet. They found that anonymity reduces the risk of making self-disclosures online and anonymity actually makes it easier to disclose sensitive or intimate issues that one might not be comfortable disclosing in a FTF setting. Bargh and McKenna (2004) go as far as to state that because of anonymity, the Internet is seen as a “safe space” for disclosures (pp. 582-583) and is otherwise seen as a “safe space” for identity experimentation (Bargh, McKenna, & Fitzsimmons, 2002). Joinson (2001) also found that individuals with increased anonymity, in this case lacking a personally identifiable picture in online conversations, provided more self-disclosures.
than individuals in the condition with a personally identifiable photo. Joinson attributed this difference to the increased private self-awareness that anonymity provides online which allows for an individual to be more reflexive about the self and more likely to share more self-disclosures than those who are identifiable.

The lack of traditional non-verbal cues is also a unique feature of CMC. When communicating in an online setting people must translate their non-verbal emotions into textual statements (Park, 2007). Rather than being able to ‘look angry’ and use a variety of non-verbal cues to portray that emotion, online, people must construct a textual statement or utilize other affordances of the medium in order to attempt to convey their desired meaning (Parkinson, 2007). The time and investment that goes into turning nonverbal emotions into words should result in more investment in the piece of information that is offered. Thus, any feedback related to that piece of information may mean more to the sender due to the level of commitment they now have with the information. Although not directly supported with research, existing work does show that through writing, emotions from traumatic events are at first felt even more strongly as the writing process begins and then overtime seem to have health benefits as well as other benefits for the individual expressing those emotions through writing (Pennebaker, 1997). The impact of increased stress, negative mood, and trauma shows initial support that the practice of turning nonverbal and non-expressed emotions into words can make those feelings and emotions more important to an individual.

Another affordance that should be mentioned as a unique trait to CMC is the potential for asynchronous communication. Asynchronicity speaks to the situation where communication does not require simultaneous and immediate attention (Walther, 1996).
Individuals can take their time in responding to a message (e.g., e-mail) and respond when it is most convenient. Individuals might even take advantage of the potential for asynchronous communication as a specific impression management technique. For example, if a female wants to respond to an e-mail from a guy she is really interested in, she might wait a day or two before responding so as not to come off too desperate. In this way she is able to control her presentation and response in a way that is more normative in computer-mediated settings than traditional FTF settings and obviously more readily available in those settings. Valkenberg, Peter, and Schouten (2006) also found that individuals who reported that they regularly received more positive reactions from friends concerning personal posts made on a social networking site, reported higher levels of both social state self-esteem as well as overall well-being. In this case, the asynchronicity, as well as the persistence of text, provided by the medium contributes to the ability an individual has to accumulate and ruminate on positive reactions from their personal social networks, thus, increasing their self-esteem.

The unique affordances of CMC led to the development of theoretical perspectives that attempted to explain how these affordances influence interpersonal communication. Research in this area of CMC has taken one or two of the previously mentioned affordances and tested the effect of that affordance on a variety of communication outcomes. One of the first theoretical advancements made in this direction was the social information processing theory (SIPT; Walther, 1992), which, as previously stated, argues that Internet users actively rely on chronemic or paralinguistic cues encoded into text-based discussions (e.g., time lapses, linguistic choices, emoticons, etc.) to create an impression of and enhance relational communication with others. SIPT
states that the development in CMC depends on the passage of time as well as a sufficient quantity of message exchanges. Walther (1992) states that individuals with the motivation to interact in these computer-mediated environments participate in decoding practices in order to extract cues from the textual information provided by their conversation partner to form impressions comparable to impressions made in more traditional FTF conversations. The utilization of these cues can result in relationships which were again found to be comparable to relationships formed through FTF communication (Walther & Burgoon, 1992).

This research was the beginning of a long line of research investigating the extent to which individuals utilize the unique affordances of the medium throughout their interpersonal interactions and what effect these behaviors have on communication as a process. The conclusions of Walther and Burgoon’s (1992) research support the idea that the combinations of unique affordances, leading to selective self-presentation and enhanced relational behavior, facilitate more positive relational communication leading to what became known in the CMC community as “hyperpersonal communication”. Each affordance offers unique insight into the effects of CMC, and although any one of these affordances alone might not be enough to account for any given effect, understanding the cumulative effect of all affordances unique to the computer-mediated environment, and the extent to which the environment itself accounts for the potential inflated nature of CMC is an important step for the field of CMC research.

**Hyperpersonal Model of CMC**

The hyperpersonal model (Walther, 1996) posits that social processes can, in some circumstances, be exaggerated in a computer-mediated environment when an
individual selectively self-presents, idealizes one’s partner, and carefully chooses between channels to optimize the available features of the medium in one’s favor, and additionally a feedback loop may intensify, or inflate these social processes. As a result, any comment or message that is presented has the potential to make even more of an impact on how impressions are formed and how relational development occurs than the presenter originally intended. As the major theoretical frame for this research, the hyperpersonal model will be explained in extensive detail. In the following section both the selective self-presentation as well as idealized interpretation will be outlined and following that will be a review of the literature that is working to explicate the concept of the inflated feedback loop.

**Selective presentation.** The hyperpersonal model specifies that in CMC users have greater creative control over the presentation of their “self”, selecting to avoid or present particular information that is otherwise uncontrolled in a FTF setting (Walther, 1996). This exaggeration, or selection, does not necessarily occur with the intention to mislead but rather as a motivation to present oneself in the most useful way for the goals that an individual has for the presentation (Leary & Kowalski, 1990). Likewise, the amount of time that one ruminates on each statement may be extended as the asynchronous nature of communication allows one to spend minutes constructing a statement without fear of being socially inappropriate (Sassenberg, Boos, & Rabung, 2005). This type of strategic presentation utilized in CMC is supported by traditional psychological research on impression management.

**Impression management.** Self-presentation as a single expression is defined as the process of establishing an identity through the appearance one presents to others
Impression management then is the strategic presentation of an individual who attempts to control the impressions that others have of them (Leary & Kowalski, 1990). In any given social setting, impression management scholars would suggest that individuals are strategic in choosing the types of personality traits that they will express and enact with a given end result in mind (Leary, & Allen, 2011; Schneider, 1981; Dillard, Segrin, & Harden, 1989; Schlenker & Weigold, 1992; Arkin & Baumgardner, 1986). For example, when an individual is going on a job interview he or she wants to be perceived as competent, intelligent, and kind. In order to accomplish this he or she will manage the ways in which he or she presents himself or herself in order to ensure that the desired impression is made on the prospective employers. At times, an individual will present this desired image even though it is a biased presentation in favor of his or her desired identity, which is what the individual would like to be or thinks he or she can really be at least at his or her best (Leary & Kowalski, 1990). Most of the time individuals do not misrepresent themselves in their self-presentations; rather they simply select and avoid certain information (Schlenker, Dlugolecki, & Doherty, 1994).

Impact management in CMC. There is additional support that individuals do in fact take advantage of the unique affordances available in online settings in their attempt to control their self-presentations online. For example, research finds that males in particular spend a significant amount of time crafting personal messages depending on the sex and status of their conversation partner (Walther, 2007). It was also supported that goals of immediacy and affection were strongly related to the amount of time and additional editing practices performed in a textual conversation online. The extra time that asynchronous communication allows for may be spent thinking about potential
consequences of a message and predicting how a conversation partner may be processing the message; investing more cognitive attention on each statement that is offered (Afifi & Caughlin, 2006; Walther, 1992). Also, the additional time spent on each message statement changes how individuals craft their messages. Research has shown that spending more time constructing online messages results in less ego-centric communication and better expressions of particular face-needs (Walther, 1996).

Research focusing on dating profiles online, as well as deception, also provide support for the selectivity of presentations online. Gibbs, Ellison, and Heino (2006) found that in an individual’s effort to present an idealized online presence on these dating websites, people would withhold negative information early on in the relationship and fail to be completely honest in their representation of their true self. Hancock and Toma (2009) found that people are in fact deceptive to a degree in the content they post on their dating profiles and other research supports the finding that deception practices are enacted online, especially when it comes to dating profile photographs (Toma, Hancock, & Ellison, 2008).

**Idealized interpretation.** The optimized self-presentation made possible by the control an individual has over the expression of their personal information is followed by the idealized perception on the part of the receiver. CMC users tend to make “overattributions” of their partners online (Walther, 1996). Hancock and Dunham (2001) specifically found that in computer-mediated contexts individuals made fewer judgments but these judgments were more intense (i.e. extreme) than those made in similar FTF settings. Intensity was measured by noting how polarized the evaluations were and results found that in CMC conditions the evaluations were greatly clustered at the extremes of
the Likert scale specifically more so in the CMC condition than in the traditional FTF setting. In the CMC condition, fewer judgments were made, due to the fact that in computer-mediated settings there is a much slower rate of social information exchanged, but the impressions were significantly more intense, offering clear expectations for another individual’s behavior. The explanation the researchers provided for this finding was that those clear expectations increased the intensity of any impression made in the computer-mediated setting.

Utilizing language from the hyperpersonal model, individuals interacting via computer-mediated channels take both the stylized messages created by their partners, and from those messages and other stereotypical assumptions made in the time they ruminate on the statement, construct idealized and/or exaggerated images of their partners (Walther, 1996). These stereotypical assumptions, or personality expectations, uniquely come out in CMC due to the ways in which partners can collect interpersonal information about their partner. Specifically in the computer-mediated condition of Hancock and Dunham’s (2001) research, the task that the partners were assigned to complete might have decreased the ability these individuals had to gather personalized information about their partner. In the FTF condition, however, participants had significant nonverbal data that accompanied the experience, which led to the ability to make more personalized and less stereotypical judgments about their partner. Supporting the concept of idealized interpretation outlined in the hyperpersonal model (Walther, 1996), this research’s strength is in its’ ability to show that stereotypical judgments play a significant role in interpersonal exchanges in online communication and lead to inflated interpretations of one’s communication partner.
**Interpersonal feedback loop.** The feedback loop posited in the hyperpersonal model is specifically concerned with the compounding effects of selective presentation and idealized interpretation. The idea that individuals interact in exaggerated ways (i.e., engage in selective presentation and inflated interpretation) when they communicate in online settings means that the interpersonal feedback they receive from others is also influenced by these exaggerated presentations and interpretations. This is what is known as the inflated feedback loop; the process of recurring self-selectivity and inflated interpretation seen throughout relational reciprocation which has the potential to create a reality that cannot exist outside the walls of the Internet. Walther states that this kind of hyperpersonal communication is possible only “when users experience commonality and are self-aware, physically separated, and communicating via limited cues channel that allows them to selectively present and edit, to construct and reciprocate representations of their partners and relations without the interference of environmental reality” (Walther, 1996, p. 33).

Recently, research has begun to expand on this concept and has explored the influence of a variety of variables on Internet users’ reactions to both the presence of others online as well as interpersonal feedback received from their online communication partners. The specific variables investigated include the perception of presentations being either public or private, as well as the presence of interpersonal feedback. The dependent variable of interest in this research line has been a variable that can help to support the concept of inflated feedback that is proposed by the hyperpersonal model (Walther, 1996); an individual’s internalization of an expressed personality trait. Gonzales and Hancock (2008) found that the publicness of a presentation online greatly influences the
extent to which an individual internalizes a certain personality trait (e.g. extroversion), supporting the concept they identified as an identity shift, which is the idea that expressed personality traits are greatly internalized in public online settings. Walther and colleagues (2011) additionally found that feedback from another individual intensifies this identity shift effect. In order to further the understanding of the feedback loop, more work must be done to explain the mechanism driving these internalization effects. The trajectory of investigation surrounding the feedback loop of the hyperpersonal model is presented in the following sections.

Identity shift. First, research began to look at the importance of the audience in terms of self-presentations in online settings. The concept of a presentation being public and available for interpersonal comments began a focus on the importance of the influence an online audience has on an individual’s online behaviors and further internalization of said personal presentations. Gonzales and Hancock (2008) first examined the extent to which selective self-presentation leads to enhanced internalization of a presented personality trait. Their research specifically looked at the extent to which the presentation was public or private and how that impacted the extent to which an individual internalized the specified trait that was presented. The researchers were interested in the publicness of a presentation due to the fact that a public presentation initiates a feeling of accountability. In their hypothesizing they anticipated that the publicness of their presentation would lead to a stronger sense of internalization, which is a finding largely based off the work of Tice (1992) who conducted a similar study in a FTF setting. The idea of internalization is important as the concept and process of impression management is taken into a computer-mediated context. CMC is a field that is
highly concerned with the ways in which individuals present their ‘self’ online, as well as the consequences of those self-presentations.

In Gonzales and Hancock’s (2008) study, researchers instructed participants to write about a day at the beach in a way that was either extroverted or introverted (depending on condition) by drawing on examples from their personal lives. They were then told that their post would be kept solely as a text document (private) or it would be posted on a public blog site (public). The results support their hypotheses and showed that greater internalization occurs when an individual presents a personality trait in a public forum rather than in a private forum. Those that presented this information in a public forum reported greater levels of the assigned personality trait they were asked to portray than those who presented it in private. This act of altering the extent to which an individual identifies with a certain personality trait depending on the publicness of their presentation of that trait, has been labeled an identity shift; now that their presentation is public to their audience, participants would anticipate that they will now be held accountable to that presentation in future interactions and thus should report to others that they are in fact who they say they are in public. It is important to note that there is no evidence of a participant’s actual concept of their identity changing; rather, the evidence indicates that a participant’s self-expression concerning a specific personality trait at a single point in time has shifted in magnitude and/or direction. This leads to other important questions of the strength of this shift as well as the permanence of the shift over time, but these questions must be saved for another project.

For this study it is important to define the idea of public and the idea of private. Public presentations in this case are presentations that have the potential for interpersonal
feedback. Public can be a one to one presentation and public can also be a one to many presentation. Private, on the other hand is strictly a presentation that is kept to one’s self, such as a diary that is not intended or provided to others to receive feedback. This distinction is consistent specifically with past research used as the framework for the present research, and can also be supported by other research which focuses on the impact of public presentations; as will be discussed in the following sections.

The importance of internalization. An interesting facet of impression management literature focuses on the extent to which impressions that people present influence his or her understanding of their self concept (Tice, 1992; Jones & Pitman, 1982; Rhodewalt, 1986). The major research question in this literature focuses on the extent to which individuals internalize their self-presentations. A common way in which this is investigated is by looking at what scholars call the phenomenal self.

The phenomenal self is the set of acceptable and currently accessible personality traits that can be expressed by a given individual (Rhodewalt, 1986). Each individual has a different set of what are seen as acceptable or accurate presentations and another set of what are seen as unacceptable presentations at any given time (Jones & Pittman, 1982). These are usually placed on a continuum and the phenomenal self is the area in the middle. A good comparison is to look at social judgment theory (SJT; Hovland, & Sherif, 1980). The phenomenal self, like SJT, has a latitude of acceptance and a latitude of rejection with personality expressions. For the phenomenal self, the latitude of acceptance is situated in the middle and the latitude of rejection boarders it on both sides. Similar again to SJT, if presentations that are far to the right or far to the left of the phenomenal self occur frequently, then there is a chance that the phenomenal self can
shift. Jones and Pittman (1982) note that the phenomenal self is social in nature and is vulnerable to change as it experiences social pressure for stability or consistency. Rhodewalt (1986) additionally states that, “the more permanent modifications of the self occur through incongruent information being internalized through dissonance reduction” (p.131).

Scholars who have taken this concept into different media (CMC specifically) have identified this change and adaptation of the self as an identity shift (Gonzales & Hancock, 2008). This process provides support that the self-concept can change from internalizing certain self-presentations that may not have originally been part of the self-relevant information that an individual had accessible. Research in psychology has found support for this shift and has additionally shown that the potential for interpersonal feedback plays a unique role in the extent to which an individual internalizes their self-presentations (Schlenker & Weigold, 1992; Schlenker, Dlugolecki, & Doherty, 1994; Tice, 1992). The publicness of self-presentations is an important variable in this research as it provides opportunity for interpersonal feedback and creates a sense of accountability for that individual to follow through with the presentation claims they make in a conversation.

The importance of a public audience. Acknowledging the importance of an audience is not a new idea in the social sciences. The public presentation of the self leads to an increased sense of accountability toward the presentation that is seen by a number of others (Tice, 1992). In fact, an audience is a necessary part of an interaction whose response has ramifications on the confidence an individual has in their self-concept (Schlenker, & Weigold, 1992). Public behavior has been seen to be more committing, as
it can obligate the individual to behave in a consistent fashion in the future, is more constraining because the actor must be able to defend claims when discrepant information is presented, and is more arousing physiologically (Schlenker, & Weigold, 1992).

The importance of an audience was strongly supported by Goffman (1959), who states that social interactions are like a performance where individuals choose the aspects of the self to put on stage as their ‘front’ and then wait for audience feedback concerning their performance. In this way, the feedback received from one’s audience helps in constructing one’s identity, for it is through these reactions that people actively learn who they are (Baumeister, 1998). That is, we discover who we are not only through self-reflection and introspection, but also by the information gleaned from our social interactions. Similar to the way a dolphin uses sonar to locate itself and learn things about its environment; humans may learn things about themselves by sending out social messages and learning from the kinds of feedback received from discussion partners in return.

Having an audience, also keeps individuals accountable to their thoughts and behaviors because of the ability for an audience to provide critical feedback on an individual’s performance (Schlenker & Weigold 1992). In the case of interpersonal feedback specifically, the presence of feedback is a signal that one has performed or presented the self in a way that is worthy of comment; the presentation has drawn attention and has earned the thoughts and comments of another individual (Gergen, 1965; Archibald, & Cohen, 1971). Past research has shown that impression management behaviors and practices really only occurred when people believed that other people could observe their behaviors (Arkin & Baumgardner, 1986). Gonzales and Hancock
(2008), however, found that impression management does occur in private settings as they observed a slight identity shift in the private conditions of their experiment; however, the magnitude of this shift was still significantly smaller than shifts observed in a more public setting.

Acknowledging the presence of an audience makes certain aspects of impression management quite salient. Many impression management strategies require a significant amount of cognitive effort thus, as outlined by Leary and Kowalski (1990), one must truly be motivated to engage in one of these impression management strategies (Baumeister & Jones, 1978; Baumgardner et al., 1985). In a public setting the intensity of public scrutiny can change the benefits of identity images and can alter the importance of the performance to the actor by making it potentially more rewarding to succeed but also more costly to fail. Leary and Tangney (2003) reinforce the importance of one’s particular motivation to protect the self and with that being said, the investigation by Gonzales and Hancock (2008) found support that the public nature of self-presentations evokes a strong enough desire for consistency and protection of the self-concept to change one’s self-concept to remain in line with the content of the presentation.

With a strong desire for self-consistency driving impression management motivations (Schlenker & Weigold, 1992), the results of an individual behaving in a way which is inconsistent with their beliefs about their self, can produce corresponding changes in global self-evaluations and future actions. Providing even earlier support for the results of the identity shift research (Gonzales & Hancock, 2008), Tice (1992) argues that behavior inconsistent with one’s beliefs about oneself will lead to an individual actually changing those beliefs. As in Gonzales and Hancock’s work (2008), the audience
is just a perceived audience as they were simply told that they would be posting to a public blog. Participants assured researchers that they knew what a public blog was before they constructed their paragraph to post on the public space. The perception of the post being public was enough to produce the identity shift results observed. These results had previously been supported in other traditional FTF contexts in research from Schelnker, Dlugolecki and Doherty (1994). Their research showed that individuals who presented themselves as an independent or non-independent person and then later engaged in an interview process or were told that the interview process would happen in the future, experienced significant self-change in their self-reported level of independence. Even if they perceived future interaction with an interviewer, it was enough to create perceptions of “publicness” that they felt accountable to that presentation.

Results supporting the influence of a perceived public on one’s internalization of the expressed personality trait (Gonzales & Hancock, 2008) led researchers to suspect that the same, if not a greater, identity shift would occur with an actual public present and active in the interaction. The next section outlines research which directly replicates and expands Gonzales and Hancock’s (2008) work and further indicates the importance of interpersonal feedback to the identity shift process.

Influence of feedback on identity shift. Expanding on the concept of the identity shift due to public presentations of the self, Walther and colleagues (2011) added a variable to the research that focuses on the presence of feedback. Their research additionally focused on examining the value that the identity shift has for being a mechanism that guides the inflated feedback loop proposed by the hyperpersonal model.
This research found that feedback significantly amplified the extent to which an individual identified with the presented personality trait as it made the accountability factor of their presentation more interactive and more authentic. Researchers asked participants to engage in a similar task to the one utilized by Gonzales and Hancock (2008), and asked them to answer a set of questions in an extroverted or introverted way (depending on condition) by drawing from their own real-life experiences. They provided half of the participants with affirming feedback (concerning their expressions of extroversion or introversion that they were assigned to present) and the other half received no feedback. Feedback in the public setting was a pre-formed blog comment ostensibly from another graduate student at another university. In the private setting the feedback was generated by a linguistic analysis program that ostensibly analyzed their posts and provided system generated feedback.

Their results showed that in the conditions where participants received this affirming feedback concerning their presentations, regardless of public or private condition, participants reported more extreme levels of extroversion (direction depending on extroversion/introversion condition), although the public setting resulted in a significantly larger identity shift than the private setting. This research significantly adds to the research of Gonzales and Hancock (2008) and provides unique theoretical support for the hyperpersonal model by being the first empirical research to show that feedback in a computer mediated environment might contribute greatly to the way individuals learn about their self and subsequently alter their self-concept by considering all relevant feedback concerning their self’s performance.

Although this research expanded the concept of the identity shift, it falls a bit
short on providing actual support for the inflated nature of the results compared to a FTF environment. Both of the previously outlined studies, however, provide a strong foundation for moving this research forward to find support for the inflated feedback that the hyperpersonal model has hypothesized to exist for over fifteen years now. The following studies will address some important unanswered questions in the existing line of research. First, study 1 will address the extent to which internalization may be inflated in CMC environments more so than in traditional FTF communication environments. Second, study 2 will test a potential mechanism, behavioral confirmation, which could explain the internalization findings in naturally occurring interpersonal interactions online. The conclusion will allow for this research to provide insight specifically into the inflated feedback loop proposed in the hyperpersonal model.
Chapter 3: Establishing Support for the Inflated Nature of CMC (Study 1)

This research seeks to find support for the inflated nature of CMC as proposed by the hyperpersonal model (Walther, 1996). Returning to classic methods of comparing FTF to CMC conditions, this experiment will provide a manipulation of channel in order to determine the extent to which internalization is in fact inflated in a computer-mediated setting. Support for inflated internalization effects will answer the question; does computer-mediated interpersonal feedback result in inflated internalization? Utilizing the dependent variable of internalization of a personality trait as previous identity shift work has used (Gonzales & Hancock, 2008; Walther et al., 2011), the experiment will add a FTF condition in order to test for significant differences between the magnitude of identity shift in a FTF setting as compared to a CMC setting.

A review of the trajectory of the existing research in this area begins with Gonzales and Hancock (2008) who found a significant difference between public and private expressions and the magnitude of the identity shift. Their research showed that public presentations increase the extent to which an individual reports higher levels of their assigned trait. Walther and colleagues (2011) found that feedback intensifies this shift yet again. Comparing conditions where participants were provided feedback and those who were not, those who received positive feedback experienced an even greater identity shift. The hyperpersonal model would identify these findings as inflated (or
hyperpersonal) communication and would propose that these results occur uniquely in online interpersonal, public spaces where interpersonal feedback is possible and often present.

Without a comparison group with which to hold CMC results up against, the claim that these internalization results are “inflated” or “hyperpersonal” in nature is impossible. Adding a FTF condition, however, would provide a setting where the claim of inflation could be made. It would be one of the few recent studies of this kind, looking specifically at the inflated effects on one’s sense of self due to online interpersonal communication.

Aiming to move this research forward, this study will take the significant findings in past research and allow that to inform the design and hypothesis proposed in this study. To show support for the inflated nature of CMC, it is hypothesized that when provided with affirming feedback in a public setting, individuals will report larger identity shifts (more extreme reports of extroversion depending on condition) in the CMC setting than in the FTF setting. It is expected that those individuals who are asked to present themselves as an introvert in a CMC setting will report the lowest levels of extroversion and those individuals asked to present themselves as an extrovert in a CMC setting will report the highest levels of extroversion. It is expected that identity shifts will also be observable in the FTF conditions, yet not to the same magnitude, thus the extroverted FTF condition will not report levels of extroversion as high as the extroverted CMC condition and the introverted FTF condition will not report levels of extroversion as low as the introverted CMC condition. Support for this hypothesis would confirm that
hyperpersonal, or inflated communication, exists in online interpersonal interactions uniquely due to the medium in which these interactions occur.

<table>
<thead>
<tr>
<th></th>
<th>CMC</th>
<th>FTF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Extroversion</strong></td>
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<td>+1</td>
</tr>
<tr>
<td><strong>Introversion</strong></td>
<td>-2</td>
<td>-1</td>
</tr>
</tbody>
</table>

*Table 1. Contrast weights for study 1*

**H1:** When presenting in a public setting, a target’s expressed extroversion is greatest when presenting extroversion in a computer-mediated environment, is significantly lower when presenting extroversion in a face-to-face setting, is lower still when presenting introversion in a face-to-face setting, and is lowest when presenting introversion in a computer-mediated environment.
Chapter 4: Method (Study 1)

Participants \(N = 125; 77\%\) female) were undergraduate students at a large, Midwestern American University who participated in this experiment in exchange for credit in their communication department course. Ninety-four percent of the sample reported being between the ages of 18 and 23. The sample identified their racial background to be 73.8\% Caucasian, 14.4\% Asian, 7.4\% Black/African American, and 4.4\% were unspecified. The experimental design followed closely the methods of Gonzales and Hancock (2008) and Walther et al. (2011) in order to obtain comparable results that will advance that line of research and provide support for the inflated feedback loop as proposed in the hyperpersonal model (Walther, 1996). The method was adapted slightly to include a FTF condition that mirrors the CMC condition while still maintaining the overall format of previous research on the topic of the identity shift. Participants were randomly assigned to one of four conditions reflecting a 2 X 2 experimental design for the factors of channel (FTF v. CMC), and personality self-presentation (extroversion v. introversion): participants were asked to complete a pre-test and then self-present as an introvert or extrovert, in either a FTF setting or through posting on an online blog interface. They then received positive/affirming feedback concerning the introversion/extroversion (depending on condition) reflected in their presentation. At the conclusion of the study, they completed a post-test measure of self-
reported extroversion among other personality traits. From the subscale measure of extroversion, hypothesis tests were calculated.

**Procedure**

In both conditions, participants were instructed that researchers were working with partners in the psychology department to study how well personality traits can be detected from people’s writing (CMC condition) or self-expressions (FTF condition). A pre-test was administered containing measures of all Big 5 personality traits (John, Donahue, & Kentle, 1991; John, Naumann, & Soto, 2008) as well as a variety of personality venn diagrams modeled after the inclusion of the other in the self measure (Aron, Mashek, & Aron, 2004) to measure, as a control, the importance of a personality trait to one’s sense of self. After the pre-test was completed, similar to Gonzales and Hancock (2008) as well as Walther and colleagues (2011), subjects were asked to provide answers to a set of four questions concerning the topics of family, friends, and their favorite activities (Appendix A). Half of the participants in each of the channel conditions were asked to portray themselves as “an outgoing, extroverted person”, while the other half were asked to portray themselves as a “shy, introverted person”. Participants were asked to think of experiences in both their past and present that were consistent with their assigned personality trait without lying about their experiences.

**CMC conditions.** For the CMC conditions, participants published their answers to the given questions on a public blog created for the study (Appendix B). The interpersonal feedback in these conditions reflected Walther and colleagues’ (2011) method by posting a blog comment as a response to the participants’ post. Participants were told, after they posted their comments to the blog page to refresh the page until
feedback from the remote graduate student appeared on the screen. In another room a lab assistant posted the corresponding positive introverted or extroverted comment, depending on condition. The comment was a reflection of Walther and colleagues’ (2011) feedback and reflected a positive evaluation of the participant’s level of extroversion or introversion depending on condition (Appendix C). Once the participants read the feedback comment, they proceeded to the posttest.

**FTF conditions.** For the FTF conditions, after completing the pre-test, participants were led to a room where a confederate was waiting for them. The confederate introduced herself as a graduate student in the psychology department at the same university. They informed the participant that they would be asking them questions and would provide some feedback to them at the end of the interview. The FTF condition was concerned with making non-verbal communicative acts salient for the participant, which is why all interaction was done in a FTF interview format. Recent research on the differences between online and traditional FTF communication emphasizes the presence or lack of non verbal communication cues in contributing to intimacy or liking and disliking (Walther, 1992; Walther, Van Der Heide, Tong, Carr, & Atkin, 2010). The presence of nonverbal cues such as proximity, facial expressions, and warm vocal tones in a FTF setting are not available in CMC environments and contribute to the major differences in how individuals can communicate and how they react to communication exchanges in each media.

For this experiment, the confederate acted like an interviewer and asked the four questions to the participant while seeming to take notes on their responses. There was an audio recorder recording their responses which were transcribed for later analysis, but
participants were not informed of that until after the experiment concluded. After their interview, the confederate provided some feedback on participants’ responses in the form of a script that reflected the same feedback participants received in the CMC conditions. Once participants received the feedback they were directed to complete the post-test.

**Measures**

**Pre-test measure of inclusion of extroversion in the self.** As a control variable for the present research, the connection, or the importance one feels with being identified as being extroverted, was measured in a pre-test. The measure for this importance was adapted from the inclusion of the other in the self measure (Aron, Mashek, & Aron, 2004). This measure is a single item, pictorial measure of closeness with another individual, group, item, or trait (Aron, Aron, & Smollan, 1992; Ortiz, Harwood, & Schumaker, 2011; Schultz, 2001). Each set of diagrams depicts a series of seven different overlapping circles; one circle being labeled the “self” and the other circle being labeled “extroversion”, or another distracting personality trait. The circles with the least overlap represent an individual who does not feel as if that personality trait is an important part of their self where as the circles with the most overlap represent an individual who feels that the personality trait is an extremely important part of their self. This measure has been used in past intergroup research as a measure of how important a group membership was to an individual (Aron, Aron, & Smollan, 1992; Ortiz, Harwood, & Schumaker, 2011; Schultz, 2001). The measure is scored by assigning a numerical value to each picture, with low importance receiving a 1 and high importance, or overlap, receiving a 7.

**Extroversion.** In past studies researchers have found that when participants take on a particular personality trait, or engage in strategic self-presentations in order to create
a specific impression of themselves there is usually a shift in the subject’s self-conceptions in the direction of the self-presentational experience (Rhodewalt, 1986). The trait of extroversion was chosen in this study for two reasons. First, it is the variable that has been used in past identity shift research and a certain level of consistency is desired. Second, extroversion and introversion are traits that are well known and often expressed through different textual as well as non-verbal expressions as seen in past research on storytelling (Thorne, Korobov, & Morgan, 2007). Pennebaker and King (1999) found support that throughout the study of written narratives that extroverts and introverts are often associated with specific narrative styles such as the use of tentative words and inclusive words. Thorne, Korobov, and Morgan (2007) also found that with regard to storytelling, introverted and extroverted individuals differed significantly in the way they initiate a story, the topic of the story, and word choice. Extroversion for the present study will be used in very similar ways and the use of the trait is supported by the significant differences found in past research concerning the ways in which introverts and extroverts differ in the way a story is described, which matches the current method being used.

The measure of extroversion used for this study is included in John, Donahue, and Kentle’s (1991) measure of the big five personality traits. Participants responded to all 44 questions included in the inventory but the sub-scale of extroversion, an 8 item measure, will be the measure used to evaluate the hypothesis test in this study. Responses are measured on a scale of disagree strongly (1) to agree strongly (5) and the extroversion subscale includes items such as “is talkative”, “is full of energy”, and “tends to be quiet” (reverse coded). The Cronbach’s alpha score for the pre-test showed acceptable reliability, $\alpha = 0.85$ as well as the post-test, $\alpha = 0.90$. 

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**Self-monitoring.** Self-monitoring is defined as the degree to which people monitor and control their behaviors and public images to assure that they behave appropriately (Leary & Allen, 2011). As Tice (1992) found that high self-monitors significantly internalized their behavior more than low self-monitors, this research will include the same measure to test for a significant impact this variable might have in each of the conditions. Utilizing the same measure Tice (1992) used, this research utilized Snyder’s (1974) measure consisting of 25 true and false questions such as “I guess I put on a show to impress or entertain people”, “In groups of people, I am rarely the center of attention”, and “I may deceive people be being friendly when I really dislike them” (for a full list of instructions and measurements see Appendix D). The Cronbach’s *alpha* score showed acceptable reliability, α = 0.62.

Correlations between all variables measured are reported in Appendix E.
Chapter 5: Results (Study 1)

Manipulation Check

To confirm that each participant did in fact present in either an extroverted or introverted fashion, the transcripts from the blog posts as well as the transcribed verbal self-presentations were analyzed with the Linguistic Inquiry and Word Count v. 2007 program (LIWC; Pennebaker, Francis, & Booth, 2007). Research shows that language can indicate specific cognitive processes along with feelings, emotions, and specific personality traits (for review, see Pennebaker, Mehl, & Niederhoffer, 2003). The LIWC program was created to examine individual differences in language use and resulted in studies conducted to find correlations between language use and specifically, the Big Five personality traits (Pennebaker & King, 1999). The LIWC analysis itself relies on a dictionary of almost 4,500 words and word stems. Each word and stem belongs to one or more word categories. The results of the LIWC analysis report the frequency of the words or word stems which appear in each category of interest. With the use of several broad categories and hundreds of variables within each category, researchers can determine unique linguistic patterns and correlations between those patterns for a variety of variables.

For the present work participants’ responses were scanned for expressions of introversion or extroversion. This is to test the extent to which participants enacted
behaviors that they were asked to in the study’s instructions (extroversion or introversion). Without this behavioral check, any significant differences between groups could be attributed simply to the induction instructions.

In past research, Pennebaker and King (1999) used the LIWC method to detect linguistic correlations in extroverted and introverted individuals. Their study showed that the linguistic cues utilized by extroverts were more likely to include a larger amount of total words as well as the following; more social process terms (words about family, friends, and humans), more positive emotion words (nice, love, and sweet), and more inclusive words (and, with, and include). The linguistic cues from self-reported introverts were found to include more negations (no, not, and never), more tentative words (maybe, perhaps, and guess), more exclusives (but, without, and exclude), more causation words (because, effect, and hence), more negative emotion words (words about anxiety, anger, and sadness, including hurt, ugly, worried, crying, and sad), and then also more articles (a, an, and the). This analysis of extroversion or introversion linguistic markers in individual’s text was replicated by the two studies which serve as the foundation for the present research as well (Gonzales & Hancock, 2008; Walther et al., 2011).

The text obtained in the present study from the CMC conditions and the transcribed responses from the FTF conditions were analyzed by this program and the analysis looked to find significant differences concerning those unique linguistic markers between introversion/extroversion conditions. The LIWC analysis reports the total word count as well as the frequency of each type of word category (e. g. social process terms, inclusive terms, articles, and negations). A significant difference in the overall textual behavior between those receiving the introversion instructions and the extroversion
instructions would indicate that individuals did engage in the behavior that was asked of them successfully and utilized words that the LIWC program would classify as typical of extroverts or introverts depending on condition.

Multivariate analysis of variance compared conditions with the induction of extroversion/introversion as the fixed factor and the ten variables from the LIWC analysis as the dependent variables. Results were significant, Wilks’ $\lambda = 0.08$, $F(10,114) = 1.74$, $p = 0.04$ (one-tailed). Univariate effects indicated that three of the ten variables obtained significance between conditions in the predicted directions (significant differences observed for word count $F(1,123) = 8.56$, $p = 0.002$ (one-tailed), tentative words $F(1,123) = 5.56$, $p = 0.01$ (one-tailed), and exclusives $F(1,123) = 4.83$, $p = 0.015$ (one-tailed)). For a full review of the univariate effects see Table 2. Although only three of the ten variables resulted in significant differences between conditions in the proposed direction, which would distinguish extroversion linguistic markers from introverted linguistic markers, the overall significant difference between conditions indicates that as a whole, participants in each condition did in fact utilize significantly different language to convey the personality trait assigned to them.

Walther and colleagues (2011) utilized the same manipulation check procedures and as a comparison their univariate results found seven of the ten traits significantly different in the predicted direction depending on condition. Although the strength of the individual univariate results differs to some extent between their study and the present study, the present study does achieve overall significant differences between conditions indicating that the manipulation was indeed successful.
<table>
<thead>
<tr>
<th></th>
<th>Extroversion</th>
<th>Introversion</th>
<th>F (one-tailed)</th>
<th>Sig.</th>
<th>Partial eta Squared</th>
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<tr>
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</table>

Table 2: LIWC results for study 1 including both CMC and FTF conditions
Note: * in predicted direction, ** significant in predicted direction at α = 0.05

Hypotheses Test

As proposed, the hypothesis of interest is the influence that the medium of self-presentation has on an individual’s internalization of the assigned personality trait. A contrast analysis was employed to test the significant pattern of effects from the variables of introversion/extroversion and CMC/FTF. The 2x2 nature of this design called for 4 distinct contrast weights. Weights were determined by adding together the main effect weights of each variable (See Table 3). For the introversion/extroversion variable, introverted conditions were assigned a weight of -1 and extroverted conditions were assigned a +1. Since the variable of medium, CMC v. FTF, was expected to magnify the effect of the extroversion variable only in the CMC conditions, an additional -1 for the introverted CMC condition was added and an additional +1 was added to the extroverted CMC condition. For the FTF conditions, where an inflated identity shift was not expected to occur, no additional weights were added to the FTF conditions for the variable of
medium. These preliminary values were summed to arrive at the final set of contrast weights used to assess the hypothesis.

<table>
<thead>
<tr>
<th>CMC</th>
<th>FTF</th>
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<tbody>
<tr>
<td>Intro</td>
<td>Extro</td>
</tr>
<tr>
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<td>Extro</td>
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<td>SD</td>
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<td>n</td>
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Table 3. Contrast effects for producing hypothesis 1 and descriptive statistics for Introversion/Extroversion and CMC/FTF effects on self-reported change in extroversion

Note: Dependent variable, mean, and standard deviation reported is the change in extroversion scores for participants in each condition.

For the dependent variable of identity shift, change scores were calculated to arrive at each participant’s overall shift in self-reported extroversion. Subtracting pre-test reports of extroversion from the post-test report of participants’ extroversion produced a change in extroversion score for each participant. These change scores were used as the dependent variable for the following analyses, representing participants’ identity shift. Subjects’ extroversion change scores were subject to the contrast analysis and the predicted weights were supported $t(121) = 1.638, p = 0.05$ (one-tailed). These results
support the stated hyperpersonal prediction indicating that in CMC individuals
experience a greater identity shift than in FTF setting.

Further analysis was conducted to probe the data for influences of the covariates
that were also measured. An ANOVA was conducted with the extroversion change score
entered as the dependent variable, medium (cmc/ftf) and personality manipulation
(extro/intro) entered as main effects, the interaction term of the two main effects
(cmc/ftf*extro/intro), and then importance of extroversion to the self and self-monitoring
were entered as covariates. Data suggested that the overall model was not significant $F(5,
119) = 1.262, p = 0.285$, implying that there are not significant differences between
media in terms of reported identity shifts (see Table 4). The interaction effect which
would indicate a significant effect of condition on extroversion change scores was also
not significant, $F(1, 119) = 0.092, p = 0.381$ (one-tailed). Looking at the main effects in
the model it is determined that the medium of communication (cmc/ftf) was not a
significant factor in predicting identity shifts, $F(1, 119) = 0.729, p = 0.198$ (one-tailed). It
is interesting, and important to note, however, that the main effect of assigned personality
trait did produce the only significant effect in the model, $F(1, 119) = 2.922, p = 0.045$
(one-tailed). These results together with the contrast analysis indicate that hypothesis 1
was only partially supported.
Post Hoc Analyses

In failing to observe a significant model predicting identity shift from the stated conditions and control variables, the researcher decided to go back to the LIWC results and use those lexical indicators as predictors of identity shift. It could be argued that the actual use of extroverted or introverted words, an indication of actively engaging with the trait of interest, might be a better predictor of one’s identity shifting than assuming that all participants in each condition followed the directions stated in their condition. Utilizing the lexical indicators as predictors would then be able to observe a shift in the
direction of the language used, rather than measuring a shift in the direction of the assigned personality trait.

An ANOVA for the CMC participants was conducted with the extroversion change score entered as the dependent variable, and the ten LIWC lexical indicators as independent variables. Data suggested that the overall model was not significant $F(10, 50) = 1.015, p = 0.444$, implying that the language used by participants in both introverted and extroverted conditions did not significantly influence identity shift (see Table 5).

<table>
<thead>
<tr>
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<th>Mean Square</th>
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<th>Sig.</th>
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<table>
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*Table 5: ANOVA for the influence of the CMC participants’ language on identity shift
Note: Dependent Variable: Participants’ extroversion change score
Note: * significant at $\alpha = 0.05$
An ANOVA for the FTF participants was conducted with the extroversion change score entered as the dependent variable, and the ten LIWC lexical indicators as independent variables. Data suggested that the overall model was not significant $F(10, 53) = 1.101, p = 0.379$, implying that the language used by participants in both introverted and extroverted conditions did not significantly influence identity shift (see Table 6).

### ANOVA

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<th>Mean Square</th>
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### Unstandardized Coefficients

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*Table 6: ANOVA for the influence of the FTF participants’ language on identity shift*

Note: Dependent Variable: Participants’ extroversion change score
Note: * significant at $\alpha = 0.05$
Chapter 6: Discussion (Study 1)

Recent research concerning CMC has lacked in its comparison between traditional FTF interactions and mediated interactions. Specifically concerning the hyperpersonal model, there has been no attempt to find unique support that communication conducted via mediated channels results in what has been known as hyperpersonal communication effects (Walther, 1996). This theoretical perspective is one of the most frequently cited theories to explain online communication results, yet without empirical support, the theoretical perspective is still lacking. This study sought to uncover empirical support that there are unique outcomes that occur in mediated communication situations that make the field unique and valuable to the study of human communication. The strength of this study lies in its single manipulation of medium of communication. Keeping all other variables constant, any significant effects observed in this study can be identified as a result of the medium. This study, however, finds only partial support when comparing those individuals who presented in a CMC setting compared to those individuals who presented in a FTF setting. The contrast analysis indicated a significant trend in the predicted direction, indicating a more extreme identity shift reported in the CMC conditions than in the FTF conditions. However, the results from the one way ANOVA indicated that there were no significant differences between conditions when accounting for the main effects and covariates. With this being the result of the present
experiment, there are important theoretical concerns that must be drawn from this study as well as important limitations to note.

The hyperpersonal model, as previously outlined, argues that there are significant differences between CMC and FTF communication that have the potential to create hyperpersonal results in a computer-mediated environment. Past research leads us to believe that the CMC environment with its selective self-presentation and idealized interpretation would be the reason these hyperpersonal effects occur. Taking a closer look at study 1’s results, the focus should be on the conflicting reports of significance found in the contrast analysis and the ANOVA. The ANOVA produced overall insignificant results, indicating that there are no significant differences between groups on the dependent variable of identity shift. However, a significant trend emerges in the contrast analysis. Taking a detailed look at the means used for the contrast analysis, although there is an overall significant trend corresponding to the assigned contrast weights, the means for the introverted conditions were not in the direction predicted (see Figure 1). This result indicates that although the significant contrast analysis supported the hypothesis that CMC conditions do in general experience a larger identity shift, the hyperpersonal effect observed in this case might have something to do with the personality trait that was assigned to the participants to express in their responses rather than a true effect of medium.
Achieving the significant result in the contrast analysis overall might indicate that the trend in the extroverted conditions is strong enough to indicate significance for the full set of predicted contrast weights. Looking again to the ANOVA, the only significant result that came through was the influence of the manipulation of introversion or extroversion. This result indicates that the specific trait of extroversion might play a more important role in explaining these results than originally anticipated. Although the overall ANOVA model was insignificant, the significance of that individual variable is important as these findings lead to important limitations, concerns, and future directions.

Utilizing the proxy independent variables from the LIWC analysis additionally did not influence the extent to which an identity shift was observed. This insignificance indicates that individuals that may have communicated in a more extroverted or introverted fashion, regardless of condition assignment, still did not report more of an
identity shift than those who did not communicate in a more extroverted or introverted fashion. Noting these results, it is important to reflect on the significant contrast analysis. The contrast analysis indicated that there was a significant “trend” of the means in the predicted direction. This only indicates that in general the order of means predicted by the planned contrast test was supported. Without indication that the means are significantly different, from the ANOVA test, the significant order of means only partially supports the hypothesis. The limitations section will address some of the potential reasons for these conflicting results and discuss the importance of evaluating the significant contrast results with caution.

Limitations

These results should not immediately dismiss the hyperpersonal model as a reasonable explanation for online communication behavior, yet the results are not fully in support of the predicted hyperpersonal effects either. The limitations of this research should be carefully noted for future research to continue exploring this model. The first concern lies in the manipulation of the trait of interest; extroversion. Although this study utilized the same wording as previous research to manipulate the presentations of participants (Gonzales & Hancock, 2008; Walther et al., 2011), it failed to achieve as strong of a manipulation as these previous studies as discovered in the LIWC analysis. It would be important, before continuing to explain these results, to note if individuals who communicated more extrovertedly or introvertedly than others experienced a greater change in their self-expressed extroversion. This would answer the question, “if individuals strongly self-expressed in the direction assigned, did those individuals experience an identity shift greater than those who did not strongly self-express in their
assigned direction”? It could be the case that the majority of individuals simply had a hard time with the directions of the study. Individuals were randomly assigned to conditions and some might have just done a better job than others at indicating extroversion or introversion in their responses. The post hoc analysis looking at the LIWC lexical indicators as the predictors of identity shift would have indicated that those individuals utilizing more extroverted or introverted language might have experienced a more drastic shift in identity. But, the insignificant results in both the CMC and FTF conditions do not support this possibility. A correlation analysis was also run to see if individuals who communicated more extrovertedly or introvertedly indicated more of a change in their self-reports of extroversion. This analysis yielded no significant correlations. These two insignificant findings together continue to stress the concern with the overall strength of the manipulation and will be addressed in the following paragraphs.

First, previous research made a more concerted effort to enhance the perceived ‘publicness’ of a presentation as one of the major manipulations of the previous studies was the perceived publicness of the presentation setting. The current study attempted to achieve overall publicness across the CMC conditions by stating the public blog was to be viewed by graduate students from another department, but there was no measure that attempted to confirm that participants did believe their presentations were in fact public. This might have influenced the extent to which the CMC participants took time and effort to present themselves in the desired way. The FTF conditions only presented in front of one individual, and although that has, in past research, been public enough to result in identity shift findings, in this case, comparing the FTF public of one-to-one with the
CMC public of one-to-many (public blog setting) might not have been a fair or accurate comparison.

Further analyses were conducted with the data from the LIWC reports to examine any potential medium effects on individuals’ likeliness to self-disclose in either an extroverted or introverted manner. When looking at the extroverted and introverted conditions in both the CMC conditions and the FTF conditions in isolation, significant differences between extroversion and introversion participants only emerged in the FTF conditions (Wilks’ $\lambda = 0.626$, $F(10,50) = 2.992$, $p = 0.003$ (one-tailed); see Table 7 for univariate effects) and none of the desired traits were significantly different in the CMC conditions (Wilks’ $\lambda = 0.867$, $F(10,53) = 0.813$, $p = 0.308$ (one-tailed); see Table 8 for univariate effects). As the FTF condition did in fact put each participant in a room with a confederate, their presentations were much more obviously public and potentially more effort was put into presenting their assigned trait.

<table>
<thead>
<tr>
<th>Extroverted traits</th>
<th>Extroversion M</th>
<th>Extroversion SD</th>
<th>Introversion M</th>
<th>Introversion SD</th>
<th>F</th>
<th>Sig. (one-tailed)</th>
</tr>
</thead>
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<td>122.50</td>
<td>62.54</td>
<td>17.77</td>
<td>&lt; 0.001**</td>
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<td>Social process</td>
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<td>10.46</td>
<td>3.33</td>
<td>2.64</td>
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*Table 7: LIWC results for study 1, FTF conditions only*

Note: * in predicted direction, ** significant in predicted direction at $\alpha = 0.05$
The non-significant findings between the textual expressions in the extroversion condition and introverted condition in the CMC context is interesting as the present experiment tried to maintain as authentic of a blog setting as possible, while still being able to provide significant theoretical claims. However, in a truly public blog there might have been more feedback, ranging in positivity, length, depth, as well as an overall accumulation or lack of accumulation over time which would indicate more of a “live” blog type setting. The authenticity of the blog posting process was a slight limitation in the ecological validity of this research. In future research the publicness of the online setting should be a major concern and perhaps instead of a written explanation of the publicness of the blog site, the blog setting should be made to feel even more public in its design. A more sophisticated computer program might be developed to increase the visual sense of publicness that exists in many online communication settings available on the Internet yet still maintain a controlled experimental environment. Previous research
has utilized more sophisticated blog settings and has found that the unique traits of the online blog have enough design elements that induce a strong sense of publicness (Walther et al., 2011).

This explanation, however, still does not fully explain why the present study didn’t observe differences in the LIWC analysis results in CMC conditions when past studies utilizing the same manipulation did in fact observe significant differences between CMC conditions on their textual expressions of extroversion and introversion. Online, the lack of non-verbal cues makes the textual component the main form of presentation in which to establish introversion or extroversion (Walther, 1992), while in FTF settings there are a variety of nonverbal cues that can enhance an introverted or extroverted presentation that would also influence the effectiveness of the verbal presentation of the assigned trait. Thus, without nonverbal cues present in the CMC conditions, individuals assigned to either trait may have had a more difficult time presenting their assigned trait. Although this does not explain differences in the present study results which attempted to directly replicate previous research, there may also have been significant differences in the directions provided that would have induced the lack in similarity between the LIWC analysis results.

To further examine the potential that medium, or even the perceived publicness of that medium, had in influencing participants’ ability to present the assigned personality trait another post hoc analysis was run to determine if there was a significant effect of medium on participants’ ability to present the assigned personality trait. Multivariate analysis of variance compared conditions with the induction of cmc/ftf as the fixed factor and the ten variables from the LIWC analysis as the dependent variables. Results were
significant, Wilks’ $\lambda = 0.69$, $F(10,114) = 5.08$, $p < 0.01$ (two-tailed). This result indicates that medium played a very significant role in participants’ ability to even present in an extroverted or introverted fashion. The univariate effects, as shown in table 9, show that one of the four extroverted traits was significantly different between CMC and FTF conditions in the direction of the CMC self-expressions being more extroverted than the FTF self-expressions. One of the four was in the introverted direction, and also reached significance. Two out of the six introverted traits were also significantly different between CMC and FTF conditions in the direction of FTF self-expressions being more introverted than the CMC self-expressions.

<table>
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Table 9: LIWC results for study 1, by medium (CMC and FTF)
Note: ** significant difference at $\alpha = 0.05$

These findings provide important insights into the effects of medium on one’s ability to present specific personality traits. From these results it can be concluded that it
might be easier to present one’s self as an extrovert rather than an introvert in CMC environments. This contributes support to the potential explanation that participants were asked to express the self online, which is a naturally extroverted action, leading all participants to act more extroverted regardless of assigned personality trait. The FTF linguistic markers indicate that participants might have communicated in a more introverted fashion overall. This makes sense as they were faced with communicating FTF with a stranger and shyness might have taken over regardless of the assigned personality trait. This is a very intriguing finding that supports not only the effects of anonymity in online environments leading to more substantial self-disclosures (Joinson, 2001; Hancock, & Dunham, 2001) but also the argument that the Internet is inherently a social environment where people come to interact with others. The finding, however, also indicates a potential issue with the choice of utilizing extroversion as the personality trait of interest, as it seems to be significantly easier to present the self (an extroverted behavior) to a “hidden” public rather than a “live” public.

Inherently in expressing the self in public either to an individual FTF or on a public blog through CMC, an individual is engaging in an extroverted action; the most obvious introverted response would probably be to simply not respond. As seen in past research, the trait of extroversion in testing for impression formation specifically resulted in a negativity/non-normative effect (Van Der Heide et al., 2012). It could be proposed that introverted information is not interpreted as a normative quality in a self-presentation setting, as inherently presenting the self in either a textual or verbal way is seen as an extroverted action. This significant finding from previous research indicates that there might be a problem with the trait of extroversion and the positive or normative
associations individuals have with being extroverted in a social setting and the negative
or non-normative associations individuals have with being introverted in a social setting.
The non-normative action of presenting the self in a public setting as an introvert may
have significantly influenced the outcome of the present study.

Moving to the influence of the trait of extroversion on the hypothesis test
specifically, in line with the concerns with the research design, the trait of extroversion
might have been a significant reason these results did not turn out quite as expected.
Looking at the significant contrast analysis result from the present research and the
significant trend in the hypothesized direction yet failing to observe the predicted trend in
means for the introverted conditions, it could be that those who were asked to present in
an introverted way might have been experiencing dissonance from being asked to portray
the self as an introvert while engaging in a typically extroverted activity and failed to
produce self-expressions that were truly introverted, and as a result did not report any
increased feelings of introversion in the post-test. Utilizing a trait other than extroversion
would be a fruitful next step in this research line to test for hyperpersonal effects in
CMC.

One of the most significant design limitations of study 1 lies in the pre-test/post-
test design. In order to obtain a base line extroversion score before engaging with the
manipulation, participants filled out a measure of extroversion as soon as they came into
the lab. However, the experiment lasted only about 25-30 minutes and at the end of the
experiment they were asked to report their extroversion again in the post-test. The lack of
time between these two measures is a design concern and future research should consider
conducting a pre-test before participants show up to the lab site, at least a few days in
advance. The influence of responding to the same set of questions at two time points less than 30 minutes apart leads to concerns about how well the post-test could measure any possible shift in identity (Hoyle, Harris, & Judd, 2002). Post hoc analyses utilizing only the post-test measure of extroversion as the dependent variable failed to yield any significant results as well, which also supports the hypothesis that the post-test failed to catch any potential identity shift occurring from the manipulation. Previous research on identity shift did not utilize the pre-test/post-test design thus, those participants were not influenced by the responses they gave in any pre-test measure of extroversion; the dependent variable. This is one possible explanation for the lack of significant results found in the ANOVA, despite the attempts to replicate previous work.

**Conclusion**

This research, in its entirety, seeks to provide support for not only the hyperpersonal model in general, but also the inflated feedback loop specifically. Although there were some conflicting findings potentially due to the trait of extroversion utilized in this research, study 1 concluded that, in general, the combination of means predicted by the hyperpersonal model was supported by the data. This provides support for the hyperpersonal model’s argument that in computer-mediated contexts individuals experience inflated communication results compared to traditional FTF contexts but, without support that the means are significantly different, more research must be completed. Moving forward, however, research can also move forward with the indication that the general trend of hyperpersonal communication was supported in this study. This important finding addresses the hyperpersonal model as a whole, yet questions continue to remain concerning how this significant trend came to be. This
finding addresses the truly interpersonal effects of online communication; leading to an interest in the inflated feedback loop specifically.

Study 1, as an extension of previous work by Gonzales and Hancock (2008) as well as Walther and colleagues (2011), provides partial evidence of an inflated identity shift due to static feedback received in a public online setting, which is initial support for the inflated nature of communication online. Continuing to reflect on both study 1 as well as the significant results found in previous work completed concerning the identity shift in online communication, research has yet to determine the truly reciprocal nature of interpersonal interactions online. In essence, all three studies previously outlined and reviewed (Gonzales & Hancock, 2008; Walther et al., 2011; Study 1, present work) only attempt to explore one half of the proposed inflated feedback loop. Individual A presents a comment and individual B responds; end of conversation. From the previous example, one might not define that as any kind of feedback loop, as there is no way for the original presenter to continue the proposed “loop”. Without a conversation partner providing reciprocal interactions, the entire “loop” proposed by the hyperpersonal model cannot be fully examined. In order to address the sort of interpersonal feedback that the hyperpersonal model is intended to address a second study is proposed that will allow for reciprocal interactions overtime. Study 2 attempts to investigate the feedback loop specifically and seeks to provide evidence that would support the hyperpersonal model’s argument that in minimal-cue environments, behavioral confirmation, as a potential causal mechanism, might play an important role in the process of creating inflated communication results online.
Chapter 7: Behavioral Confirmation as a Mechanism by which Identity Shifts Occur (Study 2)

To further expand this work and to provide explanatory power to inflated feedback as it might be observed online, more research must be done. In the original work concerning the hyperpersonal model it was posited that a mechanism by which inflated feedback would be possible is through behavioral confirmation (Walther, 1996, pp.27). Due to the limited cue environment, stereotypes or clear assumptions concerning a partner’s character and personality, dictate one’s behaviors and an inflated spiral of stereotypical behavior may encourage the shift in identity that research has observed. To date, behavioral confirmation has been shown to operate in CMC (Van Der Heide, Schumaker, Peterson, & Jones, in press) yet the dependent variable that would provide evidence that behavioral confirmation does in fact contribute to the inflated nature of communication online, an identity shift, was not measured and thus, conclusions concerning the explanatory power of this mechanism to explain the inflated identity shift and the hyperpersonal nature of communication online are not possible. Van Der Heide and colleagues (in press) measured the extent to which females’ behaved in ways that would suggest behavioral confirmation but did not measure the extent to which that behavior influenced the extent to which those females internalized that behavior and shifted their self-concept in any way. If behavioral confirmation is in fact a mechanism
by which the inflated feedback loop can occur in CMC, then the measure of internalization is imperative to observe in a similar experimental setting. Study 2 seeks to find support for this theoretical perspective in explaining the existing identity shift findings.

**Behavioral Confirmation**

The concept of behavioral confirmation, first explicated by Snyder, Tanke, and Berscheid, (1977) suggests that stereotypes and clear assumptions held by an individual concerning another conversation partner have the ability to create their own social reality in a conversation and conversation partners’ behaviors are subsequently altered because of the stereotypes and assumptions held by their audience or communication partner. The authors state that an individual’s behavior is shaped by their partner’s positive or negative assumptions held concerning him or herself, which are exposed in the interpersonal feedback provided to them. Snyder, Tanke, and Berscheid (1977) found strong experimental evidence confirming this phenomenon. When male subjects came into the lab they were given a photograph they were told was a photograph of their female partner, who they were going to have a phone conversation with. They found that when male subjects knew that their phone conversation partner was going to be an attractive female (provided with an attractive female photograph) they behaved in a way that influenced their partner’s behavior to the extent that blind coders rated those females’ behavior more positively than those females who had partners that believed they were unattractive individuals (i.e. males who were provided with an unattractive female photograph). In this case, interpersonal feedback, or the behaviors of the male in this experiment, had a direct and significant effect on their female partners’ behaviors;
causing the females to confirm the behavioral expectations and assumptions held by their male partners concerning attractive females.

Snyder and colleagues (1977) had an interest in the influence of cognitive thought on interpersonal behaviors and actions. Their driving research question was concerned with the cognitive and behavioral consequences of the impressions an individual holds of their conversation partner. Providing participants with impression influencing data about their partner (a photo) produced both cognitive and behavioral consequences. In reviewing the males’ transcripts, coders blind to condition rated those males who saw an attractive photograph of their female partner as more comfortable, seemed to enjoy themselves more, liked their partners more, took the initiative more often, and used their voices more effectively. The perceivers’ (males) association between physical attraction and positive liking was so strong (cognitively) that their behavior was influenced to such a degree that the target (females) could detect either their disgust or interest and adjusted their behavior accordingly to confirm those assumptions.

Leary and Kowalski (1990) state that one of the main constraints to our impression management behavior (i.e., how individuals react to interpersonal feedback concerning their self-presentation) is the current social image that the audience or conversation partner has of an individual. The pre-formed impression that an audience might hold concerning the target individual, will influence the content of that individual’s message, or impression management tactic, in ways that will achieve the goal (or portray the impression) that an individual has in mind for a particular conversation or particular audience. Leary and Kowalski (1990) provide various self-presentational motives, such as maximizing rewards and minimizing punishments, defining social encounters and
determining one’s role in them, increasing subjective well-being, as well as constructing desired public identities. Any one of these goals are at play throughout the process of behavioral confirmation as an individual will be more likely to adapt their presentation strategy to accommodate for their partner’s behavior.

Behavioral confirmation occurs because the target individual is utilizing the perceiver’s behavior toward them as a cue for appropriate communication and behavior. This kind of behavioral response in the form of an altered self-presentation has significant implications on the target’s understanding and construction of their own self-concept (Leary & Kowalaski, 1990). The response that has been altered and manipulated due to the ways in which the target was treated by the perceiver would then be the driving mechanism determining the extent to which an individual internalizes the personality trait they presented; thus creating a shift in, what was previously discussed, the phenomenal self (Rhodewalt, 1986).

**Behavioral Confirmation in CMC**

The propositions for behavioral confirmation focus on the influence that communication partners can have on one other. The hyperpersonal model argues that in the reduced cue environment, behavioral confirmation processes are more prevalent due to the tendency for individuals to make stereotypical character and personality assumptions due to this lack in other pertinent personal cues that might be available in FTF interactions to make more accurate impression judgments. This process has a lot to do with the idealized interpretations made on the part of the receiver in the interaction. Idealized interpretations are said to occur due to these assumptions that are drawn from the limited cue environment. Lending support for this role of receiver in behavioral
confirmation is work which examines that role of pre-interaction assumptions on receiver’s impression judgments.

Epley and Kruger (2005) first compared the influence of pre-interaction impressions on post-interaction impression judgments in CMC and FTF and found that in fact pre-existing impressions persevered more in the CMC conditions than in traditional communication setting conditions (phone calls). When provided with bogus information about their conversation partner, those participants in the CMC condition relied more on that pre-existing information to make impression judgments after an interaction online than those participants who communicated in a vocal (phone) setting. The authors also found that one of the significant contributors to this finding was the increased sense of ambiguity in online settings. The ambiguity of pre-interaction information in CMC, played a much more significant part in post interaction impression judgments than in the voice (phone) conversations.

Replicating and expanding this work also finds that the unique role these pre-interaction assumptions have in impression judgments occurs in a greater magnitude online than it does offline (Walther, DeAndrea, & Tong, 2010). This research gave individuals pre-interaction information about an intelligent or unintelligent conversation partner and found significant differences in post interaction impression evaluations between conditions based on those pre-existing impressions in online settings but found no significant differences in the voice conditions. Although these studies do not seek to provide support for behavioral confirmation per se, as they don’t look at the mutual behavior changes made by each participant in the conversation, they are significant to the cannon of research on how individuals adapt to and are influenced by the limited cue
environment that CMC provides. These studies provide significant and important support for the influence pre-existing assumptions have on receivers specifically interacting in a computer-mediated environment and shed light on how the receiver might contribute to the unique way behavioral confirmation processes exist online.

In the original behavioral confirmation study, Snyder and colleagues (1977) found that when perceivers had pre-interaction assumptions concerning their partner (the target) they acted in a way that elicited behavior from the target that confirmed those assumptions. Targets that were thought to be attractive actually ended up acting more likable than those targets that were anticipated to be unattractive. This behavior change does signify or imply at least some level of internalization of the behaviors as has been observed in computer-mediated settings. Behavioral confirmation has been used to explain online behavior in past research studies and has been supported by one study in particular which tapped into a more complex form of behavioral confirmation online (Van Der Heide, Schumaker, Peterson, & Jones, in press).

Van Der Heide and colleagues (in press) conducted an experiment where male participants were randomly assigned to see an attractive, unattractive, or no avatar representation of his female CMC conversation partner, while female participants were assigned to see either an attractive, unattractive, or no avatar representation of themselves. Some results from this study showed that female participants who had male partners that received an attractive avatar and were told that it was a visual representation of their female conversation partner communicated more positive textual behavior towards their male partners than those female participants who had male partners that received an unattractive avatar as the visual representation of their female partner.
Through interaction in a synchronous chat setting, female participants altered the presentation of their self-concept as a result of the positive or not so positive interpersonal feedback received from their male conversation partner and coders, blind to condition rated those females as displaying greater levels of similarity/depth and immediacy/affect throughout their conversation. Because Van Der Heide and colleagues did not measure the extent to which these female participants identified more strongly, either in a pre or post-test, with traits associated with being attractive or unattractive, they could not determine the extent to which these women actually internalized those traits and adapted their self-concept.

The presence of the behavioral confirmation effect, however, is strong and indicative of this process dictating, at least to some extent, the behaviors individuals choose to enact in online conversations. These results lead to predictions that would indicate that when presented with positive or confirming feedback, individuals will confirm their partner’s expectations as dictated by the way their partner treats them and shift their self-concept in the corresponding direction.

Simply, when confronted with feedback concerning a presentation, individuals will likely change their behavior in the direction of the content of the feedback to the extent that they will fulfill their partner’s expectations of how they should be behaving. In a way, disconfirming feedback is taken in as useful information as to how one should be behaving and confirming feedback is reinforcement of the previously shared personality trait or expression. Functions of the medium in this case, enhance behavioral confirmation tendencies as each participant in the conversation again has more control over their behavior as they have significantly more time to formulate a presentation and
can selectively interpret pieces of feedback received from their conversation partner (Walther, 1996). As proposed by the original work on the hyperpersonal model, behavioral confirmation effects “seem to be magnified in minimal-cue interactions” (Walther, 1996, p. 27).

The following study seeks to find support for this behavioral confirmation perspective in accounting for online behavior and internalization concerning interpersonal feedback. Closely replicating the original behavioral confirmation study and taking into account methodology from studies in CMC which find similar behavioral confirmation results, an identity shift will be utilized as a new unique dependent variable predicted to be greatly influenced by behavioral confirmation patterns. The present study will use an identity shift of the personality trait of extroversion as the dependent variable.

The trait of extroversion was chosen for a few reasons. The first is that the researcher believes that in the field of communication there is far too little vertical research; research that cleanly and clearly replicates and builds off previous studies. Attempting to build significantly on the cannon of the identity shift research, the trait of extroversion was a logical and clear choice. There is evidence from those past studies that individuals can in fact significantly shift their self-expressions of extroversion when asked and those self-expressions lead to significant identity shift reports. Knowing that the trait of extroversion was in fact malleable in past studies and susceptible to the ways in which individuals disclosed information about themselves, the trait was kept as the personality trait of interest.

It has also been shown in past studies that both visual and textual statements of extroversion and introversion result in accurate and significantly different impression
judgments in online contexts (Van Der Heide, D’Angelo, & Schumaker, 2012). This supports the use of extroversion from the perceiver’s point of view in that there is support for individuals being able to make strong and accurate judgments about an individual’s level of extroversion. In this study, utilizing both textual as well as visual cues of extroversion or introversion will allow for the dependent variable to align with past research on identity shift and also be able to strongly influence the perceptions of the perceiver. These perceptions, showing in past research to be strong and significantly different between extroversion and introversion, are expected to trigger the assumptions that are associated with being extroverted or introverted, thus influencing behaviors.

It is acknowledged that past behavioral confirmation research in both CMC and FTF settings has used the variable of attraction in their research. However, the variable did not seem like it was a variable that was likely to “shift” as a result of textual behavior. In other words, we would not expect a female’s self-reports of attraction to shift as we have observed in past research with extroversion. Although this study employs a new variable that has not been tested to show behavioral confirmation processes, attraction, on the other hand, has not been tested to show identity shift, and the choice was made to stick with extroversion as the interest in observing a significant identity shift was incredibly important to the present research objective.

It is predicted that when male conversation partners see a photo and textual statement of their partner as an extrovert, their behavior will elicit behavior from their female partners which will confirm the clear personality expectations associated with being extroverted. This behavioral confirmation process will then additionally cause those female participants to identify more strongly with those personality traits associated
with being extroverted which will be seen throughout their conversation behaviors, creating a significant identity shift in the direction of extroversion. It is also predicted that when male conversation partners see a photo and textual statement of their partner as an introvert, their behavior will elicit behavior from their female partners which will confirm those clear personality expectations associated with being introverted. These female participants will then identify more strongly with those personality traits creating an identity shift in the direction of introversion. To test the mechanism of behavioral confirmation in the process of an identity shift the following hypothesis is forwarded.

**H2**: Those females who have male partners who receive a photo and textual statement depicting themselves as an extrovert will identify significantly more with being extroverted than those females who have male partners who receive a photo and textual statement depicting their partner as being an introvert.

To further test the mechanism of behavioral confirmation it is imperative to observe and measure the communication behaviors of both the male and female participants in isolation in order to observe the males’ treatment of their female partners and the females’ behavioral response. For the males, in the original Snyder, Tanke, and Berscheid (1977) study, results showed that males receiving an attractive photo of their female partner resulted in observers blind to condition assignments rating the males’ as more attractive, more confident, and more animated in their conversation than those males in the unattractive condition. It was concluded that the “differences in the level of sociability manifested and expressed by the male perceivers may have been a key factor
in bringing out reciprocating patterns of expression in the target women” (Snyder, Tanks, & Berscheid, 1977, pp. 663). To test this crucial aspect of the process of behavioral confirmation this research must determine the extent to which males receiving an extroverted photograph and textual statement of their partner behave toward their conversation partner in a different manner than those males receiving an introverted photograph and textual statement of their partner.

To measure the extent to which male participants behave towards their female partners in ways that are unique to extroversion and introversion and the extent to which female participants respond in corresponding ways, the transcripts from the isolated side of the conversation will be analyzed by utilizing the Linguistic Inquiry and Word Count v. 2007 (LIWC; Pennebaker, Francis, & Booth, 2007). Their responses will be scanned for actual expressions of introversion or extroversion. Pennebaker and King (1999) used similar methods to detect these scores where greater scores for extroverts were found in total words, social process terms, positive emotion words, and inclusive and introverts were found to score higher on negations, tentative words, exclusives, causation words, negative emotion words, and articles (please see Chapter 5 for a complete review of the LIWC analysis). These measures represented in the LIWC assessment corresponding to the assigned condition of each dyad should be revealed in the communication behaviors of both the male and female participants in the present study.

**H3:** The textual communication of those females who have male partners who receive a photo and textual statement depicting themselves as an extrovert will be measured by LIWC to include significantly more extroverted linguistic markers including
word count, social process terms, positive emotion words, and inclusive words, and significantly less introverted linguistic markers including negations, tentative words, exclusives, causation words, negative emotion words, and articles than those females who have male partners who receive a photo and textual statement depicting their partner as being an introvert.

**H4:** The textual communication of those males who receive a photo and textual statement depicting their partner as an extrovert will be measured by LIWC to include significantly more extroverted linguistic markers including word count, social process terms, positive emotion words, and inclusive words, and significantly less introverted linguistic markers including negations, tentative words, exclusives, causation words, negative emotion words, and articles than those males who receive a photo and textual statement depicting their partner as an introvert.
Chapter 8: Method (Study 2)

Procedure

Participants ($N = 116$; 58 male and 58 female) were mixed pairs of males and females. Ninety-six percent of the female sample and 82.9% of the male sample reported being between the ages of 18 and 23. The female sample identified their racial background to be 79.1% Caucasian, 11% Asian, 4.4% Black/African American, and 5.5% were unspecified. The male sample identified their racial background to be 80% Caucasian, 5.7% Asian, 11.4% Black/African American, and 2.9% were unspecified. All efforts were made to ensure that partners were not aware of their conversation partner’s true identity and any dyad that had partners who knew each other prior to the experiment were to be discarded from analysis (this, however, did not occur in the present study). In order to ensure that participants were unaware of who their partner was, males and females were each directed to different rooms where they were sure not to run into their conversation partner. Participants were told that the study was interested in how unacquainted individuals get to know one another in online chat settings. Each participant completed a pre-test, including measures of personality (BFI; John, Donahue, & Kentle, 1991) as well as the importance of a variety of personality traits to their personal self concept based off the inclusion of the other in the self diagram measure (Aron, Mashek, & Aron, 2004).
In order to activate the perceiver’s pre-interaction assumptions about their female conversation partner the males were told that they would receive a photo and piece of profile information ostensibly from their partner’s personal profile, however, no mention of personal profiles was made to the female participants. The photograph and textual statement were either an introverted photograph and textual statement or an extroverted photograph and textual statement (see Appendix G) that were gathered and pre-tested for extroversion and introversion from a battery of photographs and phrases (see Appendix F) in advance and also tested to assure similarity in levels of both social and physical attraction (McCrosky & McCain, 1974).

Male perceivers were assigned to receive either an extroverted photograph and personal statement from their female partner or an introverted photograph and personal statement from their female partner making this experiment a 2x1 design. These photographs and textual statements were gathered in advance and pre-tested to reflect the appropriate extroverted or introverted condition. Each dyad then engaged in a ten minute structured conversation with the task of getting to know their partner and plan a date to go on in the city in which this research took place (Appendix H). The conversation took place on a computer-mediated chat client where the conversations were saved for later analysis. After the time was concluded participants both completed a post test. The post test for the female participants included self-reported measures of their own extroversion (as part of completing the BFI; John, Donahue, & Kentle, 1991) as well as relational communication measures (Burgoon, & Hale, 1987). The post test for the male participants included self-reported measures of their partner’s extroversion (as part of completing the BFI for their partner; John, Donahue, & Kentle, 1991) as well as the
relational communication measures (Burgoon, & Hale, 1987). The females’ measures of extroversion served as the measure of identity shift in later analysis. All participants were then thoroughly debriefed and thanked for their participation.

Assessing behavioral confirmation. To assess the extent to which the behavioral confirmation hypothesis occurred in both the males’ and females’ behaviors, the transcripts from the isolated side of the conversation were analyzed by utilizing the Linguistic Inquiry and Word Count v. 2007 program (LIWC; Pennebaker, Francis, & Booth, 2007). Their responses were scanned for actual expressions of introversion or extroversion in the same fashion as was employed in study 1 (again, please see Chapter 5 for a complete review of the LIWC analysis). The scores for both sides of the conversation determined the extent to which males communicated stereotypical language toward their partners and females indeed enacted the behaviors their partners encouraged.

Assessing identity shift. To assess the extent to which there is a significant identity shift observed in the two different conditions, the results from the females’ pre-test and post-test were analyzed for significant differences between the two conditions concerning both the magnitude and direction of change in reports of extroversion. It is expected that significant differences will emerge between the two groups among the extroverted personality traits measured in each condition.

Measures

Inclusion of extroversion in the self. As a control variable in the present research, the connection, or the importance one feels with being identified as being extroverted, was measured in a pre-test. The measure for this importance was adapted from the inclusion of the other in the self measure (Aron, Mashek, & Aron, 2004).
measure is a single item, pictorial measure of closeness with another individual, group, item, or trait (Aron, Aron, & Smollan, 1992; Ortiz, Harwood, & Schumaker, 2011; Schultz, 2001). Each set of diagrams depicted a series of seven different overlapping circles; one circle being labeled the “self” and the other circle being labeled “extroversion”, or another distracting personality trait. The circles with the least overlap represent an individual who did not feel as if that personality trait was an important part of their self where as the circles with the most overlap represent an individual who felt that the personality trait was an extremely important part of their self. This measure has been used in intergroup research as a measure of how important a group membership was to an individual. Research has also begun to use this type of measure for other important aspects to an individual’s self, such as nature (Schultz, 2001). The measure is scored by assigning a numerical value to each picture, with low importance receiving a 1 and high importance, or overlap, receiving a 7 (See Appendix I for all measures for study 2).

**Extroversion.** The measure of extroversion used for this study is included in John, Donahue, and Kentle’s (1991) measure of the big five personality traits. Participants responded to all 44 questions included in the inventory but the sub-scale of extroversion, an 8 item measure, is the measure used to evaluate the hypothesis tests in this study. Responses are measured on a scale of disagree strongly (1) to agree strongly (5) and the extroversion subscale includes items such as “is talkative”, “is full of energy”, and “tends to be quiet” (reverse coded). The Cronbach’s alpha score for the female’s pre-test showed acceptable reliability, $\alpha = 0.87$ as well as the post-test, $\alpha = 0.92$. The Cronbach’s alpha score for the male’s pre-test showed acceptable reliability, $\alpha = 0.89$ as well as the post-test report of their female partner’s extroversion, $\alpha = 0.89$. 

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**Relational Communication.** Burgoon and Hale’s (1987) conceptualization of the relational communication scale focuses on the verbal and nonverbal themes that are enacted throughout an interpersonal interaction. There are three themes that contribute to the measure that are used to define the relationship that was formed in the interaction. In this study each participant responded to this measure to indicate the behaviors that their partner used in the interaction that influenced the overall relationship. The first dimension is immediacy and affection, which includes 9 questions that focus on the extent to which a communication partner is involved in a conversation. Questions in this dimension include “he/she found the conversation stimulating” and “he/she created a sense of distance between us” (reverse coded). The Cronbach’s *α* score showed acceptable reliability for males, *α* = 0.91, and females, *α* = 0.86. The similarity and depth dimension includes 5 questions such as “he/she seemed to desire further communication with me”. The Cronbach’s *α* score showed acceptable reliability for males, *α* = 0.73, and females, *α* = 0.68. The final dimension used in this study is the receptivity and trust dimension consisting of 6 questions that include “he/she was interested in talking with me” and “he/she was honest in communicating with me”. The Cronbach’s *α* score showed acceptable reliability for males, *α* = 0.83, and females, *α* = 0.73.

Correlations between all variables measured are reported in Appendix J.
Chapter 9: Results (Study 2)

Pilot Study

To test the effectiveness of the induction of the extroversion and introversion presented through the photograph and textual statement, a separate group of participants made social orientation judgments about a target that ostensibly provided each photo and textual statement. The pilot study examined whether the photo and statements were significantly different in the accurate direction of being either extroverted or introverted. The pilot study also examined whether each photo and textual statement was not significantly different on levels of social and physical attractiveness.

The measure of extroversion for the pilot study is the same measure of extroversion utilized in study 1 as well as later in study 2. The measure of attractiveness included both the physical and social attractiveness scales from McCroskey and McCain (1974) where responses were recorded on a Likert-type scale ranging from strongly disagree (1) to strongly agree (7). Questions related to social attractiveness included “I think she could be a friend of mine”, “She would be pleasant to be with”, and “We could never establish a personal friendship with each other” (reverse-scored). Questions related to physical attractiveness included “I think she is quite pretty”, “I find her very attractive physically”, and I don’t like the way she looks” (reverse-scored).
All photos and pieces of text were subjected to the pilot study and the final stimuli yielded the following results. Participants \((n = 25)\) rated a target who was textually presented as an extrovert to have significantly higher levels of extroversion \((M = 4.17, SD = 0.62)\) than those participants \((n = 24)\) who rated a target who was textually presented as an introvert \((M = 2.05, SD = 0.39)\), \(t(47) = 14.23, p < 0.05, \eta^2 = 0.81\). There was no significant difference on these targets’ levels of social attraction \((M = 2.94, SD = 0.40; M = 2.96, SD = 0.38)\), \(t(47) = -0.17, p > 0.05\). Participants \((n = 28)\) rated a target who was photographically presented as an extrovert to have significantly higher levels of extroversion \((M = 3.88, SD = 0.56)\) than those participants \((n = 23)\) who rated a target who was textually presented as an introvert \((M = 2.33, SD = 0.43)\), \(t(49) = -10.927, p < 0.05, \eta^2 = 0.71\). There was no significant difference on these targets’ levels of social attraction \((M = 3.64, SD = 0.77; M = 3.62, SD = 0.51)\), \(t(49) = -0.14, p > 0.05\), or physical attraction \((M = 3.57, SD = 0.73; M = 4.03, SD = 0.53)\), \(t(49) = 2.52, p > 0.05\). Thus, the cue induction was successful for both textual statements as well as photographic depictions of extroversion and introversion (see Appendix G for final stimuli).

**Hypothesis Tests**

This study predicted that those females who had male partners that received ostensible extroverted or introverted information about their female partner would experience a greater identity shift in the direction of the information their partner received. This effect would indicate that individuals are influenced by the way conversation partners are cognitively influenced by the information they have about their conversation partner. The hyperpersonal model would predict that this behavior
confirmation process would be a potential explanation for “hyperpersonal” findings in online contexts (Walther, 1996).

Hypothesis 2 predicted that those females who had male partners who received a photo and textual statement depicting themselves as an extrovert will identify significantly more with being extroverted than those females who had male partners who received a photo and textual statement depicting their partner as being an introvert. To test this prediction a change score was calculated by subtracting females’ self-reports of extroversion in the pre-test from their self reports of extroversion in the post-test. Females in the extroverted condition \( M = -0.0316, SD = 0.3929 \) did not experience an identity shift significantly different from females in the introverted condition \( M = 0.0308, SD = 0.371; t(56) = -0.622, p = 0.269 \) (one-tailed). When taking into account the importance females felt the trait of extroversion was to their sense of self \( M = 5.21, SD = 1.51 \), the results of the one way ANOVA still did not support the hypothesis, \( F(2, 57) = 0.204, p = 0.408 \) (one-tailed). Although females indicated that the trait of extroversion was important to their sense of self, as the mean was above the midpoint (above 4 on a 7 point scale), it did not seem to influence the extent to which they experienced an identity shift.

Hypothesis 3 and 4 predicted that behavioral confirmation processes would be a potential causal mechanism contributing to identity shift results in online communication. Although not receiving support that there were significant differences between conditions on females’ identity shift, the testing of hypothesis 3 and 4 will indicate the extent to which males were treating their female partners in an extroverted or introverted manner.
and then if females were confirming their partners’ expectations of their extroversion or introversion through their textual responses.

Identical to the LIWC analysis conducted in study 1, hypotheses 3 and 4 will be looking for significant differences between men who were presented with extroverted information about their female partner and men who were presented with introverted information about their female partner. The same is expected for females who had male partners that received introverted or extroverted information. The linguistic cues that will be examined to determine extroversion include a larger amount of total words as well as the following: more social process terms (words about family, friends, and humans), more positive emotion words (nice, love, and sweet), and more inclusive words (and, with, and include). The linguistic cues expected to arise from those in the introverted category include more negations (no, not, and never), more tentative words (maybe, perhaps, and guess), more exclusives (but, without, and exclude), more causation words (because, effect, and hence), more negative emotion words (words about anxiety, anger, and sadness, including hurt, ugly, worried, crying, and sad), and then also more articles (a, an, and the) (Pennebaker, & King, 1999).

Hypothesis 3 predicted that the textual communication of those females who have male partners who received a photo and textual statement depicting themselves as an extrovert will be measured by LIWC to include significantly more extroverted linguistic markers than those females who have male partners who received an a photo and textual statement depicting their partner as being an introvert. Multivariate analysis of variance compared females’ textual communication with the induction of extroversion/introversion as the fixed factor and the ten variables from the LIWC analysis.
as the dependent variables. Results were not significant, Wilks’ $\lambda = 0.855$, $F(10,47) = 0.797$, $p = 0.316$ (one-tailed). Univariate effects indicated that only two variables obtained significant differences between conditions, however, not in the predicted directions (significant differences observed for negative emotions $F(1,57) = 3.417$, $p = 0.014$ (one-tailed), and causation $F(1,57) = 2.340$, $p = 0.05$ (one-tailed); see Table 10 for full univariate effects). These results have a few potential explanations which will be addressed in the discussion, but overall hypothesis 3 was not supported; women did not significantly differ linguistically depending on the extroverted or introverted information that their partner received about them.

<table>
<thead>
<tr>
<th></th>
<th>Extroversion</th>
<th></th>
<th>Introversion</th>
<th></th>
<th>F</th>
<th>Sig. (one-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extroverted traits</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Word count</td>
<td>130.38</td>
<td>52.48</td>
<td>134.45</td>
<td>69.39</td>
<td>0.06</td>
<td>0.40</td>
</tr>
<tr>
<td>Social process</td>
<td>9.54</td>
<td>2.39</td>
<td>9.27</td>
<td>4.42</td>
<td>0.08</td>
<td>0.39*</td>
</tr>
<tr>
<td>Positive emotion</td>
<td>11.61</td>
<td>4.30</td>
<td>12.14</td>
<td>4.85</td>
<td>0.25</td>
<td>0.31</td>
</tr>
<tr>
<td>Inclusive</td>
<td>3.29</td>
<td>1.95</td>
<td>3.55</td>
<td>1.60</td>
<td>0.31</td>
<td>0.29</td>
</tr>
<tr>
<td>Introverted traits</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negations</td>
<td>1.96</td>
<td>1.42</td>
<td>2.36</td>
<td>1.45</td>
<td>1.17</td>
<td>0.14*</td>
</tr>
<tr>
<td>Negative emotion</td>
<td>1.02</td>
<td>0.86</td>
<td>0.65</td>
<td>0.63</td>
<td>3.42</td>
<td>0.04</td>
</tr>
<tr>
<td>Causation</td>
<td>1.60</td>
<td>0.92</td>
<td>1.20</td>
<td>0.92</td>
<td>2.75</td>
<td>0.05</td>
</tr>
<tr>
<td>Tentative</td>
<td>3.59</td>
<td>2.06</td>
<td>3.64</td>
<td>2.23</td>
<td>0.01</td>
<td>0.47*</td>
</tr>
<tr>
<td>Article</td>
<td>3.49</td>
<td>1.87</td>
<td>3.74</td>
<td>1.80</td>
<td>0.27</td>
<td>0.30*</td>
</tr>
<tr>
<td>Exclusive</td>
<td>3.52</td>
<td>2.08</td>
<td>3.93</td>
<td>2.15</td>
<td>0.53</td>
<td>0.24*</td>
</tr>
</tbody>
</table>

*Table 10: LIWC results for Female’s text in study 2*

Note: * in predicted direction, ** significant in predicted direction at $\alpha = 0.05$

Hypothesis 4 predicted that the textual communication of those males who received a photo and textual statement depicting their partner as an extrovert would be
measured by LIWC to include significantly more extroverted linguistic markers than those males who received a photo and textual statement depicting their partner as an introvert. Multivariate analysis of variance compared males’ textual communication with the induction of extroversion/introversion as the fixed factor and the ten variables from the LIWC analysis as the dependent variables. Results were not significant, Wilks’ $\lambda = 0.771$, $F(10,47) = 1.396$, $p = 0.106$ (one-tailed). Univariate effects indicated that only two variables obtained significant differences between conditions, however, only one of those was in the predicted direction (significant difference in the predicted direction observed for negations $F(1,57) = 2.847$, $p = 0.045$ (one-tailed), and significant differences not in the predicted direction for tentative words $F(1,57) = 3.847$, $p = 0.025$ (one-tailed); see Table 11 for full univariate effects). Overall hypothesis 4 was not supported; men did not significantly differ linguistically depending on the extroverted or introverted information that they received about their conversation partner.

<table>
<thead>
<tr>
<th>Extroverted traits</th>
<th>Extroversion M SD</th>
<th>Introversion M SD</th>
<th>F</th>
<th>Sig. (one-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Word count</td>
<td>167.83 48.73</td>
<td>162.76 51.85</td>
<td>0.15</td>
<td>0.35*</td>
</tr>
<tr>
<td>Social process</td>
<td>10.09 3.39</td>
<td>10.45 2.11</td>
<td>0.22</td>
<td>0.32</td>
</tr>
<tr>
<td>Positive emotion</td>
<td>10.23 2.50</td>
<td>9.58 2.98</td>
<td>0.80</td>
<td>0.19*</td>
</tr>
<tr>
<td>Inclusive</td>
<td>3.69 1.55</td>
<td>3.47 1.67</td>
<td>0.26</td>
<td>0.31*</td>
</tr>
<tr>
<td>Introverted traits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negations</td>
<td>1.16 0.94</td>
<td>1.58 0.94</td>
<td>2.85</td>
<td>0.05**</td>
</tr>
<tr>
<td>Negative emotion</td>
<td>0.47 0.53</td>
<td>0.71 0.85</td>
<td>1.68</td>
<td>0.10*</td>
</tr>
<tr>
<td>Causation</td>
<td>1.44 0.81</td>
<td>1.52 0.85</td>
<td>0.14</td>
<td>0.36*</td>
</tr>
<tr>
<td>Tentative</td>
<td>4.42 1.91</td>
<td>3.51 1.60</td>
<td>3.85</td>
<td>0.03</td>
</tr>
<tr>
<td>Article</td>
<td>4.92 1.57</td>
<td>5.14 1.79</td>
<td>0.24</td>
<td>0.31*</td>
</tr>
<tr>
<td>Exclusive</td>
<td>3.23 1.80</td>
<td>2.99 1.50</td>
<td>0.29</td>
<td>0.30</td>
</tr>
</tbody>
</table>

Table 11: LIWC results for Male’s text in study 2
Note: * in predicted direction, ** significant in predicted direction at $\alpha = 0.05$
Post Hoc Analyses

It is possible that the manipulation was simply not strong enough to induce behavioral confirmation processes. To test the strength of the manipulation an independent samples t-test was run comparing males’ post test reports of their female partners’ level of extroversion. If the manipulation was indeed strong enough there should be significant differences between those males who received extroverted information about their partner and those males who received introverted information about their partner on their reports of their partners’ level of extroversion. The results do indicate that males who received an ostensible extroverted photo and phrase from their conversation partner did rate their female partner as more extroverted after their conversation ($M = 3.707, SD = 0.585$) than those males who received an introverted photo and phrase from their female partner ($M = 3.089, SD = 0.683; t(56) = 3.707, p < 0.001$ (one-tailed)). The manipulation and subsequent conversation with their female partner did indeed influence the male participants’ perceptions of the extroversion of their female conversation partner in the anticipated direction.

The successful impression induction, however, was not translated into the textual expressions of the males and females in the study, as seen in the lack of support received for hypotheses 3 and 4. The question remains then, did this significant difference in the males’ perceptions of their partners’ extroversion influence any other relational communication variables? To answer this question, both male and females’ post test reports of relational communication were subjected to an independent samples t-test. Of the three relational communication themes males did not significantly differ between conditions (immediacy/affect $t(56) = 0.590, p = 0.557$ (two-tailed), similarity/depth $t(56)$...
= 0.457, \( p = 0.649 \) (two-tailed), and receptivity/trust \( t(56) = 0.529, p = 0.599 \) (two-tailed) see table 12). Males did not seem to differ in their feelings on any of the relational communication variables between conditions. Of the three relational communication themes among females, however, the theme of similarity and depth did indicate a significant difference between groups for the similarity and depth dimension \( (t(56) = 2.523, p = 0.014 \) (two-tailed)), but the other two dimensions were not significantly different (immediacy/affect \( t(56) = 1.407, p = 0.165 \) (two-tailed), and receptivity/trust \( t(56) = 1.697, p = 0.095 \) (two-tailed) see table 12). The significance of these post hoc findings as well as the results obtained from the hypothesis tests will be addressed in the following discussion.

<table>
<thead>
<tr>
<th></th>
<th>( F )</th>
<th>( P ) (two-tailed)</th>
<th>Condition</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Females’ reports of males</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Similarity/Depth</td>
<td>6.366</td>
<td>0.014*</td>
<td>Introversion</td>
<td>3.81</td>
<td>0.95</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Extroversion</td>
<td>4.41</td>
<td>0.86</td>
</tr>
<tr>
<td>Receptivity/Trust</td>
<td>2.88</td>
<td>0.095</td>
<td>Introversion</td>
<td>5.13</td>
<td>0.87</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Extroversion</td>
<td>5.41</td>
<td>0.73</td>
</tr>
<tr>
<td>Immediacy/Affect</td>
<td>1.979</td>
<td>0.165</td>
<td>Introversion</td>
<td>4.39</td>
<td>0.72</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Extroversion</td>
<td>4.69</td>
<td>0.50</td>
</tr>
<tr>
<td>Males’ reports of females</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Similarity/Depth</td>
<td>0.209</td>
<td>0.649</td>
<td>Introversion</td>
<td>4.15</td>
<td>0.90</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Extroversion</td>
<td>4.27</td>
<td>1.02</td>
</tr>
<tr>
<td>Receptivity/Trust</td>
<td>0.280</td>
<td>0.599</td>
<td>Introversion</td>
<td>4.58</td>
<td>0.89</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Extroversion</td>
<td>4.73</td>
<td>1.03</td>
</tr>
<tr>
<td>Immediacy/Affect</td>
<td>0.348</td>
<td>0.557</td>
<td>Introversion</td>
<td>5.30</td>
<td>0.73</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Extroversion</td>
<td>5.41</td>
<td>0.81</td>
</tr>
</tbody>
</table>

Table 12: Partner reports of male and female’s relational communication t-test, means, and standard deviations

Note: * significant at \( \alpha = 0.05 \)
Additionally, in failing to observe a significant identity shift due to the manipulation, the researcher decided to go back to the LIWC results and use those lexical indicators as predictors of identity shift, just as was done in study 1. Utilizing the lexical indicators as predictors might be able to observe a shift in the direction of the language used, rather than measuring a shift in the direction of the assigned personality trait.

An ANOVA for the influence of the female participants’ language on identity shift was conducted with the females’ extroversion change score entered as the dependent variable and the ten LIWC lexical indicators from their own writing as independent variables. Data suggested that the overall model was not significant $F(11, 46) = 1.908, p = 0.063$, indicating that the way females communicated throughout their conversation towards their male partner did not significantly influence the extent to which they reported an identity shift (see Table 13).
### ANOVA

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>2.579</td>
<td>11</td>
<td>.234</td>
<td>1.908</td>
<td>.063</td>
</tr>
<tr>
<td>Residual</td>
<td>5.654</td>
<td>46</td>
<td>.123</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>8.233</td>
<td>57</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>(Constant)</td>
<td>.454</td>
<td>.390</td>
</tr>
<tr>
<td>Extro/Intro</td>
<td>.055</td>
<td>.100</td>
</tr>
<tr>
<td>Word count</td>
<td>.001</td>
<td>.001</td>
</tr>
<tr>
<td>Articles</td>
<td>.010</td>
<td>.029</td>
</tr>
<tr>
<td>Negations</td>
<td>-.041</td>
<td>.039</td>
</tr>
<tr>
<td>Social process</td>
<td>-.049</td>
<td>.016</td>
</tr>
<tr>
<td>Positive emotion</td>
<td>.003</td>
<td>.013</td>
</tr>
<tr>
<td>Negative emotion</td>
<td>.072</td>
<td>.066</td>
</tr>
<tr>
<td>Causation</td>
<td>-.096</td>
<td>.057</td>
</tr>
<tr>
<td>Tentative</td>
<td>.015</td>
<td>.025</td>
</tr>
<tr>
<td>Inclusive</td>
<td>-.018</td>
<td>.029</td>
</tr>
<tr>
<td>Exclusives</td>
<td>-.011</td>
<td>.026</td>
</tr>
</tbody>
</table>

*Table 13: ANOVA for the influence of the female participants’ language on identity shift*

Note: Dependent Variable: Females’ extroversion change score
Note: * significant at $\alpha = 0.05$

An ANOVA for the influence of the male participants’ language on females’ identity shift was conducted with the females’ extroversion change score entered as the dependent variable and the ten LIWC lexical indicators from the *males’* writing as independent variables. Data suggested that the overall model was not significant $F(11, 46) = 1.015, p = 0.449$, indicating that the way males communicated throughout their conversation towards their female partner did not significantly influence the extent to which females reported an identity shift (see Table 14).
An ANOVA for the influence of both the female and male participants’ language on females’ identity shift was conducted with the females’ extroversion change score entered as the dependent variable and the ten LIWC lexical indicators from the females’ writing as well as the ten LIWC lexical indicators from the males’ writing as independent variables. Data suggested that the overall model was significant $F(21,36) = 1.983, p =$
0.035, implying that together, both the way females and males communicated throughout their conversation with their partner played a significant role in the extent to which females reported an identity shift (see Table 15).
### ANOVA

<table>
<thead>
<tr>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>4.415</td>
<td>21</td>
<td>.210</td>
<td>1.983</td>
</tr>
<tr>
<td>Residual</td>
<td>3.817</td>
<td>36</td>
<td>.106</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>8.233</td>
<td>57</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Unstandardized Coefficients

<table>
<thead>
<tr>
<th>B</th>
<th>Std. Error</th>
<th>Beta</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>-.113</td>
<td>.599</td>
<td>-.189</td>
<td>.851</td>
</tr>
<tr>
<td>Extro/Intro</td>
<td>-.005</td>
<td>.104</td>
<td>-.006</td>
<td>.963</td>
</tr>
</tbody>
</table>

#### Female

| Word count | .003 | .001 | .473 | 2.729 | .010* |
| Articles | -.002 | .032 | -.010 | -.068 | .946 |
| Negations | -.016 | .040 | -.059 | -.389 | .699 |
| Social process | -.038 | .019 | -.348 | -1.964 | .057 |
| Positive emotion | .016 | .015 | .168 | 1.087 | .284 |
| Negative emotion | .137 | .073 | .278 | 1.867 | .070 |
| Causation | -.054 | .060 | -.132 | -.898 | .375 |
| Tentative | .013 | .028 | .073 | .474 | .638 |
| Inclusive | -.008 | .030 | -.035 | -.254 | .801 |
| Exclusives | -.038 | .030 | -.211 | -1.274 | .211 |

#### Male

| Word count | -.003 | .001 | -.415 | -2.508 | .017* |
| Articles | .043 | .032 | .189 | 1.328 | .193 |
| Negations | .042 | .070 | .107 | .607 | .548 |
| Social process | .028 | .018 | .205 | 1.525 | .136 |
| Positive emotion | -.012 | .022 | -.089 | -.561 | .579 |
| Negative emotion | -.012 | .082 | -.023 | -.149 | .883 |
| Causation | .120 | .071 | .260 | 1.693 | .099 |
| Tentative | -.027 | .033 | -.129 | -.833 | .410 |
| Inclusive | -.004 | .033 | -.016 | -.114 | .910 |
| Exclusives | .015 | .040 | .066 | .376 | .709 |

*Table 15: ANOVA for the influence of both the female and male participants’ language on females’ identity shift*

*Note: Dependent Variable: Females’ extroversion change score*

*Note: * significant at α = 0.05
Chapter 10: Discussion (Study 2)

Study 2 sought to confirm hypotheses that would support the process of behavioral confirmation as a causal mechanism of hyperpersonal communication effects in online interactions. Unfortunately, study 2 did not yield results that would support this hypothesis. Specifically, this study found that there were no significant differences in the magnitude of identity shift among those females who had male conversation partners who received extroverted information about them and those females who had male conversation partners who received introverted information about them (hypothesis 2). Further, there was no support for hypothesis 3 and 4 as there were no significant differences in the textual expressions of males or females in the extroverted and introverted conditions.

If behavioral confirmation is in fact a potential explanatory mechanism that would produce hyperpersonal communication effects, then the influence of the information given to male participants should have resulted in increased expressions of extroversion on the part of males and subsequently an increased expression of extroversion on the part of the females, and the reinforcing feedback from the males should have increased the females’ self-reported level of extroversion. There are two potential explanations for the lack of significant results for this predicted behavioral confirmation process, one being that the trait of extroversion might not have been the strongest type of pre-interaction
expectancy to induce the predicted results and a second being important interaction settings that might have limited the ability to successfully detect significant results. Both explanations will be addressed in the following discussion.

First, the trait of extroversion has not been a trait in the current set of studies that has behaved as predicted. Not only did study 2 find that females did not differ between conditions in their self-reported level of extroversion as predicted from previous research (hypothesis 2), but the study also did not find significant textual differences between conditions on the part of the males or the females which was the expected behavioral confirmation effect (hypotheses 3 and 4). This is intriguing as the study was expected to result in similar magnitudes of identity shift as previous work supporting identity shifts in CMC (Gonzales & Hancock, 2008; Walther et al., 2011). The method employed in study 2 attempted to replicate those studies in keeping with the trait of extroversion and looking at the influence of interpersonal feedback on participants’ reports of extroversion, yet the results did not support the predicted findings. This may be a result that indicates the lack of success of the personality trait of extroversion to produce the desired identity shift, which was a similar concern with the results in study 1.

The trait of extroversion may have been a difficult variable for this study for a few reasons. One contributing factor concerning the influence the extroversion manipulation had on all three hypotheses could have been the stated task the participants were given to accomplish during the conversation. In the present study, half of the dyads received information which indicated that the male participants were speaking to introverted females, yet it could be proposed that their female partners responded so strongly to the task at hand of planning a date that there was no room for the females to
confirm the males’ assumptions of them being introverted during the conversation. Subsequently those male participants responded to the female’s behavior textually affirming their partner’s more extroverted personality. Inherently asking participants to converse in the first place is an extroverted action and on top of that asking them to participate in the very extroverted act of asking for a date and then planning a date, which is again not an expected introverted behavior or conversation, did not allow many opportunities for males or females to expect or express introversion.

Social desirability is also important when looking at impression formation within interactions and relationships. When males were given extroverted information about their female partner the social desirability of planning a date with this extroverted individual might have led them to treat their partner with more affection or attempt to convey more similarity throughout their interaction because he knew that she would help him accomplish the given task. Task attraction was not measured in this study, but in this case it might have been quite high for those males receiving extroverted information about their partner. However, when males were provided with the ostensible introverted information about their female conversation partner feelings of dislike or frustration were triggered, as the prospect of planning a date out on the town with an individual who is “not a big people person” and who is “happiest curled up in [her] room with a good book” might not present itself as the easiest of tasks or the most pleasant of interactions.

This explanation would account for the significant results obtained in females’ reports of similarity and depth between conditions. Females in the extroverted conditions reported feeling more similar to their conversation partner and indicated they experienced a level of depth greater than those females in the introverted conditions. Although males’
linguistic cues did not reflect extroversion in the LIWC analysis, they might have been communicating more positively to the females they expected to be extroverts than those expected to be introverts. Again, the social desirability of being extroverted to the given task at hand (planning a date) might have influenced the way male participants reacted to the information about their partner.

Also, in the case of the present study where participants were given a specific extroverted task to accomplish, males might have interpreted the introverted female’s information as being negative as it would negatively impact the ability to accomplish the given task, so they may have compensated and actually communicated more extroversion so as to get the task accomplished, focusing more on achieving the goal rather than conversing with a new friend or getting to know their partner. Research does initially go against this explanation as there is support that individuals communicating through CMC find that individuals tend to report more social than task orientation in CMC conversations (Walther & Burgoon, 1992). However, as will be discussed later in this section, time might have prevented the CMC conditions to fully get to the social levels of communication reported in that study.

Recent research on behavioral confirmation, which expands on the previous explanation for the non significant findings in the present study, has also provided unique indications of this kind of compensation for negative information, known as behavioral disconfirmation (Tong, & Walther, in press). Although this study came out while the current research was under way, it does inform some of the insignificant findings in the present study and provides unique future directions for research on the hyperpersonal model. Tong and Walther (in press), specifically found evidence that when participants
were provided with negative pre-interaction information there were times where they were inclined to disconfirm that information in order to draw out their partner’s more positive qualities.

In order to address the potential for behavioral disconfirmation in the current study, a short review of this potential alternative explanation is provided here. Behavioral disconfirmation occurs when perceivers who have negative perceptions and expectations of their conversation partner will compensate for that negative expectancy by being overly positive, kind, social, and nice to their conversation partner. Perceivers will respond to that information in kind, thus creating a disconfirmation of the initial pre-interaction information (Ickes, Patterson, Rajecki, & Tanford, 1982). In the present study the lack of support found for hypothesis 3 and 4 might indicate some behavioral disconfirmation findings, where the negative information that his partner was an introvert that he had to plan a date with caused him to act in an overly positive and extroverted way so as to draw more positive and extroverted information out of his female partner, thus resulting in a lack of significant differences in textual expressions of extroversion between conditions.

This explanation might even go so far as to explain the lack of significant findings in hypothesis 2 as well. If behavioral disconfirmation was in fact occurring in the introversion conditions, then we would expect the introversion conditions to mirror the extroversion conditions, causing no significant differences in identity shift. Although this is a very plausible explanation to the current research, behavioral disconfirmation is something the field knows little about and the current research would not have had a theoretical reason to predict this result at this time. In future research, however, as the
field begins to entertain this idea, disconfirmation should be kept in mind as a convincing explanation for online communication patterns.

Looking to other traits that have yielded behavioral confirmation findings is important for future research, as the trait of extroversion may not be the strongest type of pre-interaction expectancy to detect the processes this study was hoping to detect. Van Der Heide and colleagues (2012) found that the trait of attractiveness was successful in yielding a significant behavioral confirmation effect. Their results displayed significant relational communication differences reported from the females in cross-sex dyads where men saw an attractive avatar of their female conversation partner and dyads where men saw an unattractive avatar of their female partner. The support they found for the behavioral confirmation hypothesis was conducted through the trait of attractiveness and the dependent variables of interest were the relational communication measures also utilized in the present study. These results stated that coders blind to condition rated those females whose male partners saw an attractive avatar as communicating more similarity/depth and immediacy/affect throughout their conversation than those females who had male partners viewing an unattractive avatar. Thus, the trait of attraction did in fact influence how females responded to their conversation partner, confirming their partner’s pre-existing positive or negative assumptions they had.

Snyder, Tanke, and Berscheid (1977), in their original study of behavioral confirmation also utilized the trait of attractiveness to confirm their hypothesis. Coders blind to condition found the verbal communication of both men and women to convey more positive communication and liking behaviors which supports their behavioral confirmation hypothesis. As a reminder, the original study was concerned with the
cognitive link between attractiveness and liking which is what would produce the positive behaviors for those males who had an attractive partner and produce more negative behaviors for those males who had an unattractive partner.

Although neither of these studies measured the extent to which the female participants identified more with being attractive and having more attractive qualities, the extent to which attractiveness is linked to positive affect and unattractiveness is linked to negative affect is strong enough to detect in conversations. Identifying variables that have been seen to initiate a strong cognitive link between the trait and positive or negative affect is then very important. Work by Tong and Walther (in press), found that male participants who were presented with a pre-interaction generic positive profile of an ostensible female conversation partner reported significantly higher levels of attraction and sociability in their female partner in a post-test than those males presented with a generic negative profile. The traits of attraction and sociability were strong enough to come through this generic positive or negative pre-interaction induction. The strength of the cognitive connection between positive affect and attractiveness as well as sociability was not only significant enough to be detected by participants and influential in their post-interaction impression and personality assessments, but coders blind to condition rated both the male and female participants as displaying more attractiveness and sociability in their communication. Interestingly in this study the trait of extroversion was the only trait measured post-interaction that failed to yield significant differences in any of the reports, meaning that impressions of extroversion were not significantly influenced by either positive or negative pre-interaction judgments.
This lack of connection between the trait of extroversion and affect was also argued by Walther and colleagues (2009) in explaining the lack of extroversion to produce social desirability judgments one way or the other in forming impressions. In looking for evidence of warranting theory in social impression judgments, this research discussed the potential boundary condition of social desirability. Those impressions with a strong desirability value might be better suited for detecting the warranting effect of impression forming information online. The research found strong evidence that attractiveness had a very strong social desirability connection and produced significant warranting results, yet in the study that they conducted with extroversion, it failed to yield clear warranting effects. The argument that the trait of extroversion might not carry a strong enough social desirability component fits the results found in this study as well.

Other variables that might be of interest in future research in detecting identity shift in online settings would be sociability, independence, and intelligence. Previous work in FTF settings has found that when participants were asked to present themselves as either a very social individual or a very anti-social individual they reported identifying more in line with their assigned trait than the control groups who did not engage in any public presentation (Schlenker, Dlugolecki, & Doherty, 1994). They replicated the same research utilizing a different trait of independence and also found similar self-change as the previous work utilizing “social” as the trait of interest. Although not testing for the textual or verbal markers of social/antisocial or independent/dependent, the significant identity shift makes this a potential variable to detect in textual CMC indicating that if it is strong enough to influence a shift in self-reports of personality it might also be strong enough to be detected textually. Walther, DeAndrea, and Tong (2010) additionally found
that pre-interaction assumptions of an individual’s intelligence resulted in significantly
different post-interaction impressions as well as significant differences in the linguistic
markers utilized throughout both textual and verbal exchanges. The strength of the
cognitive connection between positive or negative affect with all of these alternative
variables would need to be determined, but they do indicate some potential to be included
in future research.

Tong and Walther (in press) present another interesting idea that may be applied
to this work, and that is noting an important distinction between trait and state variables
in impression formation. For example, in their research they manipulated the type of pre-
interaction information to include either enduring personality traits or fleeting emotional
states. Their results show that there was a significant difference between these two
conditions on impression judgments of both attractiveness as well as sociability where the
negative emotion resulted in more positive judgments than the negative personality trait.
So, throughout the conversation the perceiver (participant who was given the ostensible
negative information about their partner) communicated in a way that influenced their
own communication and their partner’s communication to convey more attraction as well
as sociability when the negative information was a state emotion rather than a trait
personality variable. Choosing a more malleable variable, such as an emotion, to
manipulate might have a greater potential to detect hyperpersonal communication effects
as they are more easily altered by singular conversations and experiences.

The question, however, still remains how to understand the extent to which the
results of the current study could be so different from the identity shift results which were
supported in FTF contexts through Schlenker, Dlugolecki, and Doherty’s (1994) work
and in CMC contexts through Gonzales & Hancock (2008) as well as Walther and colleagues’ (2011) research; where both of the CMC contexts utilized extroversion as the dependent variable of interest in CMC settings. The second major explanation for the present study’s findings addresses this question and comes from a unique look at the interaction settings that differ between the present study and past studies examining identity shift in online contexts. The present study does advance past research in that it utilized authentic interpersonal feedback in the form of live synchronous communication with another participant as a conversation partner as opposed to pre-formulated stock feedback that is consistently positive across conditions. The addition of uncontrolled feedback, however, may have influenced the extent to which an identity shift is observable in self-reports. The complexity with which individuals respond and react to unpredictable feedback might have been underestimated in the present work.

Another potential contributing factor to the lack of significance of the present results would be the unique synchronous setting utilized. From post hoc analyses it can be determined that the male participants did in fact perceive different levels of extroversion in their female participants after having a conversation with their female partner. This could have been simply the strength of the manipulation and the judgments of their partner’s extroversion came solely from the photograph and textual information provided to the male participants. However, there also could have been some transmission of extroversion that was not captured by the LIWC analysis. Both hypothesis 3 and 4 failed to yield significant differences between groups in terms of expressed extroversion, yet it could be argued that there is something unique about synchronous online communication specifically that is not captured in traditional LIWC
type analyses. For example, the use of emoticons or the number of turns and length of those turns are not captured in the textual analysis software utilized for this study.

Although the LIWC analysis was used in past research and was able to detect significant differences in online text regarding extroversion (Walther et al., 2011), those pieces of text were in paragraph form utilizing complete sentences and grammar as they were composed in response to formally stated questions. As study 1 showed in this research, there was a more significant difference in the textual markers of those participants in extroversion and introversion conditions than was observed here in study 2. Utilizing synchronous communication in study 2, which is time bound and live, as opposed to an asynchronous communication setting as was used in study 1 where participants had unlimited time in which to construct their responses before posting them to the live blog, might have significantly influenced the type of text utilized between the two studies’ participants and also influence the ability the LIWC analysis had to pick up on traditional extroversion and introversion cues.

This explanation is also supported by observing the significant relational communication differences found among females in the post hoc analysis. As reported by females in a post test report of the relational communication themes they felt throughout their conversation, those females who had male partners which had extroverted assumptions about them, reported more similarity and depth from their conversation partner than those females who had male partners which had introverted assumptions about them. This finding indicates that something was translated through the textual communication of their male conversation partners that the female participants picked up on which might not have been captured through the textual analysis. Looking to the post
hoc analysis where the LIWC results were run as predictors of identity shift it is also
determined that together, male and female word use significant predicted the extent to
which female’s reported experiencing an identity shift. This finding indicates that there is
something about the way these individuals were communicating *together* that
significantly impacted the extent to which females reported experiencing that shift. The
significant influence, however, is not in the predicted extroverted or introverted
directions that match with the condition assignments, which again does not support
hypothesis 3 or 4 that individuals communicated in a uniformly extroverted or introverted
fashion depending on condition. Returning to the idea that the LIWC analysis might not
have picked up on the unique communication utilized in CMC, research does support the
idea that individuals are very capable of adapting to a medium, and have adapted to this
medium in ways that effectively convey relational messages (Walther, 1992); it just may
have occurred in a way that was not detected in the original LIWC analysis.

Another interaction setting issue that must be noted is the time with which
participants were allowed to converse. The interaction time set for this experiment was 10
minutes. Past research has utilized this time frame and has shown to be enough time for
participants to enact behavioral confirmation results (Van Der Heide et al., 2012). The
text in Van Der Heide et al.’s (2012) study was not analyzed with the LIWC software, but
coders blind to condition did code the conversations as significantly different in the
relational communication conveyed via text. However, the time provided for the present
study might also not have been long enough for a significant identity shift finding to be
detected. Looking to the post hoc analysis utilizing the LIWC results as predictors of
identity shift (see table 15), when looking at both the influence of male and female word
usage, it is observed that as females increased their word count, they experienced a significantly greater identity shift. For men, as their word count increased, females experienced a much smaller identity shift. This indicates that the time for males and females to communicate might be a very important concern of the current work. It seems that if females were given more time to communicate, their identity shift might be more pronounced. The extra time would have allowed for them to utilize more extroverted language which might have not had enough time to accumulate in the 10 minute experiment.

Walther (1992) notes, that impressions and levels of relational communication take much longer to transmit over computer-mediated channels than traditional FTF channels and ten minutes might not have been long enough in this case. As none of the other variables from the LIWC analysis were significant predictors of female’s identity shift, the significance of the word count is an important variable to note moving forward in research. Noting the variable of extroversion and the potential confound it has in relation to the assigned task, it may have been a tall order to anticipate an identity shift concerning ones self-reports of extroversion or to result in significant changes in textual displays of extroversion or introversion in a short ten minute conversation.

A final limitation that must be addressed includes a closer look at the manipulation of extroversion and introversion in the photograph and textual phrase tested in the pilot study. Although the photos and text were pre-tested to confirm a significant difference in extroversion, there may be other aspects of the photographs and textual phrases that influenced the way individuals responded to them. For example, the affective dimensions of the photographs may have influenced the valence that was
attached to the individuals in the photographs, influencing in the way male participants communicated with their partner. To be more specific, the introverted photograph may have been interpreted as an individual who was depressed, leading to a stronger interest in “cheering up” their conversation partner, which fits with a behavioral disconfirmation explanation to the research findings. The extroverted photograph may have been interpreted as manic or crazed, leading to a more negative reaction to that individual, again influencing the extent to which extroversion was really the driving variable causing any difference in the communication behaviors of both the male and female participants. Although extroversion was confirmed to be different, there is a definite possibility that there were other significant differences between the photographs which could have led to different communicative responses and different relational communication reports.

Both study 1 and study 2 provide significant insight into the hyperpersonal model and the inflated feedback loop. Together these studies will be evaluated for what they contribute to our understanding of online communication processes in the following general discussion.
Chapter 11: General Discussion

This research began with a look at the hyperpersonal model and a detailed outline of the facets of the model predicted to occur in online or mediated communication that result in hyperpersonal type effects, or effects that are unique to the mediated space. The focus remained on the lack of research in the field with which to explain the hyperpersonal model’s assumption that in CMC interpersonal feedback is inflated because of the selective self-presentation and partner idealization that occurs when communicating in online contexts. The two experiments presented here sought to provide empirical evidence that communication in computer-mediated spaces does result in hyperpersonal effects and is in fact a result of an inflated interpersonal feedback loop.

The two studies in the present research examined the hyperpersonal model in great detail by manipulating channel to determine a direct effect that channel might have on identity shift or internalization of personality traits as well as determine the extent to which behavioral confirmation could be a possible causal mechanism by which online communication is inflated when compared to traditional FTF interactions. The data suggest some conflicting support for the hyperpersonal model but do provide great insight to future research and implications for potential boundary conditions where the model is concerned. Study 1 indicated a significant trend throughout the results indicating that greater identity shifts occur in CMC than in FTF settings. Although failing to
determine significant differences between specific conditions, by changing the research design and potentially choosing a different personality variable for self-expressions, the significant trend may result in significant differences between conditions in future research. Study 2 did not find support for behavioral confirmation processes contributing to inflated feedback in regards to identity shift. Post hoc analyses, however, did indicate that throughout the interaction female participants in the extroverted condition did report a greater sense of similarity and depth with their conversation partners than those female participants in the introverted condition. This result may indicate that there is a small, yet unobservable by the current textual analysis, cognitive connection between extroversion and positive affect that does not exist with introversion that caused the male participants to communicate in a way to make females report the greater similarity and depth. Again, these results did not support the stated hypothesis, yet there is potential for these results to further our understanding of the hyperpersonal model and also inform future research.

Taken together, the studies contribute to our understanding of the hyperpersonal model in that they indicate potential boundary conditions and limitations to the model that have previously not been identified. The most important condition to be noted is the asynchronous or synchronous nature of the communication. One of the major differences between study 1, which received partial support for hyperpersonal inflated feedback effects, and study 2, which received no support for hyperpersonal inflated feedback effects, was the asynchronous or synchronous nature of the communication. For example, in study 1 participants had an unlimited amount of time in which to construct their responses to the questions at hand where as in study 2 the synchronous nature of the communication setting did not allow for an extended amount of time for rumination on a
phrase and individuals had little time to think about the conversation as a whole. Past research has found that coders, blind to condition, did find support for behavioral confirmation processes in similar synchronous online communication (Van Der Heide et al., *in press*), yet the analysis of text was only looking at the coders’ evaluation of the relational communication expressed in both the male and female’s isolated text. Utilizing the LIWC in the case of that past research would be intriguing as the fine tooth comb that the LIWC software uses on text might shed different light on the results. However, utilizing coders blind to condition in the present research might have also allowed for a more authentic assessment of extroverted and introverted content as that would have allowed for a more liberal look at textual cues unique to a synchronous CMC environment.

The type of feedback is also a potential boundary consideration for the hyperpersonal effects discovered in past research. In study 2 there was no indication of an identity shift occurring in the chat setting. Along with the potential difference in synchronicity of the communication when compared to study 1 as well as previous work on the identity shift, attention should be paid to the “live” feedback that was received from the male conversation partners. The “live” nature of the feedback and the continuous feedback received from male participants about their presentations was very different compared to the pre-formed positive feedback of study 1 and previous work on the identity shift. This could be considered a boundary condition, in that hyperpersonal effects might not occur in “live” online conversation, but a more plausible direction would be to advance research by hypothesizing about more authentic types of feedback in future studies. For example, the valence of feedback would be an interesting step to take.
Looking at pre-test results and providing each female participant’s male partner with information about their female partner that confirms her previously reported level of extroversion would give a more controlled sense of what has been used in past research as “positive feedback”. To observe the effects of “negative feedback” in investigating further the inflated feedback effects in CMC the female would have a male partner who received information that disconfirms her previously reported level of extroversion. This would provide a more unique and authentic look into how individuals react to confirming and disconfirming feedback in terms of how much they allow that information to influence their sense of self and reported identity shift.

Another fruitful direction for research would be to utilize longitudinal measures in the assessment of synchronous identity shifts. Again, addressing the complexity of “live” feedback in conversation, the identity shift may have occurred earlier in the conversation in study 2 and then reached some level of homeostasis by the time the end of the conversation occurred and female participants reported their feelings of extroversion in the post test. As an alternative to that hypothesis, it might also be that there simply was not enough time in which to detect any textual differences or an identity shift in the short amount of time provided to participants. The present work was not able to split conversations in half or into more segments in a way that would be similar and consistent across participants, but it would be fruitful to take conversations as they evolve, split them into equal time increments, and compare different time points in the conversation. This would allow us to determine if the first segment of textual analysis indicates more or less feelings of identity shift or linguistic markers consistent or inconsistent with the induction assigned than other segments of the conversation. Without a timestamp, the
present work did not have an equal way of assessing the various conversations in this longitudinal fashion.

Taking a longitudinal approach to this research would allow for a more detailed look at how interpersonal feedback influences future self-presentations and also how one feels about their own sense of identity even throughout a singular conversation. Research has argued that the Internet is a great place for identity experimentation and individuals learn who they are through the experience of presenting the self in different ways and adapting to the feedback received (Bargh, McKenna, & Fitzsimmons, 2002). A longitudinal approach to looking at the effects of interpersonal feedback in online settings would shed light on the extent to which this type of identity experimentation has the effects on internalizations of a self-presentation over the course of a single conversation or even multiple conversations which anecdotal evidence has already argued.

The present research was concerned with finding unique support for the inflated feedback loop as proposed by the hyperpersonal model of CMC. Study 1 did show only partial support for the inflated nature of online communication. This finding should encourage researchers to be cautious when citing the hyperpersonal model when attempting to explain results of online communication. Without strong support to show that online communication happens in a unique and different way compared to FTF communication resulting in inflated or unique behavioral and cognitive results, the hyperpersonal model should not be used as the “end all be all” explanation of online communication effects.

An issue that also must be addressed concerning the hyperpersonal model specifically is the ability the model has to explain inflated feedback across multiple
platforms of self-expressions. The personality trait of extroversion, as has been discussed in the previous discussions of each study, might be a trait that carries little social desirability associations with it and future research would do well to address the potential for other traits to better detect identity shift in a synchronous computer-mediated conversation. However, the lack of support found for an inflated sense of either extroversion or introversion found is a concern for the hyperpersonal model as a whole. Theories are only as strong as they are generalizable and able to explain communication behaviors across situations given what they claim to predict. The hyperpersonal model dictates that there are times where intrapersonal communication occurs in CMC, interpersonal communication occurs in CMC, and then when hyperpersonal communication occurs in CMC. For hyperpersonal communication to occur, the theory states that one must be self-aware, physically separated from their conversation partner, and take place in a strictly limited cues environment. Thus, CMC does not force hyperpersonal communication, it simply allows for hyperpersonal communication. Thus, researchers should be cautious to forward the hyperpersonal model as support for “inflated” findings in CMC as the simple use of the medium does not force those types of communication results.

The lack of support found in these studies for hyperpersonal effects of CMC indicates one of two things. First, it could indicate a lack of sophistication of method, causing the results to be an invalid test of hyperpersonal communication. Second, it could be concluded that hyperpersonal communication is bound by certain types of CMC or when presenting certain personality traits.
If the second, there is great need for caution when using the hyperpersonal model to explain any “inflated” finding in CMC. Most notably, the boundary conditions of hyperpersonal communication need to be refined and explicated. What is the significance of synchronous v. asynchronous communication for identity shift? Do hyperpersonal communication results occur in synchronous communication at all, or is the complexity of synchronous communication, even in a limited cue environment require a more detailed theoretical explanation? What about the type of trait? Is everyone susceptible all the time to identity shift or only when the presentation includes a particularly malleable personality expression? Future theoretical directions include examining these boundary conditions more aggressively and more stringently.

If the first, there is great need for future research to solidify the ways in which the inflated nature of online communication might manifest itself in reports of identity shift. The lack of findings in this research is concerning, as they do not fit with previous research when the method of research really was identically replicated. The uniform methods used across studies should result in similar findings, yet in the case of the present research, it has not. Attention to the variables that could potentially explain the lack of significant findings, as has been done in the discussion of the current work, will be important when moving forward to determine the ways in which hyperpersonal communication can be methodically tested.

**Alternative Explanation**

The present study addressed online communication as being largely influenced by the four facets of the hyperpersonal model of CMC. The results observed in this study, however, also support the effects of computer-mediated interactions on an individual’s
self-perception processes. Explained by the hyperpersonal model, these effects support the idea that due to selective self-presentation, optimized interpretation, channel selection, as well as an inflated feedback loop, online communication results in magnified or “hyperpersonal” communication; causing inflated reactions to feedback which lead an individual to internalize the presentation they provided more so than they would in a traditional FTF exchange. There is, however, a competing explanation which must be addressed. Self-perception theory speaks to the idea that an individual learns about him or herself by observing their behavior as a third party observer might (Bem, 1967). Self-perception theory additionally assumes that the self is malleable and the understanding of their self is a collection of their observations of their own behaviors (Arkin & Baumgardner, 1986). The ability one has to observe one’s own behavior for an extended period of time in a computer-mediated setting supports this theoretical perspective. When individuals observe their behavior, they think about what attitudes must have been present to result in that behavior and thus changing or enhancing their attitude to reflect that.

Self-perception has recently been investigated in CMC research seeking to understand how individuals accomplish relational goals online (Van Der Heide et al., 2013). Although there was significant evidence for self-perception processes guiding attitudes through observation of their online behavior, it was not the visual persistence of text that caused the significant effect. The visual persistence of text in online spaces would be the most logical explanation for stronger self-perception effects in CMC compared to FTF communication. Being able to see one’s actions in a textually permanent way would have made the process of self-perception stronger; but that was not
the case. Although no cause was determined in that study for the lack of self-perception findings, a self-perception theory explanation of the current study’s results, while it cannot be dismissed, it is less likely to be the main contributing cause of any observed effects.

A notable limitation of the present study to more clearly address the potential for self-perception theory to be a better explanation of online behavior was the lack of a measure in the CMC conditions to detect the amount of time an individual spent drafting their message or the extent to which an individual edited their responses; in other words, to what extent were participants self-aware or self-reflexive throughout their conversation? Even though visual persistence did not seem to be a significant factor in self-perception processes in past research (Van Der Heide et al., 2013) there are a number of other variables that would have been helpful to detect the self-perception processes across conditions. In online environments past research would state that individuals with certain goals will engage in greater editing practices online (Walther, 2007). Greater editing practices would indicate a greater involvement with responses, creating more attention to the behavior, and thus being more influenced by those behaviors in future expressions of their self-perception than others who did not engage in editing practices.

Van Der Heide and colleagues (2013), however, also found that the lack of textual persistence resulted in a greater attitude change as the participants potentially repeated arguments for their position as well as rehearsed their arguments over in their heads as they were not able to see them in their textual form on the screen. This result would indicate that self-perception, or seeing your behavior and believing that is who you are or what your attitude is about something, is not a possible explanation for the attitude
change observed in the results. In future research, however, FTF conditions as well as CMC conditions utilizing a measure to capture the time that was spent actually writing or in the FTF conditions, thinking about and actively speaking their responses, would be important. Although this measure would have given more insight into the self-perception effect, it would not have automatically dismissed hyperpersonal findings either.

In fact, other support against a self-perception explanation comes from Van Der Heide and colleagues’ (2012) research. The study was initially conducted as a counter to previous work done on the proteus effect, which states that intrapersonal processes (like self-perception) are the driving force in individual’s responses to virtual self-representations and online behavior (Yee & Bailenson, 2007). Van Der Heide and colleagues (2012) found that this was not the case when the method they employed to collect data actually allowed for interpersonal influences, which the proteus effect studies did not. Results of this study did not provide any significant protean results when the interpersonal processes were allowed to freely interact with any intrapersonal effect. Although it is possible that intrapersonal processes play a part in behavior choices online, the interpersonal processes change the impact of that intrapersonal perception.

**Conclusion**

Before concluding, the focus must return to the question that should concern all research done in the social sciences; why does this matter? The answer to this question is three fold. First, it is a theoretically valuable endeavor to continue to understand the hyperpersonal model due to the use of this model to explain so much of what occurs online. Walther’s hyperpersonal article (1996) has been cited over 500 times over the past sixteen years and has been the basis for numerous claims and assumptions concerning
interpersonal interactions in computer-mediated spaces. Without really explicating or supporting the proposition that feedback can potentially be inflated and have effects that exceed the effects of interpersonal feedback in traditional FTF settings, the explanation is used in concluding discussions and used as an explanatory mechanism far too frequently. Empirical research must show support for this mechanism in order for the hyperpersonal model to continue to be as influential to the CMC research community as it has already. Research supporting the idea of an identity shift online, such as the present studies, is a good start to showing support for this strength of interpersonal feedback in online settings, however there is much more to be done in order to find more decisively confirming support for these hyperpersonal effects.

Second, it is important to research interpersonal feedback online as it has been seen to be at least a contributing factor to real psychological results in individuals of many different ages and in many different stages of life (Joinson, 2001; McKenna, & Bargh, 1998; Valkenberg, Peter, & Schouten, 2006). Although this is a supported statement in the FTF literature, as more and more individuals flock to the computer for their interpersonal interactions and to share part of themselves with the world, knowing how these conversations might create even more extreme psychological results than FTF is vitally important. Influencing self-esteem, well-being, self-disclosures, as well as feelings of social support for those who feel they cannot express a part of their identity to their FTF community, interpersonal feedback online has strong ties to our feelings of belonging, acceptance, and self-worth. Knowing more precisely how interpersonal feedback operates in an extremely populated interpersonal space such as the Internet,
where control is utilized to achieve certain impressions, is important for humanity in general.

Finally, research should concern itself with advancing the field of CMC as a whole. Both practically and theoretically speaking the field needs to strengthen its’ assumptions and propositions concerning this field of communication. The most important theoretical work that needs to be accomplished in CMC is to define boundary conditions for specific communication phenomena (Walther, 2009). Challenges to accomplish this lie in a rigorous examination of the assumptions outlined by existing theories; no longer should researchers be citing theoretical models or theories in general without making sure that research concerning the model or theory has supported the claim that they are forwarding. Sitting back and letting the theory do the work is not a sign of a progressing field.

The present research contributes to the theoretical development of the field of CMC by pushing the boundaries and explanatory power of the hyperpersonal model by advancing a very active line of existing research concerning inflated interpersonal feedback with a focus on both the medium as well as the causal mechanism which have the potential to explain hyperpersonal communication in CMC. Although this research provides some support for the inflated nature of interpersonal communication in CMC, there is still significant work to be done. The model is not yet finished and should continue to be explored as the empirical support of this model has large consequences for the ways in which the communication field and the world in general look at online interactions.
References


Appendix A: Questions Provided for Participants to Answer (study 1)

Four questions for each participant to answer within the bounds of their assigned condition

1. What did some of your high school friendships look like and what you did for fun with those friends?
2. What types of activities do you do with your family?
3. What extracurricular activities are you involved in?
4. What is the most important thing that you have learned in college so far?
Appendix B: Screen Shots of Blog Interface (study 1)

Screen shot of the blog atmosphere when participants are typing their responses.
Screen shot of the blog atmosphere when participants are receiving feedback.
Appendix C: Positive Feedback Statements (study 1)

The following is the exact wording for the feedback that will be provided to all participants in both the CMC and FTF conditions.

Extroverted condition
“Those are really nice responses. I’m really sure I got this one right – whew! Okay, here goes. I think you are a really dynamic person. You would be really active when you are with people. The way you communicate shows me how emotionally demonstrative you are, like people don’t have to guess how you feel about things. People know you as being pretty lively.”

Introverted condition
“Those are really nice responses. I’m really sure I got this one right – whew! Okay, here goes. I think you are a really withdrawn person. You would be really passive when you are with people. The way you communicate shows me how emotionally reserved you are, like people have to guess how you feel about things. People know you as being pretty timid.”
Appendix D: Measures (study 1)

Big Five Inventory (BFI; John, Donahue, & Kentle, 1991; John, Naumann, & Soto, 2008)

DIRECTIONS: Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who *likes to spend time with others*? Please write a number next to each statement to indicate the extent to which **you agree or disagree with that statement**.

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>_____</td>
<td>Is talkative</td>
<td>24.</td>
<td>_____</td>
<td>Tends to be lazy</td>
</tr>
<tr>
<td>2.</td>
<td>_____</td>
<td>Tends to find fault with others</td>
<td>25.</td>
<td>_____</td>
<td>Is emotionally stable, not easily upset</td>
</tr>
<tr>
<td>3.</td>
<td>_____</td>
<td>Does a thorough job</td>
<td>26.</td>
<td>_____</td>
<td>Is inventive</td>
</tr>
<tr>
<td>4.</td>
<td>_____</td>
<td>Is depressed, blue</td>
<td>27.</td>
<td>_____</td>
<td>Has an assertive personality</td>
</tr>
<tr>
<td>5.</td>
<td>_____</td>
<td>Is original, comes up with new ideas</td>
<td>28.</td>
<td>_____</td>
<td>Can be cold and aloof</td>
</tr>
<tr>
<td>6.</td>
<td>_____</td>
<td>Is reserved</td>
<td>29.</td>
<td>_____</td>
<td>Perseveres until the task is finished</td>
</tr>
<tr>
<td>7.</td>
<td>_____</td>
<td>Is helpful and unselfish with others</td>
<td>30.</td>
<td>_____</td>
<td>Can be moody</td>
</tr>
<tr>
<td>8.</td>
<td>_____</td>
<td>Can be somewhat careless</td>
<td>31.</td>
<td>_____</td>
<td>Values artistic, aesthetic experiences</td>
</tr>
<tr>
<td>9.</td>
<td>_____</td>
<td>Is relaxed, handles stress well.</td>
<td>32.</td>
<td>_____</td>
<td>Is sometimes shy, inhibited</td>
</tr>
<tr>
<td>10.</td>
<td>_____</td>
<td>Is curious about many different things</td>
<td>33.</td>
<td>_____</td>
<td>Is considerate and kind to almost everyone</td>
</tr>
<tr>
<td>11.</td>
<td>_____</td>
<td>Is full of energy</td>
<td>34.</td>
<td>_____</td>
<td>Does things efficiently</td>
</tr>
<tr>
<td>12.</td>
<td>_____</td>
<td>Starts quarrels with others</td>
<td>35.</td>
<td>_____</td>
<td>Remains calm in tense situations</td>
</tr>
<tr>
<td>13.</td>
<td>_____</td>
<td>Is a reliable worker</td>
<td>36.</td>
<td>_____</td>
<td>Prefers work that is routine</td>
</tr>
<tr>
<td>14.</td>
<td>_____</td>
<td>Can be tense</td>
<td>37.</td>
<td>_____</td>
<td>Is outgoing, sociable</td>
</tr>
</tbody>
</table>
15. _____ Is sometimes rude to others
16. _____ Is ingenious, a deep thinker
17. _____ Generates a lot of enthusiasm
18. _____ Has a forgiving nature
19. _____ Tends to be disorganized
20. _____ Worries a lot
21. _____ Has an active imagination
22. _____ Tends to be quiet
23. _____ Is generally trusting

38. _____ Makes plans and follows through with them
39. _____ Gets nervous easily
40. _____ Likes to reflect, play with ideas
41. _____ Has few artistic interests
42. _____ Likes to cooperate with others
43. _____ Is easily distracted
44. _____ Is sophisticated in art, music, or literature

Inclusion of Other in the Self (IOS) (Aron et al., 1992)
Please choose the picture below that best represents the importance of the stated personality trait to your personal sense of self. Circles that overlap more indicate that the stated personality trait is of much greater importance to you than circles that overlap less.

[Diagram of overlapping circles labeled Self and Extroversion]

Traits included in measure: Extroversion, Agreeableness, Neuroticism, Openness, and Conscientiousness
Measures of Self-Monitoring (Snyder, 1974).

DIRECTIONS: The statements below concern your personal reactions to a number of different situations. No two statements are exactly alike, so consider each statement carefully before answering. IF a statement is TRUE or MOSTLY TRUE as applied to you, circle the "T" next to the question. If a statement is FALSE or NOT USUALLY TRUE as applied to you, circle the "F" next to the question.

(T) (F) 1. I find it hard to imitate the behavior of other people.
(T) (F) 2. My behavior is usually an expression of my true inner feelings, attitudes, and beliefs.
(T) (F) 3. At parties and social gatherings, I do not attempt to do or say things that others will like.
(T) (F) 4. I can only argue for ideas which I already believe.
(T) (F) 5. I can make impromptu speeches even on topics about which I have almost no information.
(T) (F) 6. I guess I put on a show to impress or entertain people.
(T) (F) 7. When I am uncertain how to act in a social situation, I look to the behavior of others for cues.
(T) (F) 8. I would probably make a good actor.
(T) (F) 9. I rarely seek the advice of my friends to choose movies, books, or music.
(T) (F) 10. I sometimes appear to others to be experiencing deeper emotions than I actually am.
(T) (F) 11. I laugh more when I watch a comedy with others than when alone.
(T) (F) 12. In groups of people, I am rarely the center of attention.
(T) (F) 13. In different situations and with different people, I often act like very different persons.
(T) (F) 14. I am not particularly good at making other people like me.
(T) (F) 15. Even if I am not enjoying myself, I often pretend to be having a good time.
(T) (F) 16. I'm not always the person I appear to be.
(T) (F) 17. I would not change my opinions (or the way I do things) in order to please someone else or win their favor.
(T) (F) 18. I have considered being an entertainer.
(T) (F) 19. In order to get along and be liked, I tend to be what people expect me to be rather than anything else.
(T) (F) 20. I have never been good at games like charades or improvisational acting.
(T) (F) 21. I have trouble changing my behavior to suit different people and different situations.
(T) (F) 22. At a party, I let others keep the jokes and stories going.
(T) (F) 23. I feel a bit awkward in company and do not show up quite as well as I should.
(T) (F) 24. I can look anyone in the eye and tell a lie with a straight face (if for a right end).
(T) (F) 25. I may deceive people by being friendly when I really dislike them.
Appendix E: Correlation chart of dependent and independent variables (study 1)

<table>
<thead>
<tr>
<th></th>
<th>IOS extroversion – pre test</th>
<th>Extroversion – pre test</th>
<th>IOS extroversion – post test</th>
<th>Extroversion – post test</th>
<th>Self-monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>IOS extroversion – pre test</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extroversion – pre test</td>
<td>.627**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IOS extroversion – post test</td>
<td>.771**</td>
<td>.666**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extroversion – post test</td>
<td>.626**</td>
<td>.931**</td>
<td>.703**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Self-monitoring</td>
<td>.212*</td>
<td>.242**</td>
<td>.272**</td>
<td>.252**</td>
<td>1</td>
</tr>
</tbody>
</table>

*Correlation is significant at the 0.05 level (2-tailed).
**Correlation is significant at the 0.01 level (2-tailed).
Appendix F: Battery of Stimuli to be Pre-tested (study 2)

Extroverted photos

![Extroverted photo](image1)

![Extroverted photo](image2)

Extroverted statements

- I am a very sociable person, I’m happiest hanging out with a big group of my friends.
- I like to seek out excitement in my life and things are always exciting the more people you can have join in the excitement.
- I’m the kind of person who gains energy from other people; someone who thinks on their feet and enjoys a big social scene.
- I like being surrounded by a lot of people; having more acquaintances means having more friends.
Introverted photos

Introverted statements

- I’m not a big people person, I’m happiest curled up in my room with a good book.
- Sometimes going out and being social is draining - I don't have a problem with going out; I just want to stay at home and read sometimes.
- I’m the kind of person who gains energy from alone time; someone who thinks before they speak.
- I love the few friends I have; I don’t feel the need to have dozens of acquaintances.
Appendix G: Final Stimuli (study 2)

About Me: I’m not a big people person, I’m happiest curled up in my room with a good book

About Me: I like to seek out excitement in my life and things are always exciting the more people you can have join in the excitement.
Appendix H: Conversation Task (study 2)

Plan a date to go on together here in the city of Columbus. There are some suggestions here to get you started, but you should feel free to come up with other ideas or options.

Think about what makes a good first date and any specific activities that you would enjoy doing. Perhaps think about differences in what makes a good first date for men and for women or what you have done in the past that has made for a good first date.

Your plan should include the following items:

1. A time to meet
   a. Is it going to be an evening date? Saturday afternoon/evening? During the week or on the weekend?
2. Transportation arrangements
   a. Where will you meet? Will someone pick the other up at their house/dorm/apartment? Will you meet somewhere and then drive together?
3. Pre-dinner activity
   a. Mini-golf? Sledding? Sporting event?
4. Dinner location
5. Movie to see
6. Dessert location
Appendix I: Measures (study 2)

Big Five Inventory (BFI; John, Donahue, & Kentle, 1991; John, Naumann, & Soto, 2008)

DIRECTIONS: Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who likes to spend time with others? Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement.

1. _____ Is talkative
2. _____ Tends to find fault with others
3. _____ Does a thorough job
4. _____ Is depressed, blue
5. _____ Is original, comes up with new ideas
6. _____ Is reserved
7. _____ Is helpful and unselfish with others
8. _____ Can be somewhat careless
9. _____ Is relaxed, handles stress well.
10. _____ Is curious about many different things
11. _____ Is full of energy
12. _____ Starts quarrels with others
13. _____ Is a reliable worker
14. _____ Can be tense
15. _____ Tends to be lazy
16. _____ Is emotionally stable, not easily upset
17. _____ Is inventive
18. _____ Has an assertive personality
19. _____ Can be cold and aloof
20. _____ Perseveres until the task is finished
21. _____ Can be moody
22. _____ Values artistic, aesthetic experiences
23. _____ Is sometimes shy, inhibited
24. _____ Is considerate and kind to almost everyone
25. _____ Does things efficiently
26. _____ Remains calm in tense situations
27. _____ Prefers work that is routine
28. _____ Is outgoing, sociable
Inclusion of Other in the Self (IOS) (Aron et al., 1992)
Please choose the picture below that best represents the importance of the stated personality trait to your personal sense of self. Circles that overlap more indicate that the stated personality trait is of much greater importance to you than circles that overlap less.

Traits included in measure: Extroversion, Agreeableness, Neuroticism, Openness, and Conscientiousness
Relational Communication Scale Measures of Intimacy (Burgoon, & Hale, 1987). The alpha reliabilities of these measures range between .42 and .88.

Directions: Below is a series of statements about your conversation partner. For each one, please circle a number from 1 to 7, depending on the degree to which you agree or disagree with the statement. Indicate the degree to which you agree (7) or disagree (1) with each of the following statements.

1. He/she was intensely involved in our conversation.
2. He/she did not want a deeper relationship between us.
3. He/she was not attracted to me.
4. He/she found the conversation stimulating.
5. He/she communicated coldness rather than warmth.
6. He/she created a sense of distance between us.
7. He/she acted bored by our conversation.
8. He/she was interested in talking to me.
9. He/she showed enthusiasm while talking to me.
10. He/she made me feel he/she was similar to me.
11. He/she tried to move the conversation to a deeper level.
12. He/she acted like we were food friends.
13. He/she seemed to desire further communication with me.
14. He/she seemed to care if I liked him/her.
15. He/she was sincere.
16. He/she was interested in talking with me.
17. He/she wanted me to trust him/her.
18. He/she was willing to listen to me.
19. He/she was open to my ideas.
20. He/she was honest in communicating with me.

(Bold questions will be reverse coded)
For study 2 pre-test
Measures of Attraction: Physical and social attraction (McCroskey & McCain, 1974)

Directions: Please answer these questions about the photograph depicted below. (*Stimuli will be provided in print form*) Indicate the degree to which you agree (5) or disagree (-5) with each of the following statements.

-5  -4  -3  -2  -1  0  1  2  3  4  5
Strongly Disagree Neutral Agree Strongly Agree
Disagree

_____ 1. I think he (she) could be a friend of mine.
_____ 2. He/she is somewhat ugly.
_____ 3. It would be difficult to meet and talk with him (her).
_____ 4. I find him (her) very attractive physically.
_____ 5. He (she) just wouldn't fit into my circle of friends.
_____ 6. He/she is not very good looking.
_____ 7. I think he (she) is quite handsome (pretty).
_____ 8. I would like to have a friendly chat with her/him.
_____ 9. He (she) is very sexy looking.
_____10. We could never establish a personal friendship with each other.
_____11. I don't like the way he (she) looks.
_____12. He/she would be pleasant to be with.
Appendix J: Correlation charts of dependent and independent variables (study 2)

<table>
<thead>
<tr>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male’s IOS extroversion – pre test</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>Male’s IOS extroversion – pre test</td>
</tr>
</tbody>
</table>

Table 17: Correlations of Male’s independent and dependent variables (study 2)

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
### Correlations

<table>
<thead>
<tr>
<th></th>
<th>Female’s IOS extroversion – pre test</th>
<th>Female’s extroversion – pre test</th>
<th>Female’s extroversion – post test</th>
<th>Female’s Immediacy /affect – post test</th>
<th>Female’s similarity /depth – post test</th>
<th>Female’s receptivity /trust – post test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female’s IOS extroversion – pre test</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female’s extroversion – pre test</td>
<td>.678 **</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female’s extroversion – post test</td>
<td>.611 **</td>
<td>.866 **</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female’s Immediacy /affect – post test</td>
<td>.100</td>
<td>.154</td>
<td>.157</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female’s similarity /depth – post test</td>
<td>.193</td>
<td>.244</td>
<td>.292 *</td>
<td>.660 **</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Female’s receptivity /trust – post test</td>
<td>.131</td>
<td>.121</td>
<td>.117</td>
<td>.723 **</td>
<td>.551 **</td>
<td>1</td>
</tr>
</tbody>
</table>

*Table 18: Correlations of Female’s independent and dependent variables (study 2)*

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).