

EMPATHIC ACCURACY AND COMPUTER-MEDIATED COMMUNICATION: TESTING
THE EFFECTS OF THE TARGET PARTNER'S ATTRACTIVENESS,
SELF-DISCLOSURE, AND TRUST

by

KATHRYN HYDE ROLLINGS

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ABSTRACT

EMPATHIC ACCURACY AND COMPUTER-MEDIATED COMMUNICATION: TESTING THE EFFECTS OF THE TARGET PARTNER'S ATTRACTIVENESS, SELF-DISCLOSURE, AND TRUST

Kathryn Hyde Rollings, M.S.

The University of Texas at Arlington, 2009

Supervising Professor: William Ickes

This study examined empathic accuracy in a Computer-Mediated Communication setting. The attractiveness of the perceived interaction partner was manipulated and used as an independent variable. Participants were 48 dyads ($N = 96$) from the subject pool at the University of Texas at Arlington. It was expected that individuals who were interacting with a more attractive partner would have higher levels of empathic accuracy, and that when there was a more attractive male partner in the dyad, the dyad as a whole would use fewer third-person pronouns and more first- and second-person pronouns. It was also expected that increased self disclosure and increased trust would lead to higher levels of empathic accuracy; these hypotheses were not supported. Finally, it was expected that the relationship between trust and empathic accuracy would be mediated by self-disclosure; however, there was no support for this hypothesis.

Additional analyses revealed that participants in this study did exhibit empathic accuracy while interacting via Computer-Mediated Communication. Limitations and Future Directions are discussed.

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CHAPTER 1

INTRODUCTION

The advent of the internet as a new method of communication has raised a variety of questions regarding the way that people present themselves and perceive others when interacting through this medium. Computer mediated interactions that provide only text messages can be ambiguous due to the lack of nonverbal and paralinguistic information that is usually available to individuals who are interacting in a face-to-face situation. Such ambiguity can result in miscommunication or misunderstanding regarding what one's conversation partner is thinking or feeling.

In the context of face-to-face interactions, some individuals are more adept than others at inferring what their interaction partner is thinking or feeling. The degree to which a perceiver can accurately infer the specific content of another person's thoughts and feelings is called *empathic accuracy* (EA) (Ickes, 2001, 2003; Ickes, Stinson, Bissonnette, & Garcia, 1990). Although extensive research has explored the EA of individuals in face-to-face interaction, there have been almost no studies exploring EA in Computer Mediated Communication (CMC). EA can be useful in the study of CMC because it may help us to understand some of the underlying mechanisms involved in this increasingly prevalent form of communication.

1.1 The Current Study

The current study sought to explore some of the factors that affect empathic accuracy in the initial, computer-mediated interactions of opposite-sex strangers. Although one could study characteristics of the *perceiver* (the person who is trying to infer the other person's thoughts and feelings), the focus in this study was on characteristics of the *partner* (the "target person" whose thoughts and feelings the perceiver is attempting to infer). The specific

characteristics I examined, as suggested by previous research findings, were (1) the partner's perceived physical attractiveness, (2) the partner's level of self-disclosure, and (3) the partner's reported level of trust in the perceiver. In general, I expected that all three of these factors would have a positive effect on the perceiver's ability to accurately infer the specific content of the partner's thoughts and feelings.

1.2 Physical Attractiveness

In face-to-face interactions, some of the very first information that an individual receives when meeting someone else concerns the other person's physical appearance. Although this observation is commonplace in the context of face-to-face interactions, it applies in the context of many computer-mediated interactions as well. One need only visit popular networking websites such as MySpace and Facebook to see that, even in the realm of Computer Mediated Communication (CMC), physical appearance cues can provide the basis for an individual's first impression of a potential interaction partner. In addition, physical attractiveness can evoke certain expectations about an interaction. For instance, in a study by Snyder, Tanke, and Berscheid (1977), male participants who believed that they were about to interact with an attractive female partner expected their interaction to be a more positive social experience than men who believed that they were about to interact with an unattractive female partner.

Of most direct relevance to the current study, Ickes, Stinson, Bissonnette, and Garcia (1990) found that, in initial face-to-face interactions between partners of the opposite sex, the partner's physical attractiveness was positively correlated with the perceiver's success in accurately inferring the partner's thoughts and feelings. Ickes et al. (1990) interpreted this outcome as a motivational effect. Expecting that interactions with attractive opposite-sex partners would be more rewarding than interactions with less attractive ones, the perceivers in their study were presumably more motivated to achieve good rapport with attractive partners than with less attractive ones. By applying this additional motivation to the task of understanding their partner's thoughts and feelings, they were able to achieve higher levels of

empathic accuracy. I predicted that this same motivational effect would be found in the data for the current study.

1.3 Self-Disclosure and Personal Pronoun Usage

One needs only common sense to predict that partners who are more self-disclosing should have thoughts and feelings that are easier to infer (Bargh, McKenna, & Fitzsimmons, 2002; Taylor & Altman, 1987). Surprisingly, however, this common-sense hypothesis has yet to be tested in any systematic way. I tested this hypothesis in the current study by correlating an independently rated measure of self-disclosure on the part of one interaction partner (the target) with the corresponding empathic accuracy of the other interaction partner (the perceiver). Raters read the transcripts of the instant message conversations and counted the number of self-disclosing statements that each participant made, and this measure was used as a direct-but subjective measure of self-disclosure.

In addition to this measure, I used the percentage of first-person pronouns that appeared in the partner's conversation as an indirect-but-objective measure of the partner's self-disclosure. Because it is usually necessary to use first-person pronouns when self-disclosing to another person (e.g. "I am a psychology major"), the number and percentage of first-person pronouns that appear in the set of words that comprise each partner's instant messages served as an indirect proxy measure of the amount of self-disclosure in which each participant engaged.

Personal pronouns were extracted and summed automatically with the use of a text-analysis program, the Linguistic Inquiry and Word Count (Pennebaker, Booth, & Francis, 2007). The LIWC 2007 program was also used to examine the use of third-person pronouns. Third-person pronouns are of interest with respect to what Garcia, Stinson, Ickes, Bissonnette, and Briggs (1991) have termed the "exclusivity effect." They found that when women interacted for the first time with an attractive male partner, they used a smaller percentage of third-person pronouns in the conversation, thereby creating the impression of an interaction that was

exclusive in the sense that relatively few references were made to people other than self and partner.

This exclusivity effect, if replicated in the present CMC study, might also be related to the empathic accuracy of the female perceivers to the extent that it reflects the strength of their motivation to establish good rapport with an attractive male partner. I expected to find that the effect of the male partners' attractiveness on the EA of their female partners was mediated by the degree to which the female partners' limited their use of third person pronouns (which, according to this reasoning, is a proxy index of their motivation to establish good rapport with their male partner). Moreover, although the frequencies of using first-person and third-person pronouns can be unrelated in theory, in practice I expected them to be related, such that a reduction in third-person pronouns would be accompanied by an increase in first- and second-person pronouns. Focusing the conversation exclusively on self and other was thereby expected to facilitate both self-disclosure and other-disclosure, which in turn were expected to facilitate greater EA on the part of both interaction partners.

1.4 Trust

Communicating via the internet is usually not synonymous with the idea of trust. One need only watch an episode of *Dateline NBC* to learn that individuals encountered on the internet lie, and that their intentions are not always pure. To what degree does an interaction between two strangers on the internet differ from an interaction between two strangers meeting face-to-face for the first time? One notable difference is the anonymity afforded interactants who meet on the internet. Interactants can readily, and often persuasively, lie regarding their age, race, and gender, and even their sexual orientation. Indeed, even in cases in which individuals post a photo of "themselves" on the internet, the physical image they choose to present can be one that is (1) digitally "enhanced," (2) represents them as they were years earlier, or (3) represents them with another person's photograph instead. In other words, people on the internet can lie with pictures as easily as they can with words.

Given this strong potential for misrepresentation and deceit, trust should be an important element in internet interactions, and should be particularly important in determining the amount of self-disclosure that occurs. If CMC partners feel that they can trust each other, they should self-disclose more freely (Jones, Couch, & Scott, 1997; Rempel, Holmes, & Zanna, 1985). This increased self-disclosure should, in turn, enable them to more accurately “read” each other’s thoughts and feelings. On the other hand, if CMC partners feel that they cannot trust each other, the result may be less genuine self-disclosure (and, at least in some cases, more false self-disclosure instead).

According to the results of a study by Feng, Lazar, and Preece (2004) the perception that one’s partner is empathically accurate can facilitate trust in one’s partner, suggesting that the casual arrow connecting trust with EA may point in both directions. In any event, there appears to be an adequate theoretical and empirical basis for predicting that the partner’s trust and the perceiver’s EA will be empirically linked. In the current study, I tested the mediation hypothesis that a trusting partner would self-disclose more, which in turn would facilitate the perceiver’s EA.

1.5 Hypotheses

The specific hypotheses that I proposed can be formally stated as follows:

1.5.1 Hypothesis 1

Perceivers who interact with “more attractive” partners are expected to achieve higher EA scores than those who interact with “less attractive” partners, consistent with the effect first reported by Ickes, Bissonnette, Stinson, & Garcia (1990). Ickes et al. interpreted this effect as deriving from the greater motivation that perceivers have to get to know more attractive relationship partners in mixed-sex dyads.

1.5.2 Hypothesis 2

Perceivers are expected achieve higher EA scores to the extent that their interaction partner engages in a higher level of self-disclosure, as measured by raters’ coding of this behavior and by the individual’s use of first-person pronouns in the conversation. This

prediction was based on the assumption that partners who are more open in their self-disclosure will also be more open in expressing valid cues about the content of their successive thoughts and feelings.

1.5.3 Hypothesis 3

In terms of language usage, I expect to replicate the “exclusivity effect” observed by Garcia, Stinson, Ickes, Bissonnette, & Briggs (1991), which showed that when a woman interacts with an attractive partner, the dyad tends to use a smaller percentage of third-person pronouns. I also expect to find the corollary of this hypothesis to be true, that when a woman interacts with an attractive male partner, the dyads tend to use a larger percentage of first- and second-person pronouns.

1.5.4 Hypothesis 4

Feng, Lazar, and Preece (2004) found that manipulated EA resulted in higher trust ratings in on-line interactions. I propose that the reverse causal ordering holds as well. Specifically, a higher EA score on the part of the perceiving partner should be correlated with higher level of trust on the part of the target partner such that target partners who are more trusting should also be more likely to provide their perceiver partners with information that allows them to attain a higher EA score. This finding is expected to replicate the correlation found by Feng et al. (2004), although my interpretation of it may be different.

1.5.5 Hypothesis 5

To test the causal sequence that is most clearly implicated by Hypothesis 4, I plan to conduct a mediation analysis using a Sobel test and bootstrapping method as described in Preacher and Hayes (2004). I expect to find that partner self-disclosure will moderate the aforementioned relationship between partner trust and actor empathic accuracy. In other words, I expect to find that partners who trust their perceiver more will disclose more information about themselves, which will allow the perceiving partner to achieve a higher level of empathic accuracy.

CHAPTER 2

METHOD

2.1 Participants

The participants were 96 undergraduate students at the University of Texas at Arlington. The experiment was conducted using dyads; therefore, 48 pairs participated. These dyads were all mixed-sex, and therefore composed of 48 male and 48 female participants. All of the participants in this study were Caucasian and between the ages of 18 and 24 at the time of their participation. They rated their own computer skills as being between average and better-than-average for individuals their age ($M = 3.75$, $SD = .88$, on a five point scale with “1” indicating “nonexistent to poor” computer skills and “5” indicating “excellent to exceptional” computer skills). On average, the participants in this study reported spending between one and three hours on the internet on a daily basis ($M = 3.74$, $SD = 1.05$, on a five point scale with “1” indicating “none” and “5” indicating “more than three hours” spent on the internet daily). They also reported having acquired between zero and two friendships on-line ($M = 1.82$, $SD = 1.03$, on a five point scale with “1” indicating “none” and “5” indicating “7 or more” friendships), and a similar number of romantic partners, ($M = 1.21$, $SD = .50$, on the same five point scale used for friendships). Finally, they reported using Instant Messenger to communicate with their friends occasionally to often ($M = 3.02$, $SD = 1.52$, on a five point scale with “1” indicating “no, never” and “5” indicating “everyday”).

2.2 Design

This study was designed so that there were four possible conditions in which interactants encountered each other. These included (1) a condition in which both the male and the female partners believed that they were interacting with a relatively attractive other; (2) a

condition in which both partners believed that they were interacting with a relatively unattractive other; (3) a condition in which the male partner believed that he was interacting with a relatively unattractive female partner, whereas the female partner believed that she was interacting with a relatively attractive male partner; and (4) a condition in which the male partner believed that he was interacting with a relatively attractive female partner, whereas the female partner believed that she was interacting with a relatively unattractive male partner. Twelve dyads were run in each of the four conditions, for a total of 48 dyads. According to Kenny, Kashy, and Cook (2006), 44 dyads is, conservatively, the minimum number necessary to determine the interdependence of dyad members' scores at a power of .80. Establishing the level of interdependence in dyad members' scores is the first step in analyzing data in a dyadic study. Therefore, using 48 dyads as the sample size seemed appropriate.

2.3 Standard Stimulus Photos: Perceived Attractiveness Manipulation

I used an HP Photosmart digital camera to take pictures of the ostensible interaction partners—the ones whose photos were shown to the actual participants. The same digital camera was used to take a photo of the actual interaction partners in the same locations and against the same background.

To create the standard stimulus photos of the physically more attractive versus less attractive male and female “partners” that were used to manipulate perceived partner attractiveness in this study, I approached and recruited 10 male and 10 female undergraduates who were either above average or below average in their physical attractiveness and asked to take their photos to use as possible stimulus materials in the study. All undergraduates who agreed to this request read and signed an Informed Consent Document that was specifically written and approved for this portion of the experiment. All photos were taken in the same location where the actual participants in the study were themselves photographed.

A group of raters in the UTA Social Interaction Lab then rated all of these candidate photos on the dimension of physical attractiveness. Raters were asked to estimate the age of the individual in the photo and to rate the physical attractiveness of the individual in the photo

on a seven-point Likert scale with “1” corresponding to “very unattractive” and “7” corresponding to “very attractive;” raters who knew the individual or were made uncomfortable by the photo were asked to respond with “0” which corresponded to “do not wish to rate.” Photos for which the average perceived age was lower than 18 or higher than 24 were automatically excluded from further consideration, as the participants in this study were led to believe that they were interacting with another college-aged student.

The male photos had an average attractiveness rating of 3.41 ($SD = 0.80$). Only one of the male photos was more than one standard deviation above the mean; therefore, the two highest rated photos were selected for use in the experiment to serve as the “more attractive” target photos ($X = 5.13$, $X = 3.94$). The two lowest-rated male photos were both more than one standard deviation below the mean, and were selected for use in the experiment to serve as the “less attractive” target photos ($X = 2.35$, $X = 2.53$). The female photos had an average attractiveness rating of 4.02 ($SD = 1.17$). The two highest rated photos were selected for use in the experiment to serve as the “more attractive” target photos ($X = 5.67$, $X = 5.11$), although only one of these was more than one standard deviation above the mean. The two lowest rated photos were selected for use in the experiment to serve as the “less attractive” target photos ($X = 2.06$, $X = 2.89$), although only one of these was more than one standard deviation below the mean.

These photos were used in the study to create each of the four conditions described above. Each participant was randomly assigned to view the photo that he or she was shown during the study.

2.4 Procedure

The experimenter met separately with each dyad member on different floors of the building to which they were asked to report (which partner—male or female—reported to which location was counterbalanced across dyads). Care was taken to ensure that the two participants in each session did not see one another while being seated in two cubicles (separated by an empty cubicle) in the Life Sciences building. After greeting each dyad

member, the experimenter gave each participant an Invitation to Participate (similar to the Informed Consent Document) and took a picture of each interaction partner against the same or a similar background to the one used for the stimulus photos.

After the paperwork was completed, and the photos taken, the participants were administered the Big Five Inventory (John and Srivastava, 1999, see Appendix A), and the researcher told them that she was going to “print the photos” of their interaction partners. Once a believable amount of time had elapsed, the experimenter reentered each cubicle, showing each participant a photo of his or her ostensible interaction partner. The photos were randomly selected from the set of gender-appropriate stimulus photos and within the constraints of the experimental design to create the four experimental conditions: (1) both partners viewed relatively attractive photos of their ostensible interaction partner, (2) both partners viewed relatively unattractive photos of their ostensible interaction partner, (3) the female partner viewed a relatively attractive photo of her ostensible male partner whereas the male partner viewed a relatively unattractive photo of his ostensible female partner, and (4) the male partner viewed a relatively attractive photo of his ostensible female partner whereas the female partner viewed a relatively unattractive photo of her ostensible male partner.

After giving the participants the photo of their presumed interaction partner, the experimenter turned on the computer monitors in each of the cubicles, which were tested prior to each session to ensure that they would run the AOL Instant Messenger software. AOL Instant Messenger was running prior to the start of each session, using accounts that had been set up by the experimenter. The male participant in each session chatted under the screen name “UTArlingtonGuy,” while the female participant chatted under the screen name “UTArlingtonGirl.” These screen names did not change from session to session.

The Instant Messaging software was set up in such a manner that the participants could only chat with each other; they were not able to chat with other individuals who may have been using Instant Messenger at the same time. In addition, the two participants’ screen names were made private, so that other individuals who were using the Instant Messaging software

concurrently were unable to initiate a chat with the participants. Although it was technically possible to circumvent these safeguards, there were no instances in which participants interacted with individuals other than their designated interaction partners.

Each participant was instructed to interact via the computer for fifteen minutes with the other participant. They were not given any biographical information about their interaction partner, but they were informed that their interaction partner was another student who was currently enrolled in one or more classes in the psychology department. They were asked to use their first names only during the interaction. After administering these instructions, the experimenter collected the photograph of the ostensible interaction partner from each of the participants, and closed their respective cubicle door.

After the 15-minute interaction period had elapsed, the experimenter re-entered each room, printed a copy of the transcript generated by the interaction on the printer in each cubicle, and saved an electronic copy of the conversation as a text file on each of the participants' computer. While the transcripts were being printed, the participants remained seated in their respective cubicles, where they were each asked to complete the post-interaction questionnaire (see Appendix B). Among the questions they answered were items concerning how attractive they found their interaction partner, the degree to which they trusted their interaction partner, how much they liked their interaction partner, and whether they would like to interact with their partner in the future.

Once the participants had completed these questionnaires, they were each given a printed transcript of their computer-mediated interaction. The AOL Instant Messenger software generates a sequentially ordered printout that shows the time that each message was sent as well as the screen name of the party who sent it. Each participant also was given a set of standard thought/feeling reporting forms (see Appendix C), along with a ballpoint pen and a yellow highlighter. The participants were instructed to use the highlighter to mark the last bit of "conversation" that occurred right before they had a specific thought or feeling, and to make

such marks throughout the entire transcript to indicate the points preceding each of the thoughts and feelings they distinctly remembered having.

After making each mark, the participant numbered it consecutively, added the same number to the next slot on the thought/feeling inference form, and then wrote down the specific content of the remembered thought or feeling within that slot. Before beginning this task, the participants were given a sample form to look at while the procedure was reviewed for them. Once the experimenter established that each participant clearly understood the procedure and how to follow it, the participant was left alone to record all of his or her remembered thoughts and feelings throughout the computer-mediated conversation.

After each participant finished marking and recording each of his or her actual thoughts and feelings, the experimenter collected the marked transcripts and the corresponding thought/feeling recording forms from the two participants. The experimenter then administered a brief survey asking participants to report their typical use of Computer Mediated Communication outside the lab (see Appendix B). The experimenter then gave each participant the other participant's marked transcript so that each participant could see the points at which their interaction partner reported having specific thoughts and feelings during their conversation. The experimenter also gave the participants a supply of standard empathic inference reporting forms (see Appendix D) on which to record their inferences about the specific content of the partner's thoughts and feelings.

The experimenter then explained the empathic inference task to each of the participants. The participant was asked to infer what the interaction partner was thinking or feeling at each marked spot on the transcript, and to record these inferences in sentence form within the numbered slot on the empathic inference coding form that corresponded to the same numbered thought or feeling on the partner's marked transcript. The participant was asked to record such inferences for all of the partner's reported thoughts and feelings, throughout the entirety of the interaction transcript.

Once each participant had completed the empathic inference task, the experimenter debriefed him or her (see Appendix E). The experimenter explained that the only deceptive element in the procedure was that the person in the photo was a different individual than the one the participant had actually interacted with, and that this deception was necessary in order to manipulate perceived partner attractiveness with an acceptable level of experimental control. The experimenter then described the research hypothesis relating perceived partner attractiveness to empathic accuracy, and solicited and answered any questions that the participant had. After each participant was debriefed, he or she was asked to sign the final Consent Document and was given the opportunity to ask the experimenter any pertinent questions about the experiment before being thanked and released.

2.5 Self-Report Measures

As noted above, the participants were asked to complete several measures over the course of their experimental session. At the start of the session, each participant completed the Big Five Inventory (John & Srivastava, 1999, see Appendix A). Later, immediately following their computer-mediated conversation, they each completed a post-interaction questionnaire (see Appendix B) that included questions regarding how much each participant liked his or her interaction partner, how attractive he or she found his or her interaction partner, and whether the interaction partner was someone that he or she would like to date. Participants also completed a brief survey questionnaire that asked about their typical internet usage and a scale that assessed their trust for individuals whom they meet via the internet (see Appendix B). During the thought/feeling recording and inference task, the participants were asked to complete the thought/feeling reporting forms (see Appendix C) and the thought/feeling inference forms (Ickes, 2003, See Appendix D), which enabled them to record their thoughts and feeling during the interaction and, subsequently, to infer their partner's thoughts and feelings during the interaction.

2.6 Empathic Accuracy Measure

To calculate a perceiver's empathic accuracy score, it was necessary to have student raters compare each of the target person's actual recorded thoughts/feelings with the corresponding thought/feeling inferences that were made by the perceiver. In the present study, a group of seven independent raters decided if the content of the actual and the inferred thought or feeling was "essentially different content," which was rated as "0"; "similar, but not the same content," which was rated as "1"; and "essentially the same content," which was rated as a "2" (Ickes, 2003, p. 74). An average empathic accuracy score was then calculated for each inference by averaging the ratings (0-2) across the set of raters (Ickes, 2001). The raters performed this task with a Cronbach's alpha of .92. These average scores were then added together for all of the inferences made by a particular participant to derive an overall accuracy score (Ickes, 2001).

Because different participants recorded different numbers of thoughts/feelings, it was necessary to standardize this score (Ickes, 2001). This standardization was achieved by dividing the accuracy score by the maximum number of accuracy points possible, which was the total number of thoughts/feelings that the participant recorded, multiplied by two, which represents the maximum number of EA "points" that an individual could score per inference. This calculation yielded a proportion score that was multiplied by 100.

2.7 Personal Pronoun Usage

I content-analyzed the conversations using the LIWC2007 computer program (Pennebaker, Booth, & Francis, 2007). Among other measures of word usage, the LIWC2007 program provided an automatic count of the numbers of first-person singular and third-person pronouns that were used in each text sample that was entered. I content-analyzed each dyad member's portion of the conversation to count the number of first-person singular and third-person pronouns that were used by each partner. I added these counts together for each dyad. By dividing these numbers by the total number of personal pronouns used by the dyad in the conversation, I derived measures of the proportion usage of first-person singular and third-

person pronouns in each dyad's conversation. These values were multiplied by 100 to yield percentages; this method is parallel to that used in Garcia, et. al (1991).

In order to test the corollary of Hypothesis 3, that when a female participant was interacting with a more attractive male partner, the dyad as a whole would use more first- and second-person pronouns than dyads in which the female partner believed that she was interacting with a less attractive male partner, it was necessary to derive a measure comprised of the first- and second-person pronouns used by each dyad. This was achieved by summing the counts provided by LIWC of first-person and second-person pronouns for each dyad. This number was divided by the total number of personal pronouns used by the dyad during the conversation to yield an "exclusivity" proportion. This value was multiplied by 100 and used as a percentage in analyses; this method is parallel to that used in Garcia, et. al (1991).

2.8 Level of Self-Disclosure

A set of three independent raters coded each partner's conversation for the amount of self-disclosure that occurred during the interaction. The raters were instructed to make a tally mark on a coding form each time the dyad member being rated made a statement that offered information about him- or herself. The raters completed this task, with a Cronbach's alpha of .87. The ratings made by the three coders were averaged to create a rated self-disclosure variable.

To supplement this direct-but-subjective measure of self-disclosure, I used the LIWC text-analysis software (Pennebaker, Booth, & Francis, 2007; Pennebaker, et al., 2007) to generate an indirect-but-objective measure of self-disclosure in the form of aggregated indices of the number and percentage of first-person singular pronouns that each partner used in their conversation. The rationale for this alternative measure was that people typically have to use first-person singular pronouns whenever they make self-disclosing statements. Because I had interaction data available to me, it seemed illogical to measure self-disclosure using one of the many self-report tools that assess this dimension. Rather than allowing an individual to self-report their degree of self-disclosure, I used the above method to generate an unbiased

assessment of an individual's amount of self-disclosure. I used the LIWC-generated total number of first-person singular pronouns used by each interaction partner. I then divided that number by the total number of words used by that interaction partner during the interaction to yield a proportion. This value was multiplied by 100 and used as a percentage in subsequent analyses.

2.9 Trust Score

After examining some of the available instruments for measuring trust (Feng, Lazar, & Preece, 2003; Rempel, et al., 1985; Rotter, 1967), I decided that none were optimal for the current CMC study. I therefore wrote a set of ten questions assessing the degree to which an individual trusted the person with whom he or she had just interacted. Each item on the scale was scored on a seven-point scale, with 1 indicating low trust and 7 indicating high trust; five items on the scale were reverse-scored. A sample item from the scale is "I feel that my interaction partner is someone I can count on." The overall trust score was calculated by adding together the scores of each of the individual items, with 7 representing the minimum level of trust and 70 representing the maximum level of trust.

Table 2.1 Intercorrelations of Items on the "Trust in Computer-Mediated Communication" Scale

	1	2	3	4	5	6	7	8	9	10
1	1.00	.52**	.50**	.44**	.54**	.53**	.54**	.39**	.50**	.39**
2		1.00	.36**	.41**	.51**	.38**	.34**	.43**	.58**	.32*
3			1.00	.52**	.37**	.48**	.49**	.39**	.42**	.28*
4				1.00	.47**	.49**	.56**	.51**	.45**	.33*
5					1.00	.40**	.52**	.36**	.43**	.22*
6						1.00	.53**	.61**	.45**	.54**
7							1.00	.48**	.50**	.43**
8								1.00	.51**	.53**
9									1.00	.36**

Table 2.1 – continued

10	1.00
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* $p < .05$, ** $p < .001$

An exploratory factor analysis revealed two potential factors, one with an Eigenvalue of 5.08, and one with an Eigenvalue of 1.00. An examination of the Scree Plot associated with this factor analysis indicated that the use of one factor to explain this variable would be appropriate. This factor was labeled “Trust in Computer Mediated Communication Partner.” The internal reliability of this scale was calculated to be .89 (Cronbach’s Alpha), which is a very good level of internal consistency for a scale of this length.

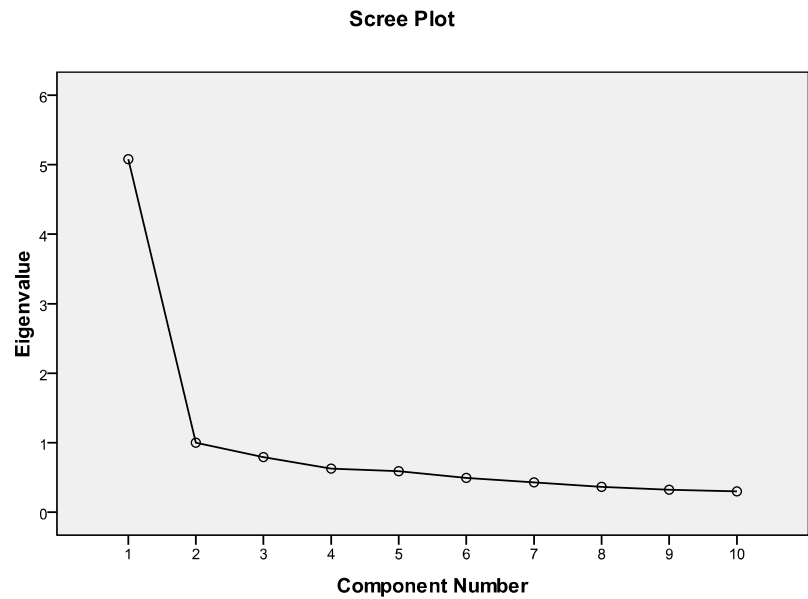


Figure 2.1 Scree Plot for “Trust in Computer-Mediated Communication” Scale

2.10 Data Analysis

2.10.1 Hypothesis 1

In Hypothesis, I predicted a significant main effect of partner attractiveness; that is, perceivers who believed that they were interacting with a more attractive interaction partner should have higher EA scores than those who believed that they were interacting with a less

attractive interaction partner. I did not expect this main effect to be qualified by a significant partner gender by partner perceived attractiveness interaction.

This hypothesis was tested using the Actor-Partner Interdependence Model (APIM)—a variant of the mixed model ANOVA (Campbell & Kashy, 2002; Kenny, Kashy, & Cook, 2006). I used the Multilevel Analysis as recommended by Kenny, Kashy, and Cook (2006, p. 158). The APIM analysis enabled me to test the effects of the partner predictor variables on the perceiver's EA while controlling for the corresponding perceiver predictor variables. In this case, I was able to test for the effect of the partner's perceived attractiveness on the perceiver's (actor's) EA while controlling for the effect of the perceiver's perceived attractiveness. Then, to see if the effect of the partner's perceived attractiveness was qualified by the partner's gender, I was able to test the significance of the partner gender X partner's perceived attractiveness interaction effect. The dependent variable was the participant's EA score, which was computed as a percentage score that has a potential range of 0 to 100.

2.10.2 Hypothesis 2

To test Hypothesis 2, the one relating the partner's self-disclosure to the perceiver's EA, the partner's self-disclosure was coded by student raters, and I calculated first-person pronoun usage with LIWC software (Pennebaker, et al., 2007), as described above. I then conducted two Actor-Partner Interaction Model (APIM) analyses on the data (Campbell and Kashy, 2002; Kenny, Kashy & Cook, 2006), using empathic accuracy as the dependent variable and actor and partner self-disclosure and partner gender as independent variables: one in which the coded self-disclosure variable was the independent variable, and one in which the first-person pronoun usage was used as the independent variable.

2.10.3 Hypothesis 3

I calculated the proportion of third-person pronouns used by the dyad members, as assessed using the LIWC software. I then conducted a regression analysis to explore the relationship between the male partner's attractiveness and the proportion of third-person pronouns used by the dyad as a whole during the interaction. I expected male's attractiveness

(more attractive or less attractive) to significantly predict the use of third-person pronouns by the dyad as a whole.

The corollary to Hypothesis three was tested in a similar manner. A linear regression was performed using male partner's attractiveness to predict the "exclusivity" (use of first- and second-person pronouns) as a whole.

2.10.4 Hypothesis 4

To test Hypothesis 4, which related partner trust to perceiver EA, trust scores were calculated based on the participant's responses to the trust measure described above (trust scores can potentially range from 0 to 70, with 70 being the highest). I then conducted an APIM analysis to test the prediction that when the target partner's trust score was higher, the perceiver's EA score would also be higher (controlling for the effect of the perceiver's own trust score).

2.10.5 Hypothesis 5

Using the partner trust, partner self-disclosure (both rated and calculated), and perceiver EA scores, I conducted a mediation analysis using the Sobel test and bootstrapping methods described by Preacher and Hayes (2004). This procedure allowed a direct test of the hypothesis that partner self-disclosure would mediate the relationship between partner trust and actor EA.

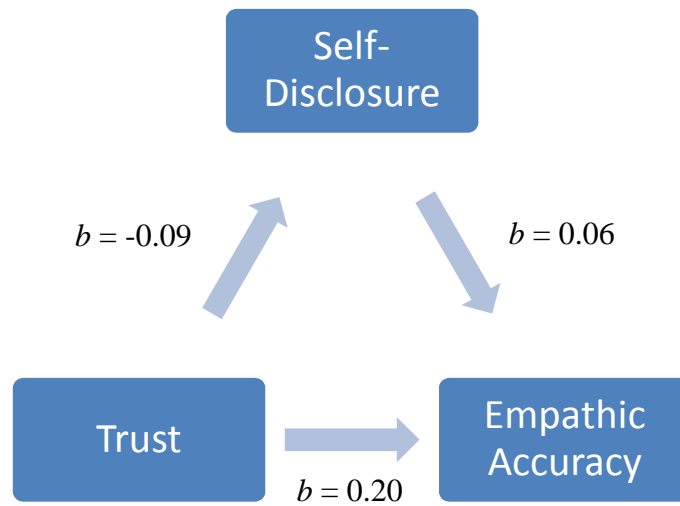
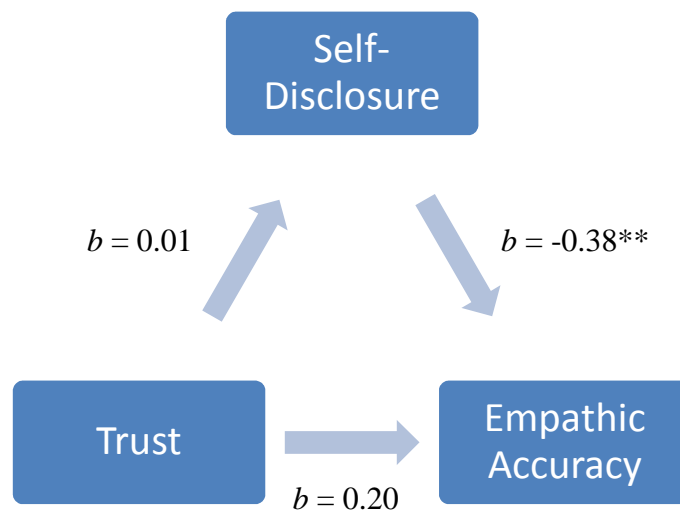


Figure 2.2 Model for Hypothesis 5: Rated self-disclosure mediating the relationship between trust and empathic accuracy.



****** $p = 0.02$

Figure 2.3 Model for Hypothesis 5: LIWC-calculated self-disclosure mediating the relationship between trust and empathic accuracy

CHAPTER 3

RESULTS

3.1 Data Screening

The data were thoroughly screened, and the variables I planned to use in ANOVA or regression procedures were examined to confirm that they did not violate the assumption of homoscedasticity. The variables did not violate this assumption, and were used without transformation.

Table 3.1 Descriptive Statistics for Variables Used to Test Hypotheses 1 – 5

Variable	N	Mean	SD	Min	Max	Skew	Kurtosis
Empathic Accuracy	96	33.84	13.52	9.17	75.00	0.59	-0.01
Rated Attractiveness ^a	96	3.53	0.96	1.00	5.00	-0.44	0.40
Self-Disclosure (Rated) ^a	96	14.17	4.67	5.67	29.67	0.86	0.89
Trust in CMC ^a	95	44.64	9.08	23.00	69.00	0.14	-0.38
Word Count	96	245.94	93.81	114.00	661.00	0.43	0.36
Percent Self Disclosure (LIWC) ^a	96	7.43	1.92	3.40	12.05	0.14	-0.38
Percent Third Person Pronouns ^b	48	0.00	24.47	8.65	5.92	0.72	-0.22
Percent First and Second Person Pronouns ^b	48	75.49	100.00	91.35	5.93	-0.71	-0.21

^a Raw values are reported here. Centered scores were used in analyses.

^b These variables are for the dyad as a whole, rather than for individual participants.

3.2 Manipulation Check

A check of the perceived attractiveness manipulation revealed that it was only partially successful. I performed two one-way ANOVAs (one for each gender) comparing the two “unattractive” photos for each gender with the two “attractive” photos for each gender.

There was a significant effect of photo viewed on the average attractiveness rating that the female participants gave their male partners, $F(3, 44) = 4.11, p = .01$. The female participants did not rate the two “attractive” male photos as significantly different in attractiveness level ($M = 3.82$ and $M = 3.45$), nor did they rate the two “unattractive” male photos as significantly different in attractiveness level ($M = 2.69$ and $M = 3.18$). However, while we would expect that each of the “attractive” male photos would be rated as significantly more attractive than each of the “unattractive” photos, this difference was only observed between the attractive male photos and one of the unattractive male photos. The rest of the male photos were not rated as being significantly different from each other on the physical attractiveness variable. This issue is addressed at length in the Discussion section.

There was a significant effect of photo viewed on how attractive the male participants reported finding their female partners, $F(3, 44) = 11.32, p < .001$. The male participants did not rate the “attractive” female photos as significantly different in level of attractiveness ($M = 3.82$ and $M = 3.46$). Nor did they rate the “unattractive” female photos as significantly different in level of attractiveness ($M = 2.69, M = 3.18$). However, I did observe a significant difference between each female “attractive” photo and each female “unattractive” photo, as would be expected.

Because the interaction partners’ ratings of their partners’ perceived attractiveness generally conformed to my expectations, I collapsed data for the photos within each

attractiveness condition, so that the data could be analyzed in accordance with the four conditions described in previous sections.

Female participants who viewed “less attractive” male photos rated their interaction partner as significantly less physically attractive ($M = 2.92$, $SD = 0.88$) than female participant who viewed “more attractive” male photos ($M = 3.63$, $SD = 0.77$; $t(46) = 2.97$, $p < 0.004$). Male participants who viewed “less attractive” female photos rated their interaction partner as significantly less physically attractive ($M = 3.19$, $SD = 0.87$) than male participants who viewed “more attractive” female photos ($M = 4.38$, $SD = 0.65$; $t(46) = 5.37$, $p < 0.001$). I therefore concluded that the manipulation of perceived attractiveness of interaction partner had been effective.

3.3 Nonindependence of Scores

According to Kenny, Kashy, and Campbell (2006), the first step in performing an analysis using the Actor Partner Interdependence Model is to establish nonindependence among the scores of the dyad members. This was achieved by completing bivariate correlations between actor and partner responses on each of the variables used in the APIM analyses. Empathic accuracy, the dependent variable for all of the APIM analyses, was determined to be nonindependent, $r = 0.48$, $p < 0.001$.

3.4 Hypothesis Tests

3.4.1 Hypothesis 1

In Hypothesis 1, I predicted a significant main effect of partner attractiveness; that is, perceivers who believed that they were interacting with a more attractive interaction partner should have higher EA scores than perceivers who believed that they were interacting with a less attractive partner. This hypothesis was tested using the Actor-Partner Interdependence Model, with actor empathic accuracy serving as the dependent variable, and partner gender and actor condition serving as independent variables; partner condition was also included as an independent variable in order to control for the effects that partner condition may have had on

the interaction. Hypothesis 1 was not supported. There was no effect observed of partner attractiveness on actor EA, $b = 0.05$, $t(76.69) = -0.10$, $p = 0.37$. Additionally, there was no interaction effect observed between partner attractiveness and gender on actor EA, $b = 0.34$, $t(68.73) = -0.55$, $p = 0.29$.

Table 3.2 Results of APIM for Hypothesis 1 Using Assigned Attractiveness Conditions

Effect	Estimate (SE)	df	t-value	p-value	Effect size ^a
Gender	0.13 (1.03)	44.05	0.12	0.45	0.01
Partner Attractiveness	0.05 (1.27)	76.69	0.04	0.49	0.00
Actor Attractiveness	-0.84 (1.32)	83.75	-0.63	0.30	-0.06
Partner Attractiveness X Gender	0.34 (1.22)	68.73	0.28	0.50	0.03
Actor Attractiveness X Gender	0.69 (1.18)	62.66	0.58	0.30	0.05

^aEffect size is approximated by standardized beta. See Cuperman & Ickes (In Press).

This analysis was also performed using a self-reported measure of perceived attractiveness, the answer to the question “how physically attractive did you find your interaction partner” that appeared in the post-interaction questionnaire. Again, there was no effect observed of partner attractiveness on actor EA, $b = 0.29$, $t(78.10) = 0.21$, $p = 0.42$. Additionally, there was no interaction effect observed between partner attractiveness and gender on actor EA, $b = 0.82$, $t(68.99) = 0.63$, $p = 0.27$.

Table 3.3 Results of APIM for Hypothesis 1 Using Participant-Rated Attractiveness

	Estimate (SE)	Df	t-value	p-value	Effect Size ^a
Gender	0.29 (1.72)	47.29	0.27	0.40	0.02
Actor Attractiveness	-1.11 (1.38)	82.98	-0.81	0.21	0.02
Partner Attractiveness	0.29 (1.07)	78.10	0.21	0.42	-0.08
Actor Attractiveness X Gender	1.48 (1.24)	64.60	1.20	0.12	0.11
Partner Attractiveness X Gender	0.82 (1.37)	68.99	0.63	0.27	0.06

^aEffect size is approximated by standardized beta. See Cuperman & Ickes (In Press).

3.4.2 Hypothesis 2

To test Hypothesis 2, the one relating the partner's self-disclosure to the perceiver's EA, the partner's self-disclosure was coded by student raters, and I calculated first-person pronoun usage with LIWC software (Pennebaker, et al., 2007), as described in the Method section. I then conducted an Actor-Partner Interaction Model (APIM) analysis on the data (Campbell and Kashy, 2002; Kenny, et. al, 2006), using empathic accuracy as the dependent variable and self-disclosure and gender as independent variables.

Hypothesis 2 was not supported; specifically, partner self-disclosure as calculated by LIWC had no significant effect on actor empathic accuracy, $b = -.048$, $t(71.14) = 0.28$, $p = 0.39$.

Table 3.4 Results of APIM for Hypothesis 2 Using LIWC-Calculated Self-Disclosure

Effect	Estimate (SE)	df	t-value	p-value	Effect Size ^a
Gender	0.20 (1.01)	42.84	0.37	0.36	0.02
Partner Self-Disclosure	-0.48 (0.76)	71.14	0.28	0.39	-0.07
Actor Self-Disclosure	-0.95 (0.77)	70.83	1.11	0.14	-0.13
Gender X Partner Self-Disclosure	-0.77 (0.71)	87.95	0.20	0.42	-0.11
Gender X Actor Self-Disclosure	-0.22 (0.71)	87.91	-0.71	0.24	-0.03

^aEffect size is approximated by standardized beta. See Cuperman & Ickes (In Press).

The effect of partner self-disclosure as coded by independent raters was statistically significant, $b = -0.77$, $t(85.42) = -2.85$, $p = 0.003$. Unfortunately, this effect was the opposite of what I hypothesized; the results of this analysis indicate that participants who interacted with a partner who self-disclosed more had lower levels of empathic accuracy.

Table 3.5 Results of APIM for Hypothesis 2 Using Rater Coded Self-Disclosure

Effect	Estimate (SE)	df	t-value	p-value	Effect Size ^a
Gender	0.14 (1.02)	45	0.14	0.45	0.01
Actor Self-Disclosure	-0.83 (0.27)	85.06	-3.09	0.002	-0.29
Partner Self-Disclosure	-0.77 (0.27)	85.42	-2.85	0.003	-0.27

Table 3.5 – continued

Actor Self-Disclosure X Gender	0.49 (0.28)	72.97	1.58	0.06	0.16
Partner Self Disclosure X Gender	-0.19 (0.28)	73.16	-0.69	0.25	0.07

^aEffect size is approximated by standardized beta. See Cuperman & Ickes (In Press).

3.4.3 Hypothesis 3

I used the LIWC software to calculate the proportion of third-person pronouns used by the dyad members, as described above. I then conducted a regression analysis to explore the relationship between the male partner's perceived attractiveness and the proportion of third-person pronouns used by the dyad as a whole.

A regression model including the attractiveness of the male participant's photo and the dyad's use of third-person pronouns was not significant, $F(1, 46) = 1.58, p = 0.22, r^2 = 0.03$. A corollary of this hypothesis was also tested; I expected that when the dyad contained an attractive male participant, the dyad as a whole would use more first- and second-person pronouns (I, me, you, we, and us) than dyads that contained a "less attractive" interaction partner. A regression model using the attractiveness of the male partner's photo to predict the use of first and second person pronouns by the dyad as a whole was not significant, $F(1, 46) = 1.57, p = 0.22, r^2 = 0.03$.

This hypothesis and its corollary were also tested using the participant-rated measure of attractiveness as the predictor. The model in which attractiveness of the male photo predicted third person pronoun usage was not significant, $F(1, 46) = 0.59, p = 0.45, r^2 = 0.01$. The test of the corollary to this hypothesis, that the attractiveness of the male photo would predict first- and second-person pronoun usage, was not significant either, $F(1, 46) = 0.58, p = 0.45, r^2 = 0.01$.

3.4.4 Hypothesis 4

To test Hypothesis 4, which related partner trust to perceiver EA, partner trust scores were calculated based on the partner's responses to the trust measure described above. I then

conducted an APIM analysis to test the prediction that when the target partner's trust score was higher, the perceiver's EA score would also be higher (controlling for the effect of the perceiver's own trust score). Hypothesis 4 was not supported; specifically, there was no effect observed of partner's level of trust on the perceiver's EA score, $t(85.44) = 0.48, p = 0.32$.

Table 3.6 Results of APIM for Hypothesis 4

Effect	Estimate (SE)	df	t-value	p-value	Effect Size ^a
Gender	0.41 (1.01)	44.00	0.62	0.27	0.03
Partner Trust	0.16 (0.17)	79.38	1.12	0.13	0.07
Actor Trust	0.11 (0.16)	85.44	0.48	0.32	0.11
Partner Trust X Gender	0.14 (0.23)	50.62	0.52	0.30	0.03
Actor Trust X Gender	0.04 (0.23)	50.97	0.07	0.47	0.10

^aEffect size is approximated by standardized beta. See Cuperman & Ickes (In Press).

3.4.5 Hypothesis 5

Using the partner trust, partner self-disclosure, and perceiver EA scores, I conducted a mediation analysis using the Sobel test and bootstrapping methods described in Preacher and Hayes (2004). Partner self-disclosure was the proposed mediator between partner trust and actor empathic accuracy. These analyses were performed for both the LIWC-calculated measure of self-disclosure and the rated measure of self-disclosure.

The effect of the LIWC-calculated self-disclosure on the relationship between partner trust and actor empathic accuracy was not significant for either the Sobel test ($z = -0.21$, effect = 0.00, $p = .84$) or the bootstrapping method (95% LL = -.05, 95% UL = .03). The effect of the rated measure of self-disclosure was not significant for either the Sobel test ($z = -.26$, effect = -.01, $p = .79$) or the bootstrapping method (95% LL = -.06, 95% UL = .02). Therefore, Hypothesis 5 was not supported in full or in part.

3.5 Additional Analyses

Despite the lack of support for the proposed hypothesis, my interest was piqued by the fact that the empathic accuracy scores observed in this study appeared to be similar to EA scores observed in studies in which interactants engaged in Face-to-Face discussion. In their study of EA among mixed-sex strangers, Ickes, et al. (1990), found that dyad members had an average EA score of 21.7. I performed an independent samples *t*-test (using EA mean and standard deviation reported in the 1990 article), in order to determine whether the average EA score observed in the present study differed significantly from their observed average score. Because the individual data from Ickes' 1991 study were unavailable, I chose to perform a Welch's *t*'-test in order to be conservative about violations of homogeneity of variance. A significant difference was observed between the level of empathic accuracy of participants in this study ($M = 33.85$, $SD = 13.50$) and the sample in Ickes' 1991 study ($M = 21.70$, $SD = 12.10$), Welch's $t(84) = 6.13$, $p < .001$ (see Figure 2). The calculated effect size, Cohen's $d = 3.18$ indicates that these means are more than three standard deviations away from one another, and that this difference is a large effect.

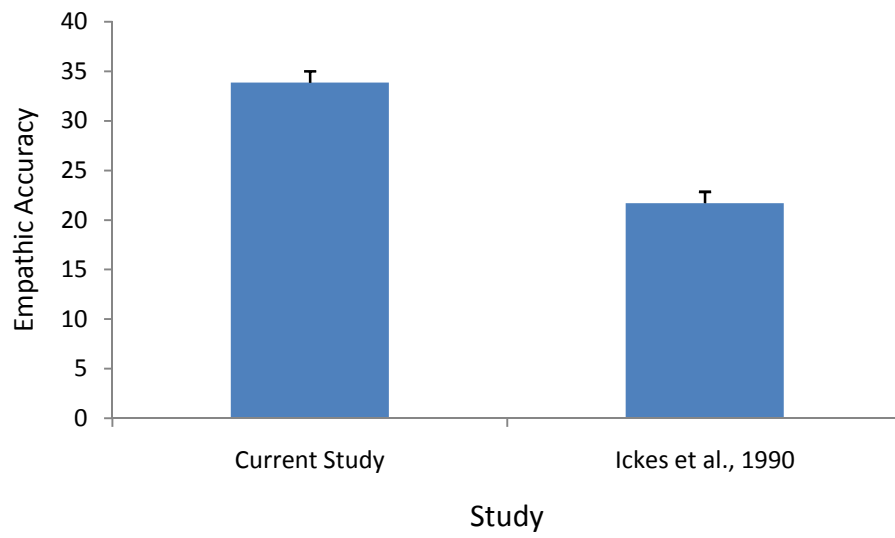


Figure 3.1 Mean Differences in Observed Empathic Accuracy of the Ickes, et al. (1990) Study and the Present Study.

CHAPTER 4

DISCUSSION

The results of this study did not provide support for Hypothesis 1. Individuals who believed that they were interacting with a “more attractive” partner did not achieve greater EA than those who believed that they were interacting with a “less attractive” partner. Support was not found for Hypothesis 2 either; individuals who interacted with partners who disclosed more personal information were not found to achieve greater empathic accuracy than individuals who interacted with partners who disclosed less personal information. Hypothesis 3 was not supported; dyads including an attractive male partner did not use a different percentage of third-person pronouns than dyads including an unattractive male partner. The corollary of this hypothesis, that dyads that included a more attractive male partner would use more first- and second-person pronouns than dyads that included a less attractive male partner, was not supported. Hypothesis 4 was not supported; I observed no effect of the partner’s level of trust on the actor’s level of empathic accuracy. Finally, Hypothesis 5 was not supported; there was no evidence that partner self-disclosure was a mediator of the relationship between partner trust and actor empathic accuracy.

While I expected to find a relationship between perceived partner attractiveness and actor empathic accuracy, there are several possible reasons why no such relationship was observed in the current study. First, in classic empathic accuracy studies (e.g. Garcia, et al., 1991), participants interact face-to-face for the entirety of their meeting. In this study, it was not possible for the interactants to see each other at all, because we were manipulating the perceived attractiveness of the interaction partners. Second, it is possible that the individuals in my study were used to interacting with others on-line, without regard to their physical

appearance. This is certainly true in the case of e-mail correspondence with colleagues that one has never met. Indeed, on average, the participants in this study reported using CMC on a fairly regular basis. Third, the participants in my study had no reason to believe that they would (or could) have any future interaction with the person with whom they were chatting. If no future interaction was anticipated, the other's attractiveness might not have the same motivational value as it would in face-to-face interaction.

I proposed a fairly commonsensical hypothesis that individuals who interacted with partners who disclosed more information would find such partners "easier to read." However, this hypothesis was not supported. Colvin, Vogt, and Ickes (1997) discussed the "readability" of targets in regards to empathic accuracy. They identified a constellation of traits that make an individual easier to "read," including personality traits such as high extraversion and low neuroticism. Self-disclosure did not explain a significant amount of variance in empathic accuracy in this study. Further analyses of the data in the present study may yield information about other factors that influence a target's "readability."

The self-disclosure measure used in this study may not have been as reliable as desired. Using the LIWC software may have resulted in the exclusion of some self-disclosing statements that did not have "I" or "my" in them. For instance, a response to the question "What church do you go to?" could be "Cornerstone." Although LIWC would not count this as self-disclosure, the participant has essentially said "I go to Cornerstone," engaging in self-disclosure. I therefore examined some other linguistic patterns that I suspected may be related with self-disclosure. In order to assess the general relationship between empathic accuracy and self-disclosure, I correlated actor empathic accuracy scores with partner's use of words describing affect (i.e. smiled, frowned), words describing positive emotion (i.e. happy, nice), words describing negative emotion (i.e. angry, disappointed), and words describing personal concerns. The "personal concerns" category included words describing work (i.e. job, majors), achievement (i.e. earn, win), leisure (i.e. cook, movie), home (i.e. family), money (i.e. cash, owe), religion (i.e. church, altar), and death (i.e. bury, kill; Pennebaker, Chung, Ireland,

Gonzales, and Booth, 2007). Empathic accuracy was not significantly correlated with any of these linguistic variables.

Table 4.1 Correlation Between LIWC Categories and Empathic Accuracy Measures

Variable	1	2 (r^2)	3 (r^2)	4 (r^2)	5 (r^2)
Personal Concerns (1)	1.00	-0.26* (0.07)	-0.16 (0.03)	-0.35* (0.12)	0.05 (0.00)
Affect (2)		1.00	0.93** (0.86)	0.18 (0.03)	0.11 (0.01)
Positive Emotions (3)			1.00	-0.17 (0.03)	0.17 (0.03)
Negative Emotions (4)				1.00	-0.12 (0.01)
Empathic Accuracy (5)					1.00

* $p < 0.05$, ** $p < 0.001$

I did not find support for the “exclusivity effect” described in Garcia, et. al. (1991), wherein individuals who were interacting with a more attractive interaction partner used a lower proportion of third-person pronouns, leading to the conclusion that these individuals were focusing the conversation less on other people, and more on their interaction partners. I also found no support for the corollary hypothesis that individuals who interacted with more attractive partners would use more first- and second-person pronouns, as they directed the conversation towards “you and me” as opposed to others.

I expected that when individuals reported having higher levels of trust in their interaction partner, their partner would experience a related boost in empathic accuracy. More specifically, I predicted that when individuals felt higher levels of trust for their partner, this would lead them to self-disclose more personal information, which would lead to their partners having higher levels of empathic accuracy. Unfortunately, I did not find this to be the case. There was no evidence that trust had an effect of empathic accuracy, as was demonstrated in the tests of Hypothesis 4 and 5. And perhaps the type of information that was disclosed in these conversations may not have led to improved empathic accuracy because it was not relevant to the empathic accuracy task. For instance, telling one’s partner “I have a girlfriend” is an act of

self-disclosure; however, without additional information in the form of follow-up questions on the part of the actor, or further disclosure on the part of the partner, it is a relatively difficult task to determine any valence or feeling behind this statement.

The participants in my study did not have the advantage of communicating face-to-face that participants have had in other studies. Interestingly, however, the lack of nonverbal communication did not seem to hinder my participants' empathic accuracy abilities. In fact, participants in this study appeared to have comparable EA levels to those observed in FTF studies. For instance Ickes, et al., 1990 found that the average level of empathic accuracy among mixed-sex strangers in an FTF interaction was 21.7, and Stinson and Ickes (1992) found that male strangers had an empathic accuracy level of 24.1 in a FTF interaction. In the Stinson and Ickes study, male friends who interacted face-to-face had a significantly higher level of empathic accuracy, performing the empathic accuracy task at an average level of 36.0.

A follow-up analysis comparing the observed EA observed in this study with the observed EA scores in a FTF dyadic study revealed that the EA scores in this study were significantly higher than the EA scores in the FTF dyadic interaction. This finding, while somewhat counterintuitive, is not entirely without an explanation. In a 1999 study, Gesn and Ickes asked participants to infer the thoughts and feelings of individuals undergoing a talk-therapy session on videotape. In this study, the researchers found that when the audio content of the tape was unclear, the participants achieved significantly lower levels of empathic accuracy than when they viewed a tape with both audio and visual information, or when they listened to the audio portion of the session. Hall and Schmid Mast (2007) also found that interactions that included a verbal "channel" (either a transcript of the interaction or the audio portion of the interaction) elicited higher levels of empathic accuracy than interactions that lacked the verbal "channel." The results of the supplemental analysis in the current study provide additional support for this hypothesis, as the participants in this study, who only had access to verbal information, displayed significantly higher levels of empathic accuracy when

compared to participants in a FTF study who had access to multiple “channels” of information including verbal, nonverbal, and paralinguistic.

It is important that the results from the comparison of the current study to the Ickes et al. (1990) study be interpreted with caution. There are several reasons, other than those mentioned in the previous paragraph, that the participants in this study may have had higher empathic accuracy scores than those in the Ickes et al. study. For instance, the participants in the current study were unable to refer to nonverbal or paralinguistic information in order to infer the content of thoughts and feelings; they relied solely on the verbal information provided to them in the written transcript of their conversation. If, as the results of the Ickes and Gesn and Hall and Schmid Mast studies suggest, verbal information is the most relevant to empathic accuracy, then participants in our study had an advantage by receiving only verbal information. Another reason that participants in this study may have displayed higher levels of empathic accuracy than in the face-to-face study is that they were able to review the transcript of their entire conversation while they were performing the thought/feeling inference task. Participants in the face-to-face study, on the other hand were reviewing their interaction that had been videotaped, and could not rewind the tape to view earlier parts of the interaction. It is reasonable to conclude that this procedural difference may have been at least partially responsible for the difference in empathic accuracy between these two studies.

While the results in regards to the specific hypotheses I tested were somewhat disappointing, one of the benefits of this study was the development of a CMC method for studying empathic accuracy in the context of dyadic interaction. Where the unstructured dyadic interaction paradigm, standard stimulus paradigm, and standard interview paradigm have gone before, this method for assessing empathic accuracy brings the study of this topic into the realm of cyberspace.

4.1 Limitations

There were several limitations in this study that may have limited the degree to which its results (or lack thereof) are generalizable to populations outside of college students. In

particular, the students who provided their photos for use as stimulus materials were not rated as “extremely attractive” or “extremely unattractive,” but tended to be rated with more moderate descriptors. Students who were rated as “extremely unattractive” might have been less likely to provide a photo for use in a psychology experiment. Students in this category might have declined to be photographed for reasons such as self-consciousness and the potential for embarrassment or humiliation. Although the attractiveness manipulation did appear to be effective, there was no evidence that it had an impact on empathic accuracy or on primary measures of interpersonal behavior, contrary to previous research findings.

In addition, the sample used in this study was a younger group (18-24) who were all fairly familiar with instant messaging and the chat interface. These participants did not behave in a vacuum, but may have been using their past experiences with Computer Mediated Communication to inform their behavior in the present study. Moreover, all of the participants were students taking courses in psychology, and several reported being suspicious during the experiment (only two participants guessed the actual deception used in the study, but several more reported a general distrust of psychological research).

4.2 Future Directions

The possibilities for future study in the area of Computer Mediated Communication are plentiful and exciting. One area that may need further exploration is the development of relationships that occurs in both FTF communication and CMC. For instance, does the working relationship of two individuals improve after they have met in person as opposed to simply communicating via e-mail and telephone? Does communicating via e-mail or Instant Messenger before meeting an individual in person serve to improve the relationship between them, or put them more at ease?

Much of the research on empathic accuracy is based on Face-to-Face interactions; however, this research finds that individuals are generally poor at the task of inferring others' thoughts and feelings. Is there a benefit to having the cues provided in an FTF interaction, or is an individual's empathic accuracy basically unaffected by communication modality? The

current study suggests that empathic accuracy may be similar between CMC and FTF interactions, but the inability to replicate effects that have been seen in FTF interaction studies suggests that there may be different processes that allow an individual to achieve empathic accuracy in a CMC setting than those at play in a FTF interaction. We might also ask if the use of non-verbal communication stand-ins such as typed smiley-faces (☺), or typed expression of emotion/affect (“grins”, “shrugs”, “shakes fist”) improves an individual’s ability to infer his or her interaction partner’s thoughts and feelings? The CMC transcripts provide a rich data source with which to explore some of these questions, and although they are beyond the scope of the current study, they can easily be evaluated in future studies.

There are several other communication modalities not addressed in this study that may reveal different types of communication and evoke different levels of empathic accuracy. For instance, text messaging is a fast, convenient form of CMC that involves individuals sending each other messages on their cell phones. These messages are often cryptic to the untrained eye, but are actually composed of a series of shortened or abbreviated phrases that are typed instead of full words and sentences (i.e. “r u going 2 the mall 2day?” instead of “Are you going to the mall today?”). Text messaging is similar to the instant-messaging modality that was used in the current study; however, it appears that the use of abbreviations are more likely to occur in text messaging than in instant messaging.

E-mail is another form of CMC that is commonplace in both public and private society. In the workplace, e-mail is a useful method of disseminating information to a large group of people, or communicating with individuals in diverse geographic locations. A widely noted drawback of e-mail is the lack of non-verbal cues that it provides to readers. E-mail can be formal and cold; it may therefore be instructive to examine EA for e-mail versus EA for text messaging or instant messaging to determine whether one of the forms results in a greater lack of understanding than one (or both) of the other forms.

In sum, this study was unsuccessful in identifying predicted similarity between behavior in CMC and FTF interactions. Overall, this finding may not be as disappointing as it first

appeared. After all, anyone who has used CMC can recognize that there is a difference in the information that is transmitted through this form of communication. Computer Mediated Communication is already ubiquitous; our current President was notoriously loath to give up his Blackberry PDA when he took office. By identifying the unique processes that occur in CMC, we may be able to explore its difference from FTF interactions, and reduce the confusion that CMC messages can sometimes cause.

APPENDIX A

THE BIG FIVE INVENTORY

The Big Five Inventory

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

Disagree Strongly 1	Disagree a little 2	Neither agree nor disagree 3	Agree a little 4	Agree Strongly 5
---------------------------	---------------------------	------------------------------------	------------------------	------------------------

I See Myself as Someone Who...

- | | |
|---|---|
| <p>___ 1. Is talkative.</p> <p>___ 2. Tends to find fault with others.</p> <p>___ 3. Does a thorough job.</p> <p>___ 4. Is depressed, blue.</p> <p>___ 5. Is original, comes up with new ideas.</p> <p>___ 6. Is reserved.</p> <p>___ 7. Is helpful and unselfish with others.</p> <p>___ 8. Can be somewhat careless.</p> <p>___ 9. Is relaxed, handles stress well.</p> <p>___ 10. Is curious about many different things.</p> <p>___ 11. Is full of energy.</p> <p>___ 12. Starts quarrels with others.</p> <p>___ 13. Is a reliable worker.</p> <p>___ 14. Can be tense.</p> <p>___ 15. Is ingenious, a deep thinker.</p> <p>___ 16. Generates a lot of enthusiasm.</p> <p>___ 17. Has a forgiving nature.</p> <p>___ 18. Tends to be disorganized.</p> <p>___ 19. Worries a lot.</p> <p>___ 20. Has an active imagination.</p> <p>___ 21. Tends to be quiet.</p> <p>___ 22. Is generally trusting.</p> | <p>___ 23. Tends to be lazy.</p> <p>___ 24. Is emotionally stable, not easily upset.</p> <p>___ 25. Is inventive.</p> <p>___ 26. Has an assertive personality.</p> <p>___ 27. Can be cold and aloof.</p> <p>___ 28. Perseveres until the task is finished.</p> <p>___ 29. Can be moody.</p> <p>___ 30. Values artistic, aesthetic experiences.</p> <p>___ 31. Is sometimes shy, inhibited.</p> <p>___ 32. Is considerate and kind almost every time.</p> <p>___ 33. Does things efficiently.</p> <p>___ 34. Remains calm in tense situations.</p> <p>___ 35. Prefers work that is routine.</p> <p>___ 36. Is outgoing, sociable.</p> <p>___ 37. Is sometimes rude to others.</p> <p>___ 38. Makes plans and follows through with them.</p> <p>___ 39. Gets nervous easily.</p> <p>___ 40. Likes to reflect, play with ideas.</p> <p>___ 41. Has few artistic interests.</p> <p>___ 42. Likes to cooperate with others.</p> <p>___ 43. Is easily distracted.</p> <p>___ 44. Is sophisticated in art, music</p> |
|---|---|

APPENDIX B

PERCEPTIONS OF INTERACTION

In the following questions, we are interested in assessing your perceptions of the interaction between you and the other subject during your instant messaging interaction. Indicate your answers by circling the point on each scale or circling the letter of the answer that best describes your feelings or perceptions. Please reflect on how you felt during the interaction and try to answer each question as accurately and honestly as possible. Your answers will *not* be shown to the other subject and will be used for statistical purposes *only*. You may skip any questions you feel uncomfortable answering.

1. To what extent would you like to interact more with the other person in the future?

1-----2-----3-----4-----5-----6-----7-----8-----9-----10

not at all

very much

2. To what extent do you think that the other person would like to interact with you in the future?

1-----2-----3-----4-----5-----6-----7-----8-----9-----10

not at all

very much

3. How much did you like the other person.

1-----2-----3-----4-----5-----6-----7-----8-----9-----10

not at all

very much

4. How much do *you* think the other person liked you?

1-----2-----3-----4-----5-----6-----7-----8-----9-----10

not at all

very much

5. How physically attractive do you think the other person is?

- a. not at all attractive
- b. below average
- c. average
- d. above average
- e. very attractive
- f. extremely attractive

6. My interaction partner is someone I would be likely to trust.

1	2	3	4	5	6	7
Disagree			Neither			Agree
Completely			Agree nor			Completely
			Disagree			

7. I feel comfortable sharing personal information with my interaction partner.

1	2	3	4	5	6	7
Disagree			Neither			Agree
Completely			Agree nor			Completely
			Disagree			

8. I don't think that my interaction partner is someone I could trust to keep what I say in confidence.

1	2	3	4	5	6	7
Disagree			Neither			Agree
Completely			Agree nor			Completely
			Disagree			

9. I do not feel comfortable talking with my interaction partner about anything other than superficial topics.

1	2	3	4	5	6	7
Disagree			Neither			Agree
Completely			Agree nor			Completely
			Disagree			

10. I think I could trust my interaction partner to be loyal to me and to protect my interests.

1	2	3	4	5	6	7
Disagree			Neither			Agree
Completely			Agree nor			Completely
			Disagree			

11. My interaction partner seems a little too unreliable to suit me.

1	2	3	4	5	6	7
Disagree			Neither			Agree
Completely			Agree nor			Completely
			Disagree			

12. I feel that my interaction partner is someone I can count on.

1	2	3	4	5	6	7
Disagree			Neither			Agree
Completely			Agree nor			Completely
			Disagree			

13. There is something about my interaction partner that I don't entirely trust.

1	2	3	4	5	6	7
Disagree			Neither			Agree
Completely			Agree nor			Completely
			Disagree			

14. Given more opportunities to talk, I would be happy to share just about anything with my interaction partner.

1	2	3	4	5	6	7
Disagree			Neither			Agree
Completely			Agree nor			Completely
			Disagree			

15. My interaction partner doesn't seem to be as honest and straightforward as I would like.

1	2	3	4	5	6	7
Disagree			Neither			Agree
Completely			Agree nor			Completely
			Disagree			

Computer Mediated Communication Survey

1. How would you rate your computer literacy skills? (Please circle one of the alternatives below.)
 - a. nonexistent to poor
 - b. fairly minimal
 - c. about average for people of my age and gender
 - d. better than average for people of my age and gender
 - e. excellent to exceptional
2. On average, how much time do you spend on the internet each day?
 - a. none
 - b. less than an hour
 - c. 1-2 hours
 - d. 2-3 hours
 - e. more than 3 hours
3. How many close friendships (as opposed to more casual acquaintanceships) have you developed through interactions on the internet (without first meeting those friends face-to-face)?
 - a. none
 - b. 1-2
 - c. 3-4
 - d. 5-6
 - e. 7 or more
4. How many romantic relationships (as opposed to more casual acquaintanceships) have you developed through interactions on the internet (without first meeting those romantic partners face-to-face)?
 - a. none
 - b. 1-2
 - c. 3-4
 - d. 5-6
 - e. 7 or more
5. In addition to e-mail, do you use real-time instant messaging on a regular basis (including any program such as AOL IM, ICQ, MSN Messenger, etc.)?
 - a. no, never
 - b. rarely
 - c. occasionally
 - d. often
 - e. every day

APPENDIX C

THOUGHT/FEELING REPORTING FORM

DATE _____
 NUMBER _____

M F

TIME	THOUGHT OR FEELING	+, 0, -	
	<input type="checkbox"/> I was thinking: <input type="checkbox"/> I was feeling:	+ 0 -	
	<input type="checkbox"/> I was thinking: <input type="checkbox"/> I was feeling:	+ 0 -	
	<input type="checkbox"/> I was thinking: <input type="checkbox"/> I was feeling:	+ 0 -	
	<input type="checkbox"/> I was thinking: <input type="checkbox"/> I was feeling:	+ 0 -	
	<input type="checkbox"/> I was thinking: <input type="checkbox"/> I was feeling:	+ 0 -	
	<input type="checkbox"/> I was thinking: <input type="checkbox"/> I was feeling:	+ 0 -	

APPENDIX D

THOUGHT/FEELING INFERENCE FORM

DATE _____
 NUMBER _____

M F

TIME	THOUGHT OR FEELING	+, 0, -	
	<input type="checkbox"/> He/she was thinking: <input type="checkbox"/> He/she was feeling:	+ 0 -	
	<input type="checkbox"/> He/she was thinking: <input type="checkbox"/> He/she was feeling:	+ 0 -	
	<input type="checkbox"/> He/she was thinking: <input type="checkbox"/> He/she was feeling:	+ 0 -	
	<input type="checkbox"/> He/she was thinking: <input type="checkbox"/> He/she was feeling:	+ 0 -	
	<input type="checkbox"/> He/she was thinking: <input type="checkbox"/> He/she was feeling:	+ 0 -	
	<input type="checkbox"/> He/she was thinking: <input type="checkbox"/> He/she was feeling:	+ 0 -	

APPENDIX E

DEFBRIEFING STATEMENT

The experiment in which you just participated involved deception. The purpose of the deception was to allow us to control for the level of attractiveness of the person that you believed you were interacting with. You were interacting with another participant, but you were not interacting with the person in the photo that you viewed at the start of your interaction. The person with whom you interacted did not see your photo either; they were shown a photo of another person.

This deception was necessary because part of our purpose is examining how your interaction style may be different depending on how attractive you find your interaction partner. Because attractiveness is not something that we can control for when randomly assigning participants to interact, we had to use deception so that we could manipulate the perceived level of attractiveness of the person with whom you interacted.

We did take a photo of you at the beginning of the experiment, and we will be saving this photo and may use it in future research studies, or analysis of the data that we collected from you.

At this time, I need for you to review the Informed Consent Document for this study. If you agree to continue to be a participant in this study, you will need to sign the document. If you decline to participate at this point in time, I will destroy all of the data that we collected during this session, including the surveys that you filled out, your conversation transcripts, and the data provided by your interaction partner regarding the conversation that the two of you shared. I will also delete the file of your conversation that was saved to the computer. Finally, I will delete the photo that I took of you at the beginning of the experiment from the memory card on the digital camera that I used.

If you have any questions, please feel free to ask them at this time.

REFERENCES

- Bargh, J. A., McKenna, K. Y., & Fitzsimons, G. M. (2002). Can you see the real me? Activation and expression of the "true self" on the internet. *Journal of Social Issues*, 58(1), 33-48.
- Campbell, L., & Kashy, D. A. (2002). Estimating actor, partner, and interaction effects for dyadic data using PROC MIXED and HLM: A user-friendly guide. *Personal Relationships*, 9, 327-342.
- Colvin, C.R., Vogt, D., & Ickes, W. (1997). Why do friends understand each other better than strangers do? In W. Ickes (Ed.), *Empathic accuracy* (pp. 169-193). New York: The Guilford Press.
- Cuperman, R., & Ickes, W. (In Press). Big Five predictors of behavior and perceptions in initial dyadic interactions: Personality similarity helps extraverts and introverts, but hurts "disagreeables." *Journal of Personality and Social Psychology*.
- Feng, J., Lazar, J., & Preece, J. (2003). Empathy and interpersonal trust online: A fragile relationship. *Behaviour & Information Technology*, 23(2), 97-106.
- Garcia, S., Stinson, L., Ickes, W., Bissonette, V., & Briggs, S.R. (1991). Shyness and physical attractiveness in mixed-sex dyads. *Journal of Personality and Social Psychology*, 61(1), 35-49.
- Gesn, P.R., & Ickes, W. (1999). The development of meaning contexts for empathic accuracy: Channel and sequence effects. *Journal of Personality and Social Psychology*, 77(4), 746-761.
- Hall, J.A., & Schmid Mast, M. (2007). Sources of accuracy in the empathic accuracy paradigm. *Emotion*, 7(2), 438-446.

- Ickes, W. (2001). Measuring empathic accuracy. In J. A. Hall & F. J. Berieri (Eds.), *Interpersonal sensitivity: Theory and measurement* (pp. 219-241). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.
- Ickes, W. (2003). *Everyday mind reading: Understanding what other people think and feel*. Amherst, NY: Prometheus Books.
- Ickes, W., Stinson, L., Bissonnette, V., & Garcia, S. (1990). Naturalistic social cognition: Empathic Accuracy in mixed-sex dyads. *Journal of Personality and Social Psychology*, 59(4), 730-742.
- John, O. P., & Srivastava, S. (1999). The Big Five Trait taxonomy: History, measurement, and theoretical perspectives. In L.A. Pervin & O.P. John (Eds.), *Handbook of personality: Theory and research*. (2nd ed., pp. 102-138). New York: Guilford Press.
- Jones, W. H., Couch, L., & Scott, S. (1997). Trust and betrayal: The psychology of getting along and getting ahead. In R. Hogan, J. Johnson, & S. Briggs, (Eds.), *Handbook of Personality Psychology* (pp. 465–482). San Diego: Academic Press.
- Kenny, D. A., Kashy, D. A., & Cook, W. L. (2006). *Dyadic data analysis: Methodology in the social sciences*. New York, NY: Guilford Press.
- Pennebaker, J. W., Booth, R. J., & Francis, M. E. (2007). *Linguistic inquiry and word count: LIWC 2007 operations manual*. Austin, TX: LIWC.net.
- Pennebaker, J.W., Chung, C.K., Ireland, M., Gonzales, A., & Booth, R.J. (2007). *The development and properties of LIWC 2007*. Austin, TX: LIWC.net.
- Preacher, K.J., & Hayes, A.F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, and Computers*, 36(4), 717-731.
- Rempel, K. J., Holmes, J. G., & Zanna, M. P. (1985). Trust in close relationships. *Journal of Personality and Social Psychology*, 49(1), 95-112.
- Rotter, J. B. (1967). A new scale for the measurement of interpersonal trust. *Journal of Personality*, 35, 661-665.

- Snyder, M., Tanke, E. D., & Berscheid, E. (1977). Social perception and interpersonal behavior: On the self-fulfilling nature of social stereotypes. *Journal of Personality and Social Psychology*, 35(9), 656-666.
- Stinson, L., & Ickes, W. (1992). Empathic accuracy in the interaction of male friends versus male strangers. *Journal of Personality and Social Psychology*, 62(5), 787-797.
- Taylor, D. A. & Altman, I. (1987). Communication in interpersonal relationships: Social penetration processes. In M. E. Roloff & G. R. Miller (Eds.), *Interpersonal processes: New directions in communication research* (pp. 257-277). Thousand Oaks, CA: Sage Publications.

BIOGRAPHICAL INFORMATION

Kathryn Rollings earned a Bachelor of Arts degree from Colgate University in English with an emphasis in creative writing, and psychology. While at Colgate, Katy volunteered as a research assistant in the psychology department, and was awarded the Wolk Fellowship, which allowed her to conduct summer research. Katy also earned departmental honors for her English thesis.

Upon graduating from Colgate, Katy spent several years working in industry before returning to graduate school at the University of Texas at Arlington. Her research interests include interpersonal interaction, specifically the use of Computer-Mediated Communication in such interactions. She hopes to pursue this line of research for her doctoral dissertation project.