# The Effects of Instant Messenger on Social Perceptions

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# Abstract

Computer-mediated Communication (CMC) plays an increasingly large role in our everyday communication. CMC is different from face-to-face (FTF) communication in that sensory channels that are open in FTF communication such as sight, sound, and smell are typically absent. Additionally, when engaging in CMC, users are more open about personal details, discover it easier to find a partner with similar interests or motivations, and experience less negative affect as a result of their conversation. Although previous research has begun to shed light upon the implications of this attenuated form of communication, little to no research has examined the effects of instant messenger on social perception, nor has it controlled for the potentially moderating variables of loneliness, anxiety, or depression. Lonely individuals, for example, have exhibited negative metaperceptions (impressions of how one's conversation partner views oneself) following face-to-face interactions. The present study hypothesized that social perceptions of participants, when placed in dyads, would be more positive after CMC than after FTF communication, and that levels of loneliness, anxiety, and depression would moderate this effect. Results showed a significant difference in social perceptions between conditions that was opposite to the predicted effect. Specifically, social perceptions were more positively-valenced after FTF communication rather than after CMC. Issues regarding the methodology, alternative interpretations of the factors involved in CMC, and the role of object-relations theory are discussed.

# Introduction

It's a weird thing we do here, to write a thesis in what is essentially 6 months. Read, critique, hypothesize, test. . .the process seems so straight-forward, yet it is so daunting to the generations of Reedies who have encountered it before. The little things seem to be what make the difference in the end. For example, this piece of cheesecake I'm eating right now. Its making all the difference in my writing goals for today. It was dropped off by a recent Reed psychology graduate and good friend. He noted on the container, "Kick that 'book report's ass!". Of course, I've read a lot of books this year, mainly about all the things that are wrong with society, but comparing a Reed thesis year and a 'book report' represents such a gross paradox that 'a dark chasm descending into the deepest recesses of time' only begins to express the disconnect. At least he had the decency to put it in quotes.

Of course, I appreciate the joke in the humor it was intended, but the instance calls to mind a very important question. If this is the furthest pedagogical tool from a book report you can get, what *is* it? Why do aspiring seniors dread immersing themselves in such an intense project, single-mindedly stretching their limits way beyond the goodwill of their Hum 110 conference, secretly enjoying every minute of it? We live in a scientific system of negation, using the antithesis of phenomena as proof of invalidity, a system where 'proof' comes with all sorts of caveats. It's easy for seniors to complain about what they can't do on a given weekend (with one notable exception) than commit to what will get done within the confines of the Hauser Fundome in that same period. I'm certainly no stranger to that crowd.

Yet when our hours of blissful engagement in our thesis become painfully, dreadfully long hours with laundry, and cooking, and work (for money), and FUN that needs to get done on the side, the fuzzy line between book report and thesis begins to darken. With each stroke we are committing to an explanation of god-knows-what intellectual/idealistic questions that we not only have to defend but are guilty of bringing to light in the first place. What were we thinking? Why weren't we paying attention in Intro. lecture!

Soon I'll be sitting across the table from not just professors, but colleagues who will hopefully help me understand just what I've been doing this whole year. The stress and heartache and failing relationships and ill nutrition (no one even talks about sleep deprivation anymore) and all for what? Certainly it's all worth more than a mere book report. Certainly, at the end of the day, I can look back and say "See that pile of leather, paper, glue? See that Reed College Seal missing the words 'Atheism, Communism, and Free Love (or Pie)'? That represents my senior year, that is why I'm easily amused, pause awkwardly in the middle of sentences, and have +2 power on my reading glasses. THAT is why I graduated from Reed College, and loved every second of it.

In the end, the paradox holds true. To some, this is just a book report, and years down the road, I may see it as such. But in the thick of things, from my perspective down here in the foxhole, this document is much more than a mere summary of my research. It's passion, motivation, fervor, a tribute to my aching body and bygone libido, and a record of impassioned conversations. This is my thesis in the here and now and I wouldn't have it any other way.

# Chapter 1

# The New "Digital" Relationship

Recently, Sherry Turkle of MIT has called for a reevaluation of our current theoretical models to account for our "increasingly intimate relations with our machines" (Turkle, 2002). That is, as technology progresses from the dumb calculator to talking robots with whom we can interact in meaningful ways, the core nature of the people with whom we relate in the world around us may be changing. With the rise of artificial intelligence, it is conceivable that the objects satisfying our relational desires can be "responsive" machines. Aspects of satisfying relationships with people promise to be gradually replaced by technology, and not just robots. Computers, automatic breadmakers, and media all are guilty of making our lives easier, and with less "inconvenient" emotional side effects than relations with people. In short, these new technologies can become replacements, indeed improvements upon, our prior disintegrated relationships. In order for us to intelligently walk into this next century, it is important that we pause to ruminate on the implications of all our new technical gadgets, like the man in the quote below. Now if only I could get my spell checker to find puns.

> "If you look at it from the outside, it looks like I spend most of my time alone. But that is not really true. First of all, there are the other hackers. We eat together a lot, we talk about the system. And then I spend a lot of time, I mean *a lot of time*, on electronic mail. Sometimes I think that electronic mail is more of an addiction for me than the computer is. . . .I would say that

> I have a perfect interface with the machine. . .perfect for me. I feel totally telepathic with the people I am sending mail to. I am glad I don't have to see them face to face. I wouldn't be as personal about myself. And the telepathy with the computer–well, I certainly don't think of it as a person there, but that doesn't mean that I don't *feel* it as a person there. Particularly since I have personalized my interface with the system to suit myself. So it's like being with another person, but not a strange person. Someone who knows just how I like things done." (Turkle, 1984, p. 211)

With the advent of computers, the ways in which individuals related to other people fundamentally changed. Everyday a new technological innovation enables us to interact, document, and share our experience in new and more sophisticated ways. Chat rooms and discussion boards were some of the first of this new wave of communication technology. Email and instant messenger soon followed with drastic effects. Today a conversation can start over email, continue in person, and be followed up by instant messenger. We can order almost anything online and have it delivered to our door. We can listen to the radio and submit questions to the show's host by email. After sending an instant message to my friend saying that I am about to leave for the party, I can find her later using the GPS on my phone, and we can send pictures of our good times together to our hometown friends across the country.

In these and many other cases, the temporal functionality of mediated communication has shifted into a higher gear[1]. Email memos sent out by a manager in the morning are expected to be enacted by the afternoon. Even "attendance" can be taken by checking who is signed in to their online messenger accounts. These days, a large proportion of communication is translated into computational bits zooming around as energy waves until they find a home in another hard drive, many years faster than even the most determined pratepie can fly. Words are cheaper now than even a couple years ago. It is important to pause and think through the ramifications these developments can have on our lives.

The goal of these technologies is not necessarily to connect us more quickly, but to provide more *ways* for us to connect and relate to the objects of our experience. Instant messenger is not instant per se, but continues at a pace one dictates. One can respond to email in a day or a week. The difference lies in our newfound ease at accessing one another and the chosen methods by which to interact. As people begin to incorporate these technologies into their everyday lives, the extent to which their non-electronic relationships are affected is unclear. With millions of internet users all over the world, a statistic

[1]Many researchers in the field use "synchronous" and "asynchronous" to describe these different types of communication, however, I felt these terms to be severely limiting in the description of how these technologies are actually used and can be used. So I purposely avoid using these terms in this thesis, although the reader should note that instant messenger is usually termed synchronous form of communication.

that increases every day, computers will only become more integrated into our lives. New technologies make information more accessible and thus the intelligent trafficking of it more necessary.

The above accounting of the hacker's intimate relationship with his machine is fascinating in this regard. From talking about the computer with others, to using it to actually converse with others, the machine has ingrained itself as an important influence over how this man thinks, feels, and interacts with others in a daily context. The computer facilitates exposure to people that he might not have interacted with, and allows him to take greater risks (i.e., talking more personally) than he would normally be comfortable with in a face-to-face interaction.

The "addictive" power of communicating through a computer stems from the reduced exposure to actual people inherent in its use. The computer fulfills some of this man's various relational needs while at the same time reducing amount of information exchanged from what is typical of close friendships. In the end, he goes so far as to say that being with the machine feels like being with another person, although he knows cognitively that it is not.

From the above account we can only begin to speculate as to why people relate to their computers as though they were human, even when their mechanistic qualities are apparent. Whitty and Carr (2006b) suggest that the amount of personal information on the computer may contribute to it feeling like an extension of the self. In the past decade, new research has looked specifically at computers and how we communicate with them and through them. Some critics have warned of the potential for psychopathology resulting from internet use (Griffiths, 2000; Kraut et al., 1998) while others have lauded the benefits of a wider social network it can provide (Grohol, 1999). After interviewing many computer users of different backgrounds, Turkle summarizes their basic motivations for being alone with a computer as the promise of perfect or precise output, with no demands of friendship while still having "companionship", and the constant availability of interaction partners (Turkle, 2002).

This relationship stems not from what's inside the computer, but from what's inside us and interacting with the computer as we might interact with another human. Addressing the issue from the perspective of object-relations theory, Greenberg and Mitchell (1983) postulate that "people react to and interact with not only an actual other but also an internal other, a psychic representation of a person which in itself has the power to influence both the individual's affective states and his overt behavioral reactions" (p. 10). In addition to the live person that we interact with externally, we also interact with another, internal representation of our observations, judgments, and feelings of that person. This

internal representation essentially *is* the individual to us when the actual referent is not present. Object-relations theory provides a useful model by which to organize the interaction between a computer and an individual. Turkle's preponderance with technology as intermediaries to human relationships presupposes that relationships mediated by computers allow individuals to forego interacting and communicating with the actual other and to engage a representation of that other as expressed by the machine as if it were "real".

But are these representations even accurate? Precisely this inclination has initiated dialogue into exactly how the computer has changed the way we interact. The field of psychology has only recently begun to look at the interpersonal dynamic created by computer-mediated communication.[2] Numerous research papers with topics ranging from the ambiguity inherent in email correspondence to the prospects of online counseling have explored this new environment in which more and more people are engaging, learning to navigate, and developing methods to organize the massive amount of information that is available to them, and the unrealized possibilities. The ease at which one can log on and chat with any of the millions of internet users is one of many reasons why people prefer to communicate online. Demographics become just another statistic in an environment where the concept of space is reduced to the dimensions of a screen, and soon technologies will overcome even that dimension.

## 1.1 CMC versus FTF

So what makes communicating over the internet different than chatting face-to-face (FTF)? Sproull & Kiesler (1986) have developed the Social Context Cues theory to explain effects they found studying email communication. Specifically, their research showed that as the number of social cues decreased in communication, people tended to be more impersonal and critical in their content. Social cues could include sight (facial expressions, hand gestures, posture and orientation, clothing choice, etc.), sound (tone of voice), smell (odors, pheromones, etc.), and touch (body contact, sharing items, etc.). These all contribute to a whole experience of the person with whom we are communicating. In every case, these experiences are either attenuated or absent in CMC.[3] This leaves the individual with very little to experience of the other person. Thus users feel that they can say things they would not say in FTF communication and are more willing to disclose information about

[2] See the Journal of Computer-Mediated Communication at http://jcmc.indiana.edu/.

[3] It is important to note that, for the purposes of this thesis, CMC from here forward solely will be referring to instant messenger, although the author recognizes the other communication media which may provide similar but differing contingencies for interaction.

themselves (Mallen, Day, & Green, 2003). Additionally, CMC users have more control over their conversations. If they are uninterested in the current topic or feel threatened by another's perspective, they can easily ignore the dissenter by closing the chat window, and even strike up a new conversation with a more agreeable partner.

Even language (in print form), arguably the one thing that can come across in CMC with the smallest of ambiguities, is attenuated. In recent studies regarding accuracy in understanding a writer's attempt at irony in emails, participants were shown to be very bad at interpreting the dry humor absent of other clues as to their partner's real communicatory intent (Fruger & Epley, 2005). This miscommunication can be compared to the misinterpretation of a person who holds an inaccurate internal representation of a person, which inevitably results in differential social perceptions as a result of the conversation. For example, if a person abruptly leaves a conversation, their partner could assume the person does not want to talk to her. In reality, the reason her partner does not want to talk to her may be because an old friend he has not seen in awhile just walked in the room and he wants to greet the newcomer.

These thoughts reflect serious consideration of the computer as an intermediary of social interaction, with definitive effects on how those interactions unfold and the perceived effects they have on both persons involved. Researchers have theorized that one of the motivations behind these behaviors is less perceived "psychological risk" (i.e., the risk of experiencing negative affect). There are many reasons why this could be so.

First, in any social interchange, a person is motivated to leave an agreeable impression. When chatting online, it is easy to cover up your faults and even lie about your good attributes because your partner usually can neither see your face nor hear your voice to judge the verity of your speech. Since these sensory inputs are mitigated by the nature of CMC, valuable (i.e., truthful) information regarding a person is lost to their conversation partner, and preferential information is put forth unscrutinized. This is called putting forth one's ideal persona. By putting forth the best version of him or herself, a person can attract more interaction partners and avoid the aversive affect associated with rejection or disdain.

Second, CMC users engage others in conversation relatively anonymously, and necessarily so. Even if the person used video conferencing technology or Voice-over-Internet Protocol (VoIP), there is little chance a person of normal means could identify them, let alone find them (and possibly confront them regarding some affront). The comfort of this anonymous environment contribute to the user's willingness to disclose personal information about him or herself (Thibaut & Kelly, 1959, as cited in Whitty & Carr, 2006a). This has the effect of attracting other people who share the same interests or dispositions,

and thus the conversations are more likely to end with a positive, reinforcing outcome such as a planned follow-up conversation, a general liking for each other, or a romantic relationship.

These benefits retain value up until the first time the two partners actually meet. If these behaviors typical of CMC have been used to an excessive degree, the expectations of each partner may be disappointingly inconsistent with the reality of the situation (i.e., their internal representation of the other person is inaccurate). Given this inevitability, do the benefits of online conversation outweigh the costs? Despite these new problems with relating in this medium, some argue that online relationships can be just as real and intimate as face-to-face ones (Lea & Spears, 1995; Parks & Floyd, 1996, as cited in Whitty & Carr, 2006a). What do we gain by engaging in CMC?

Whatever the sentiment, when a person interacts with another through a computer, the line between the actual and representational other becomes confused. In pursuit of satisfying their relational needs, individuals draw on both external and internal relationships to feel fulfilled. As they manage these different relationships, they necessarily are living "simultaneously in an external and an internal world" (Greenberg & Mitchell, 1983, p. 12), an objective and subjective reality. The authors go on to note that psychotherapeutic theories are steeped in the paradox between subjective and objective reality and must satisfy the demands of both worlds to appropriately answer the questions they pose.

Further, interpersonal problems seem to arise surprisingly not as a result of discrepant worldviews, but as a result of the discrepancy between the internal object and its external referent. Melanie Klein, a contemporary of Freud, posited that the larger the relational gap between external objects and internal objects, the more pathological the relationship (Klein, 1932, as cited in Grotstein & Rinsley, 1994). Young (1982) also references this effect when discussing the mechanisms behind loneliness and depression. He notes, "when an individual's 'internal reality' does not correspond to 'external reality' in significant respects, he may experience emotional distress such as depression, anxiety, or loneliness" (p. 383). The confusion over whether the object of a computer-mediated interaction refers to an actual person, or our internal representation of that person creates increasingly serious problems. A person's anxiety depends both on the degree to which their internal and external representations of that person differ, *and* the degree to which he acts like they are the same.

Researchers have raised concerns regarding how this communication medium affects social perception and self-concept, with implications for the development of psychopathology. Green et al. (2005) invited 40 participants into their lab and told them they would be participating in a study regarding eye movements during interpersonal inter-

actions. Each participant engaged a confederate in either FTF communication or CMC. Five different confederates took turns assuming the common personality of a sophomore social psychology student. Before and after the conversations, which were about general topics such as university life or hometowns, participants filled out a mood survey. The researchers found that computer users communicating through the instant messenger program reported more positive affect and less anger and tension compared to those who conversed face-to-face. This suggests that talking over instant messenger may actually effect a more positively-valenced mood.

For individuals that suffer from conditions such as loneliness, anxiety, and depression, conversing over a computer may have some serious benefits. Dr. Monica Whitty, in her recent book about romance in cyberspace, says, "lonely people may have a greater desire to use the internet and can even benefit from doing so" (Whitty and Carr, 2006a, p. 9). Indeed, lonely individuals may be especially motivated to use instant messenger to converse with people as it is easy to deepen their social network that way. The next section reviews a recent theory regarding the phenomenology of loneliness and, more specifically, how what we know about the social perceptions of lonely individuals may be positively affected by CMC.

## 1.2 Loneliness: Weiss' theory of relational provisions

Our whole life we depend on relationships to nurture us, sustain us, and protect us. When relational needs go unmet, people sometimes describe this experience as loneliness. One survey of Americans found that 25% of the respondents reported having felt lonely in the past few weeks (Weiss, 1973). The cause of this feeling can be elusive, but many researchers agree that loneliness is the lack or perceived lack of social relationships which one expects to have (Christensen & Kashy, 1998; Sullivan, 1953) *and* the presence of psychological distress associated with such a deficit (Young, 1982).

One can feel loneliness upon moving to a new place, or processing the death of a loved one. In the middle of a crowd or when all alone, feelings of loneliness pervade the human condition. The breadth and variety of experience under which one can experience loneliness, and its relative lack of attention in recent research, are some reasons why loneliness is a worthy topic of research.

Much theorizing has been done regarding the loneliness condition. Robert Weiss (1974) provided a compelling account of the nature of loneliness that guided the study of this condition for years afterwards. Weiss described loneliness as the absence of one or more of six "relational provisions". The first, *attachment*, expresses the need for a close,

emotional relationship usually fulfilled by a partner, lover, or good friend. The next, *social integration*, expresses the need to share common experience through social exchange and experience. Next, *opportunity for nurturance* expresses the need to be both nurtured and to nurture. This relational provision is the dynamic between a mother and her child, a mentor and mentee, etc. The next relational provision, *reassurance of worth*, expresses the need for individuals' accomplishments to be recognized whether by a friend or head of state. The next relational provision, *sense of reliable alliance*, requires a secure relational construct which fulfills the need for unconditional support and is usually expressed by a reliable family member. The last relational provision, *obtaining of guidance*, fulfilled by a respected or authority figure, expresses the need to have competent guidance in accomplishing daily affairs and life goals.

According to Weiss, each of these provisions are exclusively fulfilled by a specific type of relationship. That is, a mentor can provide guidance, but not social exchange. A brother can be your dependable ally, but cannot nurture you. One relationship cannot fulfill multiple provisions. Although bits of one provision may blend into another within the course of a relationship, or the two people may decide to switch the relational provision, this can cause a significant amount of distress. The attachment provision is an exception to this theory. It can provide a multitude of provisions because the relationship is reliable and more intimate than those of the other provisions (Weiss, 1974).

While it's plausible that one type of relationship cannot fulfill the needs of another type of relationship, it seems likely that people other than intimate partners could provide multiple relational provisions for another person. For example, my brother could fulfill my need for *reliable alliance*, but could also fulfill my needs for *social integration* by being my friend. Weiss' theory in its original form does not recognize this as a possibility.

In the best of all possible worlds, all the relational provisions of an individual are fulfilled. Of course, there are many instances when individuals are completely denied any or all of these provisions based on any combination of environmental, temporal, self-regulatory causes (denying oneself a fulfilling relationship), or just plain bad luck. This model of loneliness provides that a lack of any of these relational provisions, and associated feelings of psychological stress, can lead to loneliness. Further, researchers have theorized that a differential lack of these provisions can lead to a variety of distressing conditions.

Indeed, with feelings of loneliness come many distressing thoughts, concerns, worries, and anxieties. This distress correlates with different kinds of maladaptive social functioning. For example, lonely people expect to be viewed negatively by others and so others tend to judge them as interpersonally unattractive, shying away from developing

relationships with lonely people (Jones, Sansone, & Helm, 1983).

When engaging people in social interactions, lonely people expect to be viewed negatively by others and others tend to judge them as interpersonally unattractive, shying away from developing relationships with lonely people (Jones et al., 1983). Lonely individuals are also less apt to forward their own opinion, which can negatively influence their performance on interpersonal problem-solving tasks (Hanson & Jones, 1981). For example, a lonely person may consistently yield to the opinions of his or her partner when preparing a presentation and thus their cooperative work does not accurately represent his or her perspective on the matter.

This creates false expectations and beliefs. In a study conducted by Christensen et al. (1998), lonely participants tended to think that others perceived them as deficient in certain desirable social qualities such as friendliness and openness (negative metaperceptions; Christensen & Kashy, 1998). Further, studies have shown that more lonely participants perceive their conversation partners as less interested in pursuing a future relationship with them (Bell, 1985). As can be imagined, these issues can lead to all kinds of undesirable outcomes for lonely people, including a loss of self-esteem, an inaccurate self-concept, and a reduction in their preexisting network of relationships.

Sullivan recognizes loneliness as a significant motivating force because, despite the repulsivity of anxiety, it motivates people to enter severely anxiety-inducing situations in hopes of fulfilling their "relational needs" (Weiss, 1973). Feeling a lack of satisfaction and/or security in their current social and emotional relationships, lonely people react by reaching out to random others in hopes of coming upon a fulfilling relationship rather than surrendering to their distress, the latter behavior more commonly observed in depressed individuals (Weiss, 1973). Current research has not tracked the effects of a situationally lonely cognitive schema, compared to trait-like, global thinking which precludes fulfilling relationships from the start. Weiss' theory suggests there is no "lonely" personality type, but merely passing experiences of loneliness that differ only in their frequency. However, more empirical research is needed to shed light on the causes of this condition.

## 1.3 Differentiating loneliness from other conditions

Although loneliness demonstrates similar effects as depression, it has been shown to be a separate construct. Loneliness is a condition encompassing appraisals of one's social and interpersonal domain, while depression is much more far reaching, encompassing appraisals across multiple domains such as health, work, self-worth, etc. (Heinrich & Gullone, 2006). In fact, at least one study has found loneliness to not only predict, but

precede the onset of depression in a longitudinal study of college students (albeit with a small sample size; Rich & Scovel, 1987).

Although there are many models of depression depending on the theoretical orientation of the clinician, a cross-sectional approach is most pertinent to this discussion. This model explains depression by identifying certain cognitive schema that result in a perspective that typifies the depressed experience. Major depressive disorder (MDD) is characterized by a negative interpretation of almost all aspects of a person's life, from remembering past events to expectations for the future. Depressed individuals typically do not even consider the potentially positive results of their interactions with others (Leahy & Dowd, 2002). Although depressed individuals' appraisals are mostly accurate, their interpretations tend to be negative and deterministic. This leaves little flexibility or hope for the individual, who can continue on this downward spiral until his or her ability to function in society results in therapeutic interventions or institutionalization of one form or another.

Anxious individuals, on the other hand, exhibit much more flexible schemas within their pathology. In response to psychological distress, highly anxious individuals retain maladaptive methods of coping. By engaging a flight response when a social situation becomes too overbearing, a person may never stay in the situation long enough to realize that nothing disasterous will happen to them, and so their fear never becomes invalidated or extinguished. All the person knows is that she gets increasingly anxious if she stays, and the most immediately gratifying solution is to flee to a less anxiety-inducing environment. By perceiving the social situation differently from her peers, the perceptions of the anxious individual may be so inconsistent with her social interaction partners as to be maladaptive to her relationships with them. This can negatively affect a person's social relations, specifically, social anxiety predisposes one to feel lonely (Young, 1982).

The effects of loneliness and the related conditions of depression and anxiety on our society have not been adequately measured. For someone who is just not comfortable with social interactions, or has little experience successfully developing and integrating meaningful relationships into their life, there is little respite in the impersonal nature of initial encounters and the increasingly disparate relationships by which we are all connected.

The recent technological boom in our society has exacerbated these effects. The ability to connect with almost anyone around the world, whether by phone, information sharing, or instant message, has increased the number and quality of interactions a person has on a daily basis. However, technology has simultaneously altered the ways we connect, and this has had an unknown effect on social interactions, especially of people who

already have trouble managing the stress in their life that is an inevitable part of social interaction. This is where the potential to examine the effects of technology (i.e., instant messenger) begins to play a significant role in our discussion of psychopathology. The rules are changing. How are we adapting?

A mediating device such as a computer creates the possibility that individuals can project their representations of others onto the computer (and if they have not yet been created, create them) when communicating with their concomitant 'actual' others *through* the computer. By an attenuated experience with the other, there is a greater likelihood that the difference between the actual person and one's internal representation of that person will grow, or more parsimoniously, not shrink. Thus users may project their own feelings, wishes, and desires onto a relationship that is inaccurately conceived, resulting in more positive social perceptions than are warranted. The circumstantial benefits of using a computer to communicate seem very positive, but how this type of communication ultimately affects social perception is unclear.

If lonely people hold predominantly negative metaperceptions, and depressed people hold predominantly negative worldviews, all of which are maladaptive, possibly because their internal representations of people do not accurately reflect their external reality, would CMC exacerbate or attenuate the lonely/depressive condition? Does this mean that engaging in CMC is inherently pathological? This is a rather loaded question, the implications of which we can only begin to explore. To this end, it is important to consider these psychopathological conditions when researching participants' social perceptions after using CMC.

## 1.4 The present experiment

With these concerns fully in view, we can explore how social perceptions are altered by engaging in CMC, the goal of the present experiment detailed below.

In the present study, the hypothesis that engaging in CMC yields different social perceptions compared to engaging partners FTF was tested. Specifically, participants' self, other, and metaperceptions (e.g., how they think their partner perceived them) were measured by a list of 10 social traits: socially skilled, likeable, open, physically attractive, intelligent, friendly, a good leader, anxious, active, and negative. This list was taken from a study conducted by Christensen and Kashy (1998) who looked at the social perceptions of lonely people. In fact, the methodology of the present study is adapted from Christensen and Kashy's, who had same-sexed dyads engage others in open-ended FTF interactions. Their data supported previous findings in the loneliness literature, such that a

higher loneliness rating correlated with more negative self and metaperceptions compared to the other perceptions of those participants' partners (e.g., what their partners actually thought of the lonely participants). This methodology was adapted to test the changes in social perceptions due to CMC.

In this experiment, participants were invited into a lab to participate in a experiment regarding the effects of computer-mediated communication on social perception. They were told that they would complete two decision-making tasks with two different partners, communicating with one face-to-face, and one over an instant messenger program. First, participants each completed a packet of premeasures assessing levels of loneliness, anxiety, and depression. Then participants were escorted to a room where they completed the first CMC or FTF task, and then filled out their first social perceptions questionnaire. Afterwards, the participants were escorted to another room for their second task in the opposite condition, after which they completed the same social perceptions questionnaire rating their new partner on the social traits. Upon completion of the second perceptions questionnaire, participants all gathered in one room for a debriefing by the author and the distribution of incentives.

The goals of the study were twofold: to establish test the hypothesis that CMC alters social perception in a positive direction and to examine for the effects of potentially moderating variables (i.e., loneliness, anxiety, and depression). It was hypothesized that the social perceptions of participants would vary by condition: FTF or CMC. Specifically, it was hypothesized that all perceptions would be more positively valenced after the CMC condition compared to the FTF condition. It was also hypothesized that loneliness, anxiety, or depression would play a moderating role in this effect, and thus participants' levels of each variable were measured and were controlled for in the analyses.

# Chapter 2

# Methods

## 2.1 Participants

Participants were 48 undergraduates at a college in the Pacific Northwest between the ages of 18 and 25 years old who were recruited through on-campus and online ads (see Appendix A) for a study regarding instant messenger and social perception. Upon initial response to the advertisements, participants were sent an email with more detailed information regarding the study (see Appendix B). There were 31 females (65%) and 17 (35%) males. Participants were required to know how to use a computer, type on a keyboard, and speak English.

## 2.2 Measures

Participants each filled out a packet of questionnaires assessing baseline levels of hypothesized moderators: loneliness, anxiety, and depression (see Appendix C). After each interaction, each participants filled out the social perceptions questionnaire, and only after the second interaction, answered two questions regarding the degree to which they were acquainted with their interaction partners prior to the experiment.

**Loneliness**

The UCLA Version-3 Loneliness Scale (UCLA; Russell, 1996) is a 20-item self-report scale with both negatively and positively worded items to ascertain participants level of loneliness and has been updated (Version-3) to clarify wording where needed. For example, one question asks ”How often do you feel that you lack companionship?” and participants may answer on a scale from 0 (Never) to 3 (Always). Although loneliness measures have been criticized as having low discriminant validity (Russell, 1996), the

Ver.-3 is more highly correlated with other measures of loneliness than depression or self-esteem measures. Furthermore, it has excellent reliability ($\alpha$= .92). The mean for college students is M= 40 (SD= 9.5; Russell, 1996).

**Social Anxiety**

The Social Phobia Scales (SPS) and the Social Interaction Anxiety Subscale (SIAS) were both used to assess social anxiety. They have 20- and 19- items respectively. The scales have excellent validity and are recommended to be used together as they assess different aspects of social anxiety disorders. A sample item from the SPS includes "When mixing socially I am uncomfortable," and participants may answer on a scale from 0 (Not at all) to 4 (Extremely). Both scales have excellent test-retest reliability (SPS $\alpha$= .90, SIAS $\alpha$= .88) and good validity scores (Mattick & Clarke, 1998).

**Depression**

The Zung Depression Index (SDS) is a 20-item self-report scale with both negatively and positively worded items created to test for depression by its physical and psychological symptoms. A sample item includes "I get tired for no reason." Normally the SDS is a 1 (a little of the time) to 4 (most of the time) scale. For this study, however, a 0 (None of the time) response was added for coordination between this and the other scales (all the other scales had a 0- None of the time response). Patients diagnosed with depressive disorder had a M= 63 on this scale while nondepressed controls had M= 28 (Zung, 1965).

**Internet to Manage Social Anxiety**

The Internet Use to Regulate Social Fears Questionnaire (IRSFQ) was originally developed to track various reasons for using the internet (previously entitled the Reasons for Internet Use questionnaire). A sample item from the 10-item questionnaire includes "I feel less inhibited online" to which participants could respond on a 0 (None of the time) to 4 (Most of the time) scale. This 10-item questionnaire has good reliability (alpha= .88) and construct validity, and was also found to correlate with scores on the social phobia scale (SPS). As a result, researchers concluded that the questionnaire better describes individuals that use the internet to manage their social anxiety (Shepherd & Edelmann, 2005).

**Social Perceptions**

The questionnaire participants completed after each interaction was the same as the one used in Green et al. (2005, see Appendix D). It asked participants to rate their self, other, and metaperceptions (i.e., how they believe their partner saw them) on 10 traits

including socially skilled, likable, open, physically attractive, intelligent, friendly, a good leader, anxious, active, and negative. The scale was an 8-point Likert scale from not at all to extremely. Furthermore, after the second interaction, the questionnaire included two questions asking the participants to rate their level of acquaintance prior to engaging their partner in the FTF and CMC tasks. If they had not identified their interaction partner in the CMC condition, they were instructed to report the relationship as the 0 on the scale (unacquainted).

## 2.3 Equipment

**Decision-making tasks**

The tasks were drawn from a book about group skills and theory (Johnson, 2003, see Appendix E), The first task entitled "They'll Never Take Us Alive" asked participants to rate the relative dangerousness of the given 15 products or activities such as smoking and pesticides by number-ranking them. The second task, entitled "Wrecked on the Moon," asked participants to rate the utility of 15 items (i.e., signal flares, a box of matches, etc.) in ensuring the survival of the crew after having crashed on the moon 200-miles away from the mothership. Each task was designed to promote conversation and cooperative interaction.

**Computers and Software**

For the computer-mediated tasks, participants used an iMac PowerPC G4 Macintosh computer running OSX and the iChat (version 2.1) instant messenger program.

## 2.4 Procedure

**Pre-Experiment Activities**

Participants were invited to come to one of two rooms such that 4 arrived in one room greeted by the primary researcher, and four arrived in another room greeted by his research assistant. Participants were randomly paired with two individuals in the other room to serve as their interaction partners. At the same time, they were randomly assigned to engage in the CMC or FTF task first. Participants also signed a consent form (see Appendix F) and then filled out a questionnaire packet containing the UCLA-Ver. 3, SIAS/SPS, SDS, and IRSFQ. When everyone had completed the questionnaires, participants were guided to the rooms where they would start their first task.

Participants were moved in a way that prevented them from meeting either of their

partners prior to engaging in the decision-making tasks. Half the participants started in the FTF condition, and half the participants started in the CMC condition. Participants had 10 minutes to discuss each task, and the tasks were counterbalanced across conditions. After 10 minutes, the researcher stopped the discussion and handed out the first social perception questionnaire. When everyone was finished, participants were moved to another room for their second interaction. If they were in the CMC task first, they moved to a room where the FTF interaction would take place, and vice versa. Again, after 10 minutes, participants were stopped by the researcher and asked to complete the second social perception questionnaire, which was the same except that it also asked about participants' prior acquaintance with each of their partners.

**FTF task**

In the FTF condition, participants entered a room with two chairs on the same side of a desk and a copy of their task waiting for them. All the directions were on the task sheet, and the instructor reminded them they had 10 minutes to work on the task. After 10 minutes, the researcher stopped the participants and asked them to silently fill out the social perceptions questionnaire and not discuss their answers with their partner.

**CMC task**

In the CMC condition, participants entered a room with a Macintosh computer in which iChat was already loaded and connected to their buddy with whom they would chat to complete the task. The task lay beside the computer for easy reference. Also, all the participants knew how to use a computer, and if they were not familiar with iChat, the researcher instructed them in its use prior to beginning the task. Again, after 10 minutes, the researcher stopped the participant and asked him or her to fill out the social perception questionnaire and to not discuss their answers with her or his online partner.

**Post-Experiment Activities**

Upon completing the last social perception questionnaire, all 8 participants were invited into the same room for a debriefing of the study (see Appendix G) and distribution of the incentives (baked goods and lottery tickets to win money at the end of the semester). The participants were then thanked and sent home.

# Chapter 3

# Results

## 3.1 Descriptive Statistics

Descriptive statistics for each of the baseline variables are reported below. For anxiety, the mean score for the SIAS was 24.7 (SD=14.0) and for the SPS, 16.0 (SD=12.1). For loneliness, the mean score for the UCLA was 23.1 (SD=11.3). For depression, the mean score was 23.1 (SD=10.4), and for the IRSFQ, the mean score was 14.0 (SD=6.9). There were no significant gender differences for any of these measures.

Table 3.1: Correlations between baseline variables.

| | SIAS | SPS | UCLA | SDS | IRSFQ |
|---|---|---|---|---|---|
| SIAS | - | .744** | .657** | .633** | .300* |
| SPS | | - | .547** | .616** | .235 |
| UCLA | | | - | .716** | .080 |
| SDS | | | | - | .276 |

Notes: SIAS = Social Interaction Anxiety Subscale, SPS = Social Phobia Subscale, UCLA = UCLA-Ver.3 Loneliness Scale, SDS = Zung Symptoms of Depression Scale, IRSFQ = Internet Use to Regulate Social Fears Questionnaire
*p<.05
**p<.01

The sum of each participant's ratings on the 10 social traits for each of the self, other, and metaperceptions was computed (maximum of 90) for each condition: FTF and CMC. Both anxious and negative are negatively valenced in relation to the other traits and so were reverse scored for the purposes of this analysis. A paired samples t-test showed that self (M=67.9, SD=9.18) and other (M=68.2, SD=6.93) perceptions both were significantly higher than metaperceptions (M=65.5, SD=9.01) regardless of condition. Par-

ticipants rated themselves and their partners about equally as positive, and slightly more positive than how they thought their partners perceived them.

## 3.2 Influence of conditions on social perceptions (T-test)

Table 3.2 shows the means for the averages of the social perception variables by mode of communication. There was a significant difference for mode of communication in self perceptions ($t(47)=4.30$, $p<.001$), in other perceptions ($t(47)=7.04$, $p<.001$), and in metaperceptions ($t(47)=2.67$, $p<.001$) indicating that, contrary to the study's hypotheses, social perceptions after a FTF interaction were more positively valenced than after CMC (See Figure 3.1).

Table 3.2: Means and significance of the ANOVA for each social perception variable (self, other, metaperception).

| | | Self** | Other** | Meta* |
|---|---|---|---|---|
| FTF | mean | 70.8 | 73.6 | 67.5 |
| CMC | mean | 65.0 | 62.7 | 63.4 |

Notes: FTF = face-to-face, CMC= computer-mediated communication
*p<.05
**p<.01

## 3.3 Influence of covariates on social perceptions (ANCOVA)

Table 3.3: F-values of repeated measures ANCOVA for mode of communication and each covariate

| | Mode * Covariate | | | | | |
|---|---|---|---|---|---|---|
| | Gender | SIAS | SPS | UCLA | SDS | IRSFQ |
| Self perceptions | 1.25 | .070 | .706 | .012 | .455 | .029 |
| Other perceptions | 2.64 | .101 | 3.56* | .007 | 1.54 | .950 |
| Metaperceptions | .342 | .532 | .173 | .854 | .650 | .562 |

*p<.10

A repeated measures ANCOVA for conversation mode (FTF, CMC) was run for each covariate (i.e., loneliness, depression, social interaction anxiety, social phobia, internet

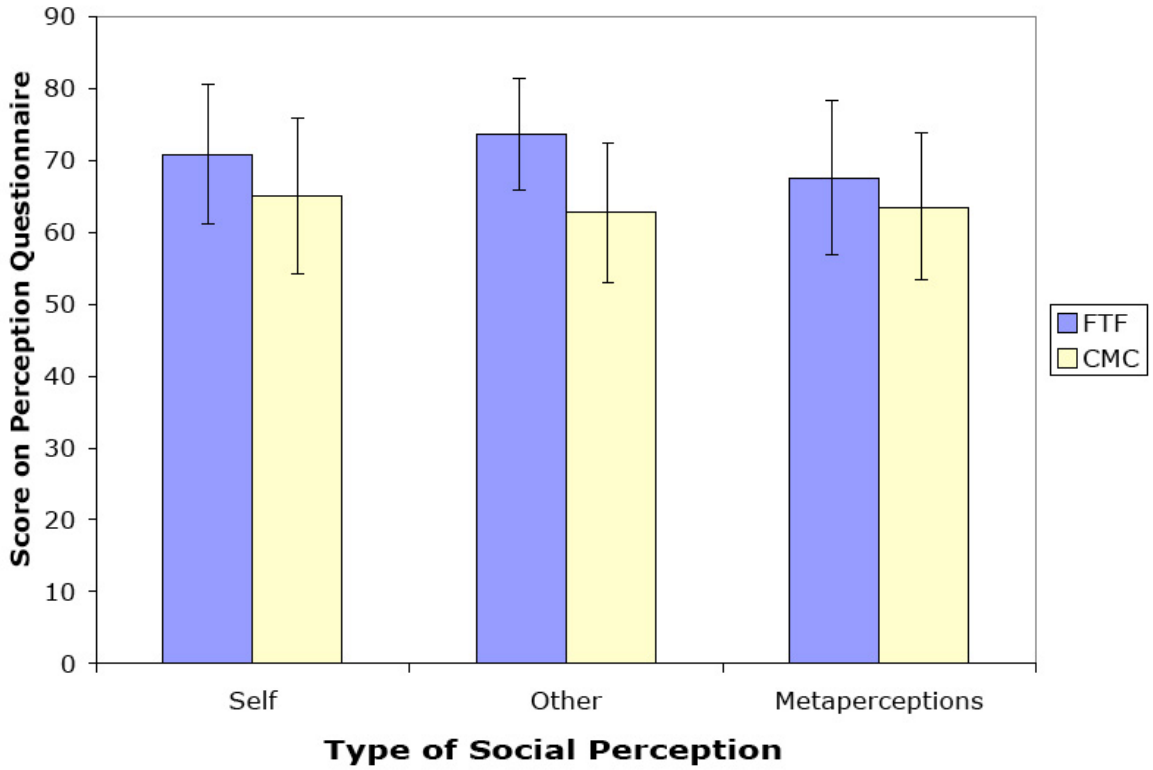



Figure 3.1: Score on social perception questionnaire by type of perception and condition

use to manage social anxiety, and gender) to determine the effects each had on the 3 dependent variables (self, other, and metaperceptions; See Table 3.3). All mode by covariate interactions were not significant. The interaction of mode of communication and SPS ($F(1, 46)=3.56$, $p=.066$) approached significance for other perceptions. However, due to the number of analyses run (i.e., 18), this finding may simply be due to chance.

## 3.4 Influence of prior acquaintance on social perceptions

The degree to which participants knew each other before the experiment may have affected their reported social perceptions. Thus participants' levels of prior acquaintance with their partners were analyzed. The participants' reported levels of prior acquaintance were significantly higher for the FTF ($M=3.7$, $SD=2.6$) condition compared to the CMC ($M=1.1$, $SD=1.7$) condition, $t(43)=2.98$, $p=.005$). Five participants neglected to complete the acquaintance section of the questionnaire, and were thus left out of this analysis. These data indicate that participants reported low levels of acquaintance with their partners in both the FTF and CMC conditions. However, participants still felt they knew their

Table 3.4: Correlations between prior acquaintance data and social perceptions (self, other, meta).

| | Face-to-Face | | | Computer-Mediated Communication | | |
|---|---|---|---|---|---|---|
| | Self | Other | Meta | Self | Other | Meta |
| FTF Prior Acquaintance | .367* | .263 | .486** | -.039 | -.012 | .024 |
| CMC Prior Acquaintance | -.025 | -.034 | -.173 | .143 | .283 | .136 |

*p<.05
**p<.01

FTF partners better than their CMC partners before the experiment (See Table 3.4).

Despite the low levels of acquaintance, the data were also analyzed using Pearson's correlation tests. Two significant correlations between prior acquaintance and social perceptions were found for the social perceptions variables after CMC and FTF. They included a significant correlation between the metaperceptions after FTF communication and prior acquaintance with the FTF partner, and a significant correlation for the self perceptions after FTF and prior acquaintance with the FTF partner. The correlation for the other perceptions after CMC and prior acquaintance with the CMC partner approached significance. This indicates that the better participants knew their FTF partner, the more positive they thought of themselves and the more positive they thought their partner would rate them on the social perception variables. Also, the better participants knew their CMC partner, the better they thought of that person as reported on the social perceptions questionnaire.

# Chapter 4

# Discussion

Previous research suggests that the contingencies of CMC use may positively affect the perceptions of lonely individuals which may result in more positive interactions (as measured by more positive perceptions of themselves and others) than FTF interactions. It was hypothesized that participants would have more positive social perceptions after engaging in CMC, and especially participants with high levels of loneliness, anxiety, or depression. Unfortunately, this population lacked significant levels of any of these variables, so further analysis of this hypothesis was impossible in this study. The results were opposite to this conclusion, showing that social perceptions were more negatively valenced after CMC.

## 4.1 The effect of conversation mode on social perceptions

The most important findings of this study was that social perceptions after FTF communication were more positively valenced than after CMC. Participants rated themselves, others, and what others thought of them more positively after interacting FTF than after interacting over a computer.

This finding is interesting because it is opposite to what was predicted. Although to date the author has uncovered no studies that have looked at the effects of CMC on participants ratings of social traits, other studies have found that engaging in communication over the internet did not significantly affect the time participants spent on other social pursuits. If CMC did not significantly affect these other activities, and actually made people happier, it was hypothesized that they would think more positively about themselves and their partners.

This was not the case, however, and there are numerous hypotheses as to why this effect was found. Participants may rate people with whom they interact face-to-face better

in general than people about whom they know only a little information. Even when meeting someone for the first time, people have lots of information with which to judge their interaction partner. They can examine facial expressions, style of clothes, tone of voice, and many other sensory cues which are mostly absent in CMC. These cues all contribute to the perceiver's internal representation of who the other person is. This results in an increased feeling of familiarity with the person even after one short meeting, a deeper familiarity than that gained while conversing over the internet.

While intuition may lead us to believe that increased familiarity leads to increased liking (and that is certainly the sentiment among researchers), recent research suggests such an effect may not be so straightforward. Norton, Frost, and Ariely (2007) have shown that increased familiarity actually decreases liking, whereas ambiguity increases liking after initial meetings. The researchers showed that as participants learned more about an individual, they overemphasized the different aspects between their personalities, leading to less liking than if they never learned additional details about the person. Although previous research has supported the "warm glow" heuristic or mere exposure effect that familiarity increases liking, typically these studies use stimuli that do not change with each presentation (as any good stimulus set would); however this does not mimic real-life social interchange where people are constantly updating their conceptions of people with each encounter, creating a dynamic "stimulus" about which they know more and more (Norton, Frost, & Ariely, 2007). Further, it is easy for people to list off experiences where increased exposure leads to increased liking (i.e., loved ones and friends), but these experiences may prove to be more the exception than the norm. The people with which we come in contact, dislike, and subsequently cut off future contact are significantly less salient than those few we keep in our life.

## 4.2 The effect of loneliness, anxiety, and depression on social perceptions

In this study, participants' scores on the premeasures were generally different than those of other populations of college students. For example, participants' scores on the loneliness measure were half those of other college students while scores on the anxiety measures were similiar (i.e., SPS) and a bit higher (i.e., SIAS) than those of a comparable population of college students

Future research could look at clinical populations with various emotional disorders to compare their performance in this type of experiment to established results. It is possible that people high in loneliness, anxiety, or depression would act much differently

in the contingencies of this experiment compared to a broader population of individuals. Such participants may show the opposite effect, rating their conversation partners more positively in the CMC condition versus the FTF condition because they encounter less aversive (to them) social environments when using CMC. This also would be more closely aligned with the convergence of object-relations theory and the CMC literature expounded upon in the next chapter.

Further, results showed that social anxiety measured by the Social Phobia Scale approached significance and may have affected the other perceptions of participants. This scale measured social anxiety due to engaging in daily life. Participants' other perceptions may have been partially influenced by their scores on the SPS, however due to the number of ANCOVAs performed on the same data (i.e., 18), by chance it was expected that one would be significant. There is little reason to give credence to this finding.

## 4.3 The effect of the laboratory on social perceptions

The nature of a laboratory study also may have contributed to the effect in the CMC condition. First, it is certainly not natural for someone to be assigned a partner with which to complete a task designed to promote cooperation. In real life, an internet surfer usually has access to online profiles and logs onto groups oriented around a specific interests, effectively prescreening his potential interaction partners, after which he can engage in unstructured small talk. Second, the supplied task may have deterred the conversation away from topics which may have been more directly useful in forming an opinion of another person. Third, in a contingency such as the CMC condition, participants could not exchange the same amount of information as participants in the FTF condition, simply because it takes a longer time to type. In fact, in the FTF condition, participants sometimes finished the task early and were usually found engaged in small talk, while participants in the CMC condition rarely finished early. Despite this observation, participants usually did not fully complete the task before moving on to the next stage of the experiment. Consequently (fourth), ten minutes may not have been enough time for this type of research (i.e., where each participant was motivated to make informed ratings of their interaction partners), despite previous research that have found effects in other contexts in only ten or fifteen minutes of participant interaction (Bell, 1985; Jones et al., 1983). Fifth, when filling out the social perception questionnaires, participants were sitting next to their partner in the FTF condition, but were in a different room in the CMC condition. Although instructed to keep their responses private, there was no mechanism to insure participants did not glance at their partner's paper, and even this possibility may have affected par-

ticipants' responses. These various factors may have contributed to the more negatively valenced perceptions of conversation partners in the CMC condition.

## 4.4 The effect of prior acquaintance on social perceptions

The level of prior acquaintance each participant reported with each of their partners seemed not to make a difference in their social perceptions except for the metaperceptions of participants who vaguely knew each other after FTF communication. In this case, there was a mild positive correlation indicating that the better a participant felt he or she knew their FTF partner, the more positive his or her metaperceptions were. It is important to note that this rating does not represent how well the participants actually knew each other, but merely represented one person's opinion of that relationship. For example, if participants did not realize they were talking to a friend in the CMC condition, they may have rated their acquaintance with that friend as low on the scale. Participants were not given instructions beyond what was necessary to complete the decision-making tasks, so some partners did not ask identifying information of their partners. Even in the FTF conditions, each of the two partners could have different conceptions of how well acquainted they were with their partner before the experiment began. Face-to-face acquaintance ratings were significantly higher than CMC ratings, but the means for prior acquaintance were low in general, indicating that participants did not report a high level of interaction prior to participating in the experiment. What is more likely the case is that participants *felt* like they knew their participants better after engaging them in the FTF task rather than the CMC task.

The participants' judgment of how well they knew their partners before the experiment may be filtered by their interaction, so that participants may be reporting how well they think they knew the person based on the interaction rather than on any objective information outside of the present study. Indeed, it is likely that, after getting to know someone, a person can find them unbearable or at odds with their own person. This would lead, on the contrary, to negatively-valenced other and metaperceptions. In this study, participants only interacted for 10 minutes with partners they did not know very well. If they had more time and more interactions, their opinion of their partner may have become more informed and enabled them to express opinions beyond a cursory assessment.

## 4.5 The effect on social perceptions in general

In this experiment, self and other perceptions were generally higher than metaperceptions regardless of communication mode. That is, participants generally rated themselves and others higher in the 10 social traits overall than they thought others would rate themselves. Christensen & Kashy (1998) also found this effect in their study. Their participants rated themselves and others more highly on 7 out of the 10 traits after semi-structured FTF interactions.

The social psychology literature has shown evidence of self-enhancement where people tend to rate themselves higher than others when making social judgments. For example, in one study Americans tended to rate themselves and their peers higher than their Japanese counterparts depending on the desirability of a trait (Heine, 2002). Another study showed that participants rated themselves more highly than their peers on self-relevant abilities using their own criteria for assessment, but were not so positive when given another person's criteria by which to evaluate their self (Dunning, Meyerowitz, & Holzberg, 1989). This bias suggests that people tend to view themselves more positively than their peers, but only when a situation is ambiguous enough that they can define the parameters of such assessments, such as the case with CMC. Very little research has explored the role of metaperceptions in these processes.

## 4.6 Further considerations

Beyond the above methodological issues, how can our current theoretical models account for the finding that social perceptions were more positively valenced after CMC? It's possible that the attenuated perception of a conversations context, tone, and gestures or facial expressions creates an environment where it is difficult to accurately interpret the meaning conveyed by mere words on a screen. These conditions increase the likelihood that people will misinterpret the message of their conversation partner. Inaccurate interpretations could lead to misunderstandings and aversive experiences with people that negatively reflect on the person and affect our perceptions of that person.

Future research might examine the differential change of participants metaperceptions between conditions to examine whether they become more like the other perceptions of their conversation partners (become more accurate), or just become more positive in one condition versus the other. Decreased accuracy in the CMC condition would suggest that our internal representations of people are inaccurately assessed in forms of communication that are attenuated by some factor (i.e., computers). Object-relations theory, a

subset of psychodynamic thought, suggests the greater the difference between our internal representation and external experience of the other, the more anxiety-provoking the relationship. However, this argument is used to explain the onset of psychopathology through unmediated interactions, and yet CMC creates conditions that would seem to increase the discrepancy between a person's internal concept of the other and their external experience of the other. This suggests that CMC can actually create more problems by affecting the accuracy of our internal concepts of people. Is CMC inherently pathological? The last chapter contextualizes this argument in the terminology of object-relations theory to better understand the question posed, and its implications.

# Chapter 5

# Lost Objects: Towards a New Object-Relations Theory

Object-Relations Theory (ORT) is a subset of psychoanalytic theory which seeks to explain the fundamental motivations behind how individuals relate and interact with objects. Sigmund Freud's drive theory, which states that personality is a function of derivative drives and their discharges that motivate behavior towards an object, is the classical ORT upon which later clinical theories are based. An object can be internal or external, real or imagined, and one drive can orient towards any number of objects depending on the specific need of the drive at that time. The purpose of the theory was to be all-encompassing of an individual's experience, but drive theory is vague and controversial in places. Indeed, Freud's original drive theory has endured many reevaluations and revisions by himself and other theorists (see the literature by Harry S. Sullivan, Margaret Mahler, and Melanie Klein) and has been directly contradicted (see literature by W. R. D. Fairbairn, D. W. Winnicot, and Otto Kernberg), or has been discarded by therapists of other treatment philosophies.

With the onset of the new century, ORT will once again have to undergo revision to take into account individuals' relationships with a new type of object: the "digital" object. As we learn to negotiate the murky water between what is human and what is mechanistic about these relationships, of utmost importance will be to study how these relationships develop and are maintained in order to understand their effect on the human psychological experience, be it beneficial or pathological. In the words of Sherry Turkle, Abby Rockefeller Mauzè professor of the social studies of science and technology at MIT, these "digital objects demand an understanding of psychoanalytic thought" (Turkle, 2002) if they are to be successfully incorporated into the human psychological experience.

Despite its many versions, the core of ORT remains constant, namely that humans

relate to external and internal objects through motivating drives, and that the inability to find an object to alleviate that stress will result at its best in discomfiture and at its worse, in psychopathology. Yet the history of object-relations theory is dynamic and relatively young compared to other scientific theories of similar breadth and import. Theories of psychoanalysis in general received bad press by the scientific community in the early 20th century, mostly on account of the founder's (Sigmund Freud) lack of scientific prowess, and good press but gross misunderstanding by the general public, mostly because Freud's work was associated with a left-wing political agenda that had very little to do with his theory (see Torrey, 1992 for a review). Despite this tumult, ORT survived unscathed and clearly distinct from other psychological theories of the time. This chapter quickly reviews the development of object-relations theory and how digital objects and CMC find their place in it.

## 5.1 The classical view: Freud's drive/structure model

The original work of Sigmund Freud was revolutionary in its day because it promised access to the most elusive reaches of the human mind. To understand the individual's motivation behind every act, Freud developed "Drive Theory" which proposed the existence of basic psychic structures, drives, that provide the impetus behind all human behavior. Freud proposed a theory so expansive that "all facets of personality and psychopathology are understood essentially as a function, a derivative, of drives and their transformations" (Greenberg & Mitchell, 1983, p. 3). Such an expansive and ill-grounded theory was bound to encounter some growing pains.

As this theory grew in popularity, it developed into Drive/Structure theory to take into account the three cognitive structures necessary for drive functioning within the whole human: the id, ego, and superego.[1] A guiding tenet of this theory was the "constancy principle" which stated that the paramount goal of drives is to expel stimulation from the system. This was done primarily through one's relations with objects (hence object-relations theory). The nature of the object itself was unimportant to the resolution of the drive. Literally, "the drive itself determines the nature of the object" (Greenberg & Mitchell, 1983, p. 39). Thus the drive was the differentiating factor in its satisfaction, not the object. The drive determines whether the object can satisfy it, nothing inherent in the object can, and the object can change capriciously so long as it resolves the drive and returns the system to equilibrium per the constancy principle (Greenberg & Mitchell, 1983).

[1] See Freud (1989) for an in depth discussion.

The Drive/Structure model assumes that 1) drives are independent of the environment in which the individual lives, 2) the individual in which these drives function is also independent of his or her greater social context, 3) these drives eliminate excess stimulation that distances the individual from an optimal equilibrium state (constancy principle) by relating to objects, and 4) the object by which a particular drive may be satisfied is not necessarily constant, but is redefined as the orientation of the drive changes (Greenberg & Mitchell, 1983).

Drive/Structure theory is tempting conceptually, but savvy readers may be wary of the second point regarding individuals divorced from their social context. Social relations are, indeed, extremely important and other theorists developed Drive/Structure theory to accommodate just that supposition.

## 5.2 Drive/Structure theory in context: Sullivan's relational model

Drive/Structure theory did not hold very long precisely because it was so expansive. Namely, Freud was criticized as extrapolating beyond what was reasonable given his data and Freud himself declared he did not want his theory scientifically justified (Torrey, 1992). Sullivan's derivative model from Freud's drive/structure theory will provide the foundation of ORT that informs our discussion of CMC and social perception.

A contemporary of Freud, Harry S. Sullivan, theorized that "relations with others constitute the fundamental building blocks of mental life" (Greenberg & Mitchell, 1983, p. 3), thus proposing that the creation and morphology of relationships are the motivations behind behavior (a Relational/Structure model). Although not directly criticizing Freud, he offered reasons why the Drive/Structure model was incomplete. Sullivan avowed that Freud cites too little data to support his broad conclusions, that he undervalued interpersonal relationships in the explanation of drives, and Sullivan feared that Freudianism would become a dogma.[2] For these and other reasons, Freud's Drive/Structure model, although a valuable starting point, is no longer accepted at face value by the mainstream of psychodynamic thought, let alone the broader clinical community.

Sullivan explained that the motivation behind human behavior came down to two needs (i.e., drives): the need for satisfaction and the need for security. He suggested Freud's drives were more like "integrating tendencies" that are interpersonal in nature, which recognizes the complement of each need in others. Needs are fulfilled through

[2] As a contemporary of Freud, Sullivan was careful not to criticize his work outright, hence the euphemistic language. Also, for a review of the effects of Freudianism, review Turkle, 1992.

"zones of interaction" (i.e., oral, anal, retinal, auditory, tactile, vestibular, etc.) where exchange between individuals or the individual and the environment take place (Greenberg & Mitchell, 1983, p. 90). For example, a mother responds to her infant's need to feed simultaneously fulfilling her desire to be nurturing, or a friend comforts her grieving crony not only because the crony elicits such a reaction, but because the comforting friend has a need to provide succor. In Sullivan's view, Freud's drives are wholly interpersonal in nature, recognizing the greater reality external to the individual, and how the drives operate within that. Sullivan suffered the same aporia as his predecessor. By offering an overly expansive theory of the human psyche and overemphasizing the role of relationships in the development of the individual in the interpersonal milieu, he left no room for just that: the individual.

The individual, however, cannot always have the necessary relationships it needs to fulfill these "tendencies", much like Weiss' theory of relational provisions regarding loneliness. The definition of loneliness used there is a tenet of Sullivan's relational/structure model of ORT, as is the stress and anxiety created when relationships are lacking. An individual may have a relationship with her father, but if she does not fulfill her relational needs, the relationship does her no good, and the individual undergoes pain and feelings of separation. The individual then, distorts her experience, creating "parataxic integrations" which reduce the anxiety or tension from unfulfilled needs between two people (Greenberg & Mitchell, 1983, p. 99). These "parataxic integrations" are internal representations of both the self and other created from past or imagined experiences that allow the relationship to fulfill a need. This translational process, from an actual object into a representational one, necessarily creates a discrepancy between the two. The girl may represent herself as somehow flawed and her dad appropriately disapproving (where he may actually be disinterested). This discrepancy between the internal representation and external actuality (also considered a representation) of the father creates anxiety, and stems from the girl's inability to create a holistic representation of her father, one where he has other things on his mind besides his daughter. Later Margaret Mahler would more precisely define this relationship by proposing a mechanism to explain this phenomenon.

## 5.3 When objects go awry . . .

Mahler, also a contemporary of Freud, proposed the concept of "splitting" where a baby (in the *rapprochement* phase: 14 to 24 months) would manage her discrepant experiences of her mother by splitting her into a "good" and "bad" mother. Mahler proposed the baby could not simultaneously hold an internal representation of a mother that was good and

bad, soothing and vindictive, so splitting operates as a defense mechanism to separate these extreme aspects of the mother into two separate representations (Todd and Bohart, 1999). Mahler extrapolates this theory to the baby's self perceptions as well. The baby sees him or herself as either all good or all bad.

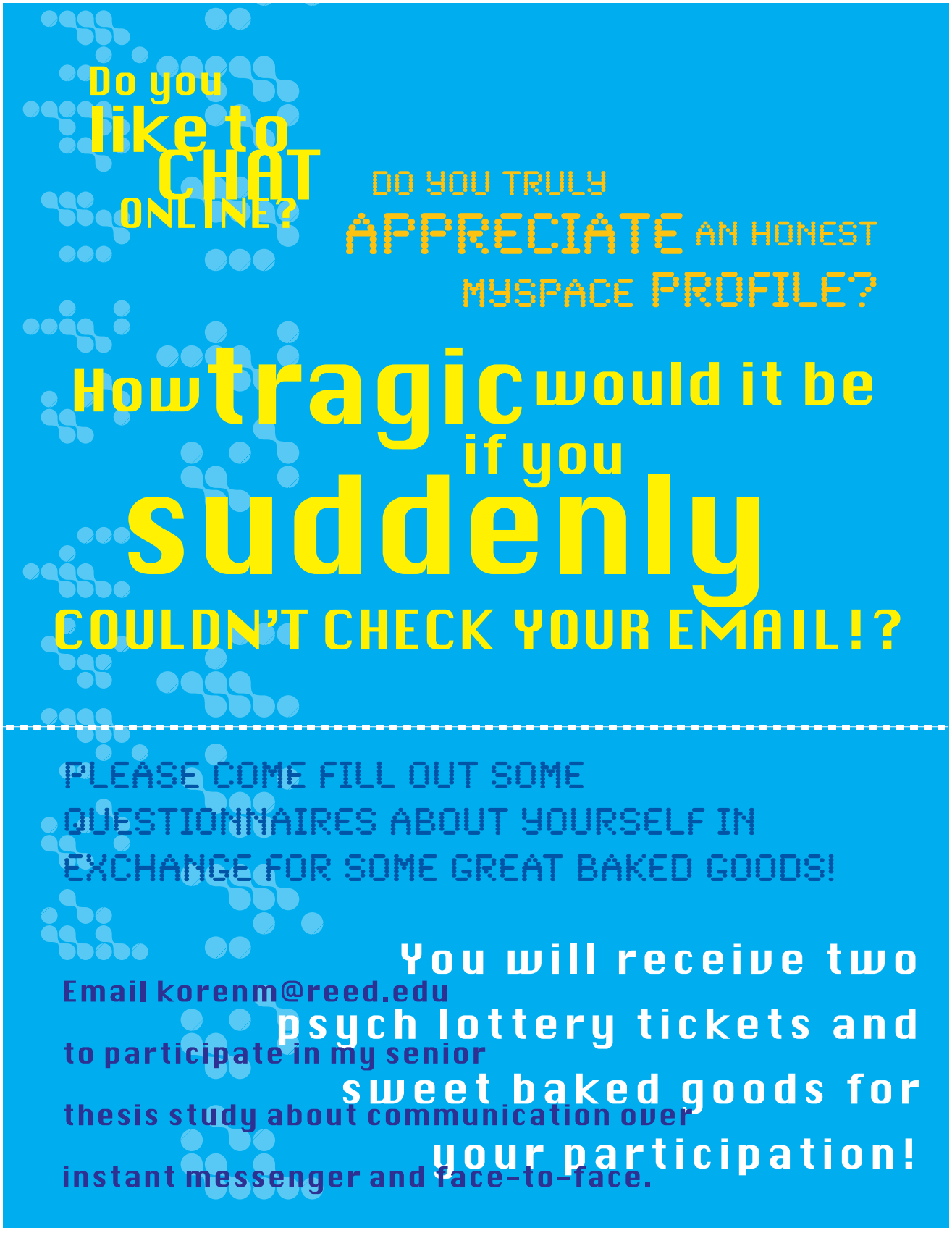
At this point in development, splitting results from the baby's inability to form holistic representations of people. The baby's inability to manage the resultant anxiety from encountering external objects which do not correlate with his internal representations of those objects necessitates this splitting. To encounter a discrepancy between the two representations is too anxiety-provoking for a baby who has not yet developed the emotional resources to understand that the same object can both cause you grief and provide succor. By subsequently altering her perceptions to be more in line with her experience, the child reduces the chance of experiencing anxiety at the next meeting. It is necessary for the child to learn how to manage the vicissitudes of the emotions and moods associated with encountering people in everyday life, and managing her representations of people is the crux of this issue.

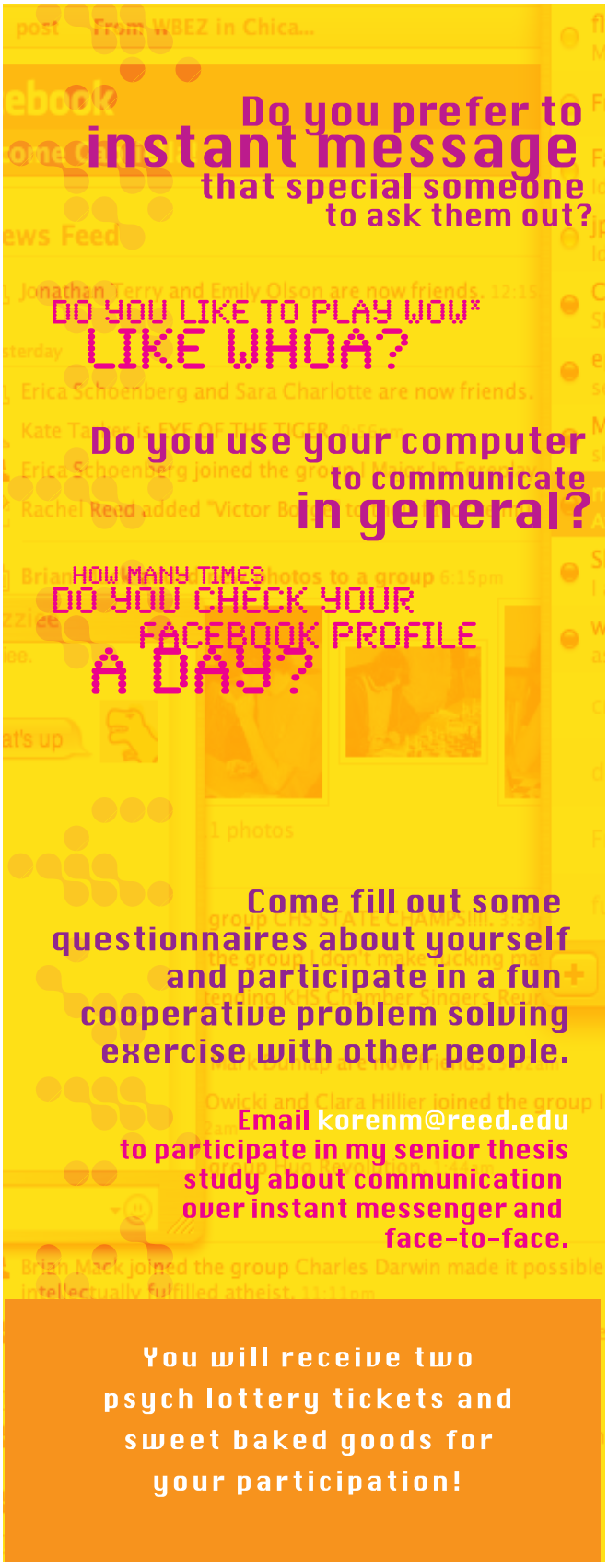
The field of psychology endeavors to provide relief to people enduring grief, pain, or suffering from maladaptive behaviors in response to their unmet needs. As a result, "psychoanalytic theory presupposes something is missing" (Greenberg & Mitchell, 1983, p. 15) and attempts to reconnect or rebuild support systems within individuals so that they may function happily and at ease in society. Unfortunately, all we have are discordant models that represent alternate ways of thinking rather than "categorizations of clinical data" (Greenberg & Mitchell, 1983, p. 19) to help reason through these problems.

To this end, one way to empirically study this phenomenon is to capture these discordant perceptions and determine how social perceptions change as a result of them. Although there is no way to measure a participant's degree of inconsistency between his or her internal and external representations on an absolute scale, measuring the relative difference in those representations is possible. By altering a situation so that our perceptions are necessarily attenuated and thus different, we can compare those perceptions to a situation where they are not, and measure the difference. Our perceptions are necessarily attenuated in situations where a computer mediates our communication. Such an interaction environment would be ideal for assessing the link between inaccurate perceptions and psychopathology. By examining our perceptions of people in both conditions, we may continue to put "clinical data" to our suppositions for how we relate to objects.

# Appendix A

# Advertisements


Do you like to CHAT ONLINE?
DO YOU TRULY APPRECIATE AN HONEST MYSPACE PROFILE?
How tragic would it be if you suddenly
COULDN'T CHECK YOUR EMAIL!?
PLEASE COME FILL OUT SOME QUESTIONNAIRES ABOUT YOURSELF IN EXCHANGE FOR SOME GREAT BAKED GOODS!
Email korenm@reed.edu to participate in my senior thesis study about communication over instant messenger and face-to-face.
You will receive two psych lottery tickets and sweet baked goods for your participation!


Do you prefer to
instant message
that special someone
to ask them out?
DO YOU LIKE TO PLAY WOW*
LIKE WHOA?
Do you use your computer
to communicate
in general?
HOW MANY TIMES
DO YOU CHECK YOUR
FACEBOOK PROFILE
A DAY?
Come fill out some
questionnaires about yourself
and participate in a fun
cooperative problem solving
exercise with other people.
Email korenm@reed.edu
to participate in my senior thesis
study about communication
over instant messenger and
face-to-face.
You will receive two
psych lottery tickets and
sweet baked goods for
your participation!

# Appendix B

# Email Response to Prospective Participants

Dear Student,

Thank you for expressing interest in participating in my senior thesis study about the effects of computer-mediated communication (communicating over AOL instant messenger) on social interaction! In this study, you will be asked to complete two decision making tasks with two different partners, and then asked to rate them and yourself on a variety of traits. One task will be completed using Instant Messenger to communicate with your partner, and one task will be completed by talking face-to-face with your partner.

This study will take about an hour of your time, and you will be asked to fill out multiple questionnaires with personal questions regarding your emotions and thoughts regarding yourself and your interaction partners.
You may decide to stop participating at any time and will still be eligible for all benefits to which you are entitled.

Those benefits include two psychology lottery tickets (a chance to win some money!) and freshly baked goods.

If you'd like to participate in the study, please go to http://www.reed.edu/~korenm/tt.html. All the events on this calendar are potential times to participate in my thesis. Please send me ALL the dates for which you can participate, and I will send you a confirmation email for one of them shortly. Remember, the experiment takes about an hour to complete. Save room for some baked goodies!

Please forward any questions regarding this experiment to me or my thesis advisor, Ken Abrams (abramsk@reed.edu).

Thank you,

Matthew Koren
korenm@reed.edu

# Appendix C

# Covariate Questionnaire (SIAS, SPS, UCLA, SDS, IRSFQ)

Instructions: The following statements describe how some people feel. For each statement, please indicate how you feel in the way described by writing a number in the space provided.

**(Social Interaction Anxiety Scale, SIAS)**

| *Not at all* | *Slightly* | *Moderately* | *Very* | *Extremely* |
|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 |

___ 1. I get nervous if I have to speak with someone in authority (teacher, boss, etc.).
___ 2. I have difficulty making eye-contact with others.
___ 3. I become tense if I have to talk about myself or my feelings.
___ 4. I find difficulty mixing comfortably with the people I work with.
___ 5. I tense-up if I meet an acquaintance in the street.
___ 6. When mixing socially I am uncomfortable.
___ 7. I feel tense if I am alone with just one other person.
___ 8. I am at ease meeting people at parties, etc.
___ 9. I have difficulty talking with other people.
___ 10. I find it easy to think of things to talk about.
___ 11. I worry about expressing myself in case I appear awkward.
___ 12. I find it difficult to disagree with another's point of view.
___ 13. I have difficulty talking to attractive persons of the opposite sex.
___ 14. I find myself worrying that I won't know what to say in social situations.
___ 15. I am nervous mixing with people I don't know well.
___ 16. I feel I'll say something embarrassing when talking.
___ 17. When mixing in a group I find myself worrying I will be ignored.
___ 18. I am tense mixing in a group.
___ 19. I am unsure whether to greet someone I know only slightly.

**(Social Phobia Scale, SPS)**

| *Not at all* | *Slightly* | *Moderately* | *Very* | *Extremely* |
|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 |

___ 1. I become anxious if I have to write in front of other people.
___ 2. I become self-conscious when using public toilets.
___ 3. I can suddenly become aware of my own voice and of others listening to me.
___ 4. I get nervous that people are staring at me as I walk down the street.
___ 5. I fear I may blush when I am with others.
___ 6. I feel self-conscious if I have to enter a room where others are already seated.
___ 7. I worry about shaking or trembling when I'm watched by other people.
___ 8. I would get tense if I had to sit facing other people on a bus or a train.
___ 9. I get panicky that others might see me to be faint, sick, or ill.
___ 10. I would find it difficult to drink something if in a group of people.
___ 11. It would make me feel self-conscious to eat in front of a stranger at a restaurant.
___ 12. I am worried people will think my behavior off.
___ 13. I would get tense if I had to carry a tray across a crowded cafeteria.
___ 14. I worry I'll lose control of myself in front of other people.
___ 15. I worry I might do something to attract the attention of others.
___ 16. When in an elevator I am tense if people look at me

—— 17. I can feel conspicuous waiting in a line.
—— 18. I get tense when I speak in front of other people.
—— 19. I worry my head will shake or nod in front of others.
—— 20. I feel awkward and tense if I know people are watching me.

Instructions: The following questions ask about how people sometimes feel. For each question, please indicate how often you feel the way described by writing a number in the space provided. Here is an example:

How often do you feel happy?

If you never felt happy, you would respond "never" (0), if you always feel happy, you would respond "always" (4).

**(UCLA-Version 3 Loneliness Scale, UCLA)**

| *Never* | *Rarely* | *Sometimes* | *Always* |
|---|---|---|---|
| 0 | 1 | 2 | 3 |

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

**(Zung Symptoms of Depression Scale, SDS)**

| *None of the time* | *A little of the time* | *Some of the time* | *A good part of the time* | *Most of the time* |
|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 |

___ 1. I feel down-hearted and blue.
___ 2. Morning is when I feel the best.
___ 3. I have crying spells or feel like it.
___ 4. I have trouble sleeping at night.
___ 5. I eat as much as I used to.
___ 6. I still enjoy sex.
___ 7. I notice that I am losing weight.
___ 8. I have trouble with constipation.
___ 9. My heart beats faster than usual.
___ 10. I get tired for no reason.
___ 11. My mind is as clear as it used to be.
___ 12. I find it easy to do the things I used to.
___ 13. I am restless and can't keep still.
___ 14. I feel hopeful about the future.
___ 15. I am more irritable than usual.
___ 16. I find it easy to make decisions.
___ 17. I feel that I am useful and needed.
___ 18. My life is pretty full.
___ 19. I feel that others would be better off if I were dead.
___ 20. I still enjoy the things I used to.
___

Instructions: The following statements describe how people sometimes feel. For each statement, please indicate how often you feel the way described by writing a number in the space provided.

**(Internet use to Regulate Social Fears Questionnaire, IRFSQ)**

| *None of the time* | *A little of the time* | *Some of the time* | *A good part of the time* | *Most of the time* |
|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 |

___ 1. I feel less inhibited online.
___ 2. I am less concerned about what others thing about me online.
___ 3. I can be whoever I want to be online.
___ 4. Social interaction is more comfortable online.
___ 5. It is easier to express my feelings online.
___ 6. I can be more romantic when I am online.
___ 7. I stay online to escape offline pressures.
___ 8. I use the internet when I am tense.
___ 9. Being online provides me with a sense of belongingness.
___ 10. I have met more people online that I can not meet offline.

# Appendix D

# Social Perceptions Questionnaire

Please write your participation CODE here ⇨ _____

Instructions: The following questions ask about your perceptions of yourself, your partner, and how your partner perceived you. For each question, please indicate to what degree you feel the way described by writing a number in the space provided.

**(Other Perceptions)**

| Not at all | | | | | | | | Extremely |
|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

___ 1. How socially skilled do you think your partner was?
___ 2. How likable do you think your partner was?
___ 3. How open do you think your partner was?
___ 4. How physically attractive do you think your partner was?
___ 5. How intelligent do you think your partner was?
___ 6. How friendly do you think your partner was?
___ 7. How much of a good leader do you think your partner was?
___ 8. How anxious do you think your partner was?
___ 9. How active do you think your partner was?
___ 10. How negative do you think your partner was?

**(Self Perceptions)**

| Not at all | | | | | | | | Extremely |
|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

___ 11. How socially skilled do you think you were?
___ 12. How likable do you think you were?
___ 13. How open do you think you were?
___ 14. How physically attractive do you think you were?
___ 15. How intelligent do you think you were?
___ 16. How friendly do you think you were?
___ 17. How much of a good leader do you think you were?
___ 18. How anxious do you think you were?
___ 19. How active do you think you were?
___ 20. How negative do you think you were?

**(Metaperceptions)**

| Not at all | | | | | | | | Extremely |
|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

___ 21. How socially skilled do you think your partner perceived you?
___ 22. How likable do you think your partner perceived you?
___ 23. How open do you think your partner perceived you?
___ 24. How physically attractive do you think your partner perceived you?
___ 25. How intelligent do you think your partner perceived you?
___ 26. How friendly do you think your partner perceived you?
___ 27. How much of a good leader do you think your partner perceived you?
___ 28. How anxious do you think your partner perceived you?
___ 29. How active do you think your partner perceived you?
___ 30. How negative do you think your partner perceived you?

□ FTF
□ CMC

Please write your participation CODE here ⇨ _____

**B. Prior Acquaintance**

| Not at all | | | | | | | | Extremely well |
|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

1. Please circle how well you knew the person you interacted with before the interaction you just had.

| Not at all | | | | | | | | Extremely well |
|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

2. Please circle how well you knew the person you interacted with over the computer before the interaction you just had.

Please turn this sheet in when you are done.

Thank you!

□ FTF
□ CMC

# Appendix E

# Decision-making tasks

Instructions: You will have about 10 minutes to complete this task. Please work with your partner to complete it.

## *Wrecked on the Moon*

You are a member of a space crew originally scheduled to rendezvous with a mother ship on the lighted surface of the moon. Due to mechanical difficulties, however, your ship was forced to land at a spot some 200 miles from the rendezvous point, on the light side of the moon. During re-entry and landing, much of the equipment aboard was damaged and, since survival depends on reaching the mother ship, the most critical items available must be chosen for the 200-mile trip. Below are listed the fifteen items left intact and undamaged after landing. You and your partner's task is to rank them in terms of their necessity to your crew in reaching the rendezvous point[1]. Place the number 1 by the most crucial item, the number 2 by the second most crucial, and so on through number 15, the least important.

__Box of matches
__Food concentrate
__Fifty feet of nylon rope
__Parachute silk
__Portable heating unit
__Two .45-caliber pistols
__One case dehydrated milk
__Two 100-pound tanks of oxygen
__Stellar map (of the moon's constellation)
__Life raft
__Magnetic compass
__Five gallons of water
__Signal flares
__First-aid kit containing injection needles
__Solar-powered FM receiver transmitter

[1] You're wearing pressurized space suits.

Instructions: You will have about 10 minutes to complete this task. Please work with your partner to complete it.

## *They'll Never Take Us Alive*

In a recent survey *Dun's Review* lists the most perilous products or activities in the United States, based on annual death statistics. Below are listed fifteen of these death-causing hazards. Your task is to rank them in order of dangerousness according to the number of deaths caused each year. Place the number "1" by the most dangerous, the number "2" by the next most dangerous, and so forth:

_____ swimming
_____ railroads
_____ police work
_____ home appliances
_____ alcohol
_____ nuclear power
_____ smoking
_____ motor vehicles
_____ pesticides
_____ handguns
_____ bicycles
_____ firefighting
_____ mountain climbing
_____ vaccinations
_____ surgery

# Appendix F

# Informed Consent Form

# REED COLLEGE
# Informed Consent Form

## Purpose

Psychology is a science studying individuals and their emotional, social, and behavioral adaptation to their environment. This is a psychology thesis studying people's perceptions of themselves and of their partner after interacting over a computer and in person. Data acquired from this experiment will be used in the primary investigator's undergraduate thesis.

## Procedure

First, you will be asked to complete a packet of questionnaires about how you interact socially. There are about 150 questions, but it should only take you about 30 minutes to answer all of them. Please answer honestly and accurately, and you can take all the time you need to complete the packet.

Second, you will be asked to engage in two decision-making tasks. You will complete one task with a partner in person, and with one partner over the computer using the AOL instant messenger program. If you do not know how to use the instant messenger program, you will be instructed how to do so. You will have about 15 minutes with each person, and after each interaction you will be asked to complete a questionnaire rating yourself and your partner on a number of social traits and how well you knew each other prior to this experiment.

## Risks and Costs

Participation in this study involves one-on-one interactions with people you may not know, and that may make some people uncomfortable. In addition, you will be asked to answer personal questions about yourself and your perception of your interaction partner. This also may make some people uncomfortable, however, your responses will be kept strictly confidential.

## Experiment Length

The questionnaire packet will take about a half hour to complete. Each task will last about 15 minutes, including the questionnaire following each conversation. The total time to complete the experiment will be about 1 hour.

## Benefits

For your participation in the experiment, you will be rewarded with baked goods and two psychology lottery tickets. You will also learn how to use AOL instant messenger if you do not already know how. Of course, you are free to stop participating at any point you feel uncomfortable or feel unable to complete the study, and you will still receive two lottery tickets and baked goods.

## Confidentiality

To protect your privacy you will be randomly assigned a number code. All research data will be identified by that code, not by your name. Although the information that will be recorded about your participation in the study will be used in the primary investigator's thesis and may be shared with other researchers, neither your name, nor any identifying characteristics will ever be attached to this information.

## Other Information

Taking part in this study is voluntary. You may choose not to particiate and you may leave the study at any time. Leaving the study will not result in any penalty or loss of benefits to which you are entitled. If you choose to leave the study you will still be offered baked goods and two psychology lottery tickets.

For questions about the study you may contact Matthew Koren at: korenm@reed.edu or Dr. Ken Abrams at: abramsk@reed.edu or by phone at (503) 777-7267. For questions about being a research participant at Reed College or about research-related injuries contact Dr. Makley, the chairperson of the Reed College Human Subjects Research Committee by e-mailing her at makleyc@reed.edu or by calling her at (503) 771-1112 ext. 7461.

Access to a professional counselor is free and readily available for all participants if you feel that you need to talk to one. The researcher can assist you in contacting the counselor-on-call by telephone (503-771-7533) or you may schedule an appointment at your convenience with the counseling center by emailing <<cnelson@reed.edu>> or calling 503-517-7349.

Your signature indicates that you have read and understand the above information and agree to take part in this study. Please understand that you may withdraw your consent at any time without penalty. Your signature also indicates that you are at least 18 years of age. The researcher will provide you with a copy of this form for your own records.

Participant Name: _____ Date:_____

Signature: _____

# Appendix G

# Debriefing Script

THE EFFECTS OF INSTANT MESSENGER ON INTERPERSONAL PERCEPTION

::

DEBRIEFING

Thank you for completing my thesis experiment. The goal of my experiment was to establish support for the notion that instant messenger moderates the effects of loneliness on interpersonal perception. Each participant engaged two partners in a decision making task, one face-to-face, and one over AOL instant messenger. The tasks were drawn from a book about group skills and theory, and were designed to promote conversation and cooperative interaction.

I will use the data gathered today in my thesis, but no information identifying any of the participants will be used in the text, and records identifying the participants will be destroyed at the conclusion of the experiment.

Also, it would be a great help if you did not discuss with others what you did during the experiment, but kept all information directly relating to today's experiment in confidence. This will insure that future participants act naturally and respond candidly. If you have any questions, please do not hesitate to ask, or you can send an email to korenm@reed.edu (me) or abramsk@reed.edu (my advisor).

Further, access to a professional counselor is free and readily available for all participants if you feel that you need to talk to one. The researcher can assist you in contacting the counselor-on-call by telephone or you may schedule an appointment at your convenience with the counseling center by email or calling. This information is all on your consent form.

Finally, please fill out your psych lottery ticket and enjoy some baked goods or chocolate. Thank you for participating in my study. I hope you had a good time!

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