

AN ABSTRACT OF THE THESIS OF

Ameer J. Almuaybid for the degree of Master of Arts in Interdisciplinary Studies in Psychology, Psychology, and Speech Communication presented on August 18, 2016.

Title: An Examination of the Equilibrium Theory of Intimacy in Dyadic Interactions

Abstract approved: _____

Frank J. Bernieri

Videotapes of 90 dyadic interactions from Sommer and Bernieri (2015) were examined to assess verbal and nonverbal intimacy. Verbal intimacy (self-disclosing statements) and nonverbal intimacy behaviors (face gaze, distance, body orientation, and forward lean) were coded in every interaction. It was hypothesized that verbal intimacy (self-disclosure) would increase over time as a result of the rapport building task (RCIT) that comprised the interaction setting (Sedikides, Campbell, Reeder, & Elliot, 1999). It was hypothesized further that, due to the equilibrium theory of intimacy (Argyle & Dean, 1965), nonverbal indicators of intimacy would decrease to compensate for the anticipated increase in verbal intimacy the task was intended to facilitate. In addition, there was an opportunity to examine whether social rejection would moderate this process. In half of the interactions, a mild social rejection manipulation was introduced to one interactant with the hope of intensifying social approach and avoidance behaviors (Maner, DeWall, Baumeister, & Schaller, 2007). Contrary to the first hypothesis, the

number of self-disclosing statements (a measure of psychological intimacy) actually *declined* over the course of the interaction that was intended to increase self-disclosure and intimacy. Because the second hypothesis depended on the first, and the first was not confirmed, the second hypothesis became less testable. However, nonverbal intimacy behaviors *declined* over the course of the interaction. These results indicated reciprocation, and suggested that the RCIT was not utilized properly to facilitate an increase in self-disclosure over time, which prevented a test of the compensation hypothesis. Additionally, although there is some experimental evidence to support current theories of nonverbal behavior such as equilibrium theory, the relationship between psychological states and motivations are, in fact, complexly and imperfectly related to spontaneous behavior. In this case, equilibrium theory was inadequate to explain the entirety of interaction behavior within the context observed.

Keywords: intimacy, nonverbal, equilibrium theory, compensation, rejection, self-disclosure

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Equilibrium Theory of Intimacy in Dyadic Interactions

by
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I understand that my thesis will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my thesis to any reader upon request.

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CHAPTER 1—Introduction**Verbal and Nonverbal Communication**

The study of nonverbal communication in face-to-face interactions has helped enhance our understanding of human behavior. In interactions, it is not just what people say that matters. How they communicate nonverbally is also important. Nonverbal communication not only facilitates human interaction but influences developmental, social, and interpersonal outcomes. For example, closeness between children and parents in the form of expressed nonverbal warmth is associated with lower risks for adolescent pregnancy, less sexual partners, and more usage of contraception (Giles & Le Poire, 2006). Nonverbal communication is also crucial in teacher-children interactions as it plays an important role in communicating expectancies and enhancing academic performance on many measures (Giles & Le Poire, 2006).

Nonverbal behaviors are powerful communicators and expressors of emotion. Emotionally positive nonverbal messages are associated with higher satisfaction, less divorce thoughts, and less separation rate in married couples (Gottman & Levenson, 1992). Likewise, nonverbal expressions of contempt such as eye rolling (Giles & Le Poire, 2006) are associated with distress and psychological pain to the recipients (Vangelisti & Crumley, 1998).

Psychological immediacy is a construct that is defined as the vocal and visual communication behaviors that, “enhance closeness to and nonverbal interaction with another” (Mehrabian, 1969, p. 203). Behaviors that signal or express relational closeness include gaze, interpersonal distance, body orientation, forward lean, smiles, touch, and vocal warmth (Andersen, 1979). These behaviors often reflect the extent to which a dyad is experiencing

likability, rapport, interpersonal synchrony, rejection/acceptance, and even courtship (Giles & Le Poire, 2006; Bernieri, Gillis, Davis, & Grahe, 1996).

In face-to-face interactions nonverbal behaviors do not work in isolation from verbal behavior. Both seem to have a role and affect each other. This thesis examines the interplay between verbal and nonverbal communication and asks, what happens within the nonverbal channel of communication while the verbal channel is increasing or decreasing in self-disclosure and intimacy? This interplay of verbal and nonverbal behavior is examined within equilibrium theory of intimacy (Argyle & Dean, 1965). Alternative theories are also reviewed.

Theories and Mechanisms Involving Intimacy

Equilibrium theory. According to equilibrium theory of intimacy in face-to-face interactions (Argyle & Dean, 1965), a mutual and appropriate level of psychological comfort, closeness, or involvement exists between partners. This involvement is often referred to as intimacy and sometimes immediacy (Mehrabian, 1969). It is worth noting that the precise nature of the relevant construct here has been left vague in that it is not clear what the difference is between intimacy and immediacy. The theory suggests that nonverbal behavior together with verbal self-disclosure combine to determine the level of expressed intimacy and psychological closeness between interactional partners (Argyle & Dean, 1965). The set of nonverbal behaviors includes gaze direction, interpersonal distance, body orientation, forward lean, smiles, and touch. The theory suggests that shortly after two people interact, they reach a mutual level of comfort in these behaviors—an equilibrium or an appropriate balance in how they work together. Furthermore, once this equilibrium is disturbed by a substantial change in one of these behaviors,

a change in one or more of the behaviors will occur automatically to *compensate* for and restore equilibrium.

Patterson (1973) discussed the concept of 'compensation' in his review of 19 studies that examined nonverbal intimacy behaviors both correlationally and experimentally. He indicated that compensation is likely to happen *primarily* when two people are strangers to each other; for example, when strangers meet and interact for the first time in a psychological experiment. Strangers typically are not psychologically intimate, nor would they be motivated to become intimate in the context of a psychological experiment. If after only 2-minutes, research participant X suddenly leans forward to touch participant Y (a behavior expressing increased intimacy), then we might expect participant Y to withdraw (i.e., *compensate* by increasing distance). In this example, the change of intimacy (leaning forward) was initiated by interactant X but the compensation was done by interactant Y.

According to this theory, this compensation process also occurs *within* individuals. For example, if an interactant is about to self-disclose by revealing personal information (which is an increase in intimacy), the same interactant might *compensate* by making less face gaze and/or orienting their body away from their partner. The fundamental process is one of homeostasis. Whenever a behavior, verbal or nonverbal, disrupts the equilibrium another behavior will compensate to return the individual to an initial psychological state that is the most comfortable for this interaction.

The response to an increase in intimacy may not always be compensation, however. An increase in intimacy could be welcomed and reciprocated in kind. When two people are actually open to increasing the level of closeness and intimacy between them (e.g., romantic couples)

then an increase in expressed nonverbal intimacy in one partner may be welcomed and even *reciprocated* rather than compensated (Aiello, 1972; Breed, 1972).

A review of the literature will uncover many replications in the 20 years following the study by Argyle and Dean (1965). Replications have mostly supported the theory (Patterson, 2006). However, there remain unanswered questions, even 50 years later now, on some of the core components of the theory. For example, the theory does not specify exactly when compensatory responses to an increase in intimacy expression are likely to occur and when reciprocal responses are likely to occur. Therefore, alternative theories are needed to address the limitations and attempt to understand the mechanisms for intimacy dynamics in interactions. Below, we summarize some attempts to address such limitations and predict the direction of the response to an increase in intimacy expression.

Arousal labeling theory. After the limitations of equilibrium theory became evident theories became more affect focused. Arousal labeling theory by Patterson (1976), which was inspired by the cognition-arousal theory of emotion (Shachter & Singer, 1962), was one example. The theory proposed that if an interactant's change in behavior was sufficient to elicit arousal in their partner, then the partner will start the labeling process of how they feel. Physiological indicators of arousal include things such as higher galvanic skin response (GSR), increased heart rate, and/or decreased electroencephalogram (EEG). Depending on many factors, this arousal change may subjectively be labeled positive or negative. Positively labeled changes elicit reciprocal reactive responses in intimacy behaviors while negatively labeled changes elicit compensatory reactive responses (Figure 1.1).

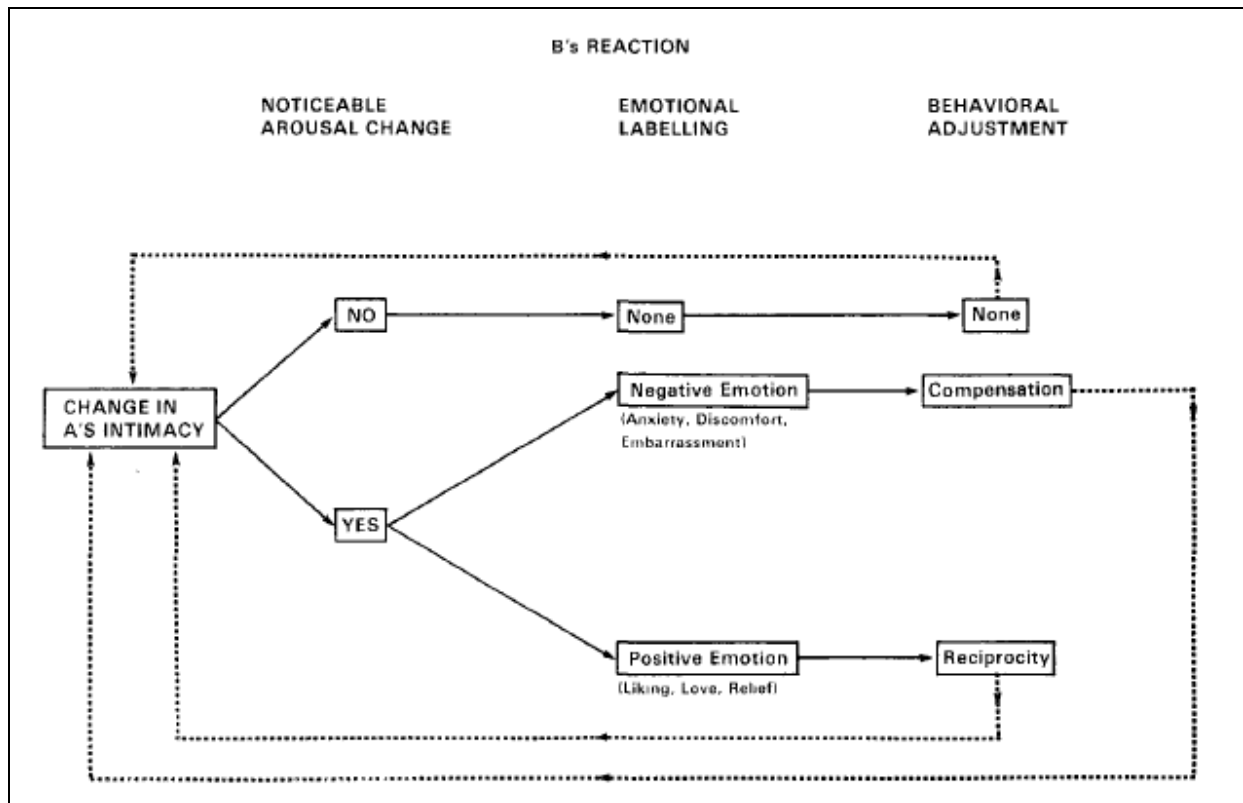


Figure 1.1. Arousal labeling model for intimacy change in interactions from Patterson (1976)

Patterson (1973; 1976) argued that when at equilibrium, a change in an intimacy behavior has to exceed some threshold before an arousal increase will occur. He suggested that there is likely a range within which arousal will not happen and the *adaptation* to a minor intimacy change will be a non-response. For example, if two interactants are sitting 6-ft apart, and interactant X moved 2-inch closer, it may be tolerable to interactant Y. Interactant Y may simply adapt because the 2-inch displacement either elicited no arousal or a non-sufficient amount of arousal for compensation to happen. Patterson believed that a non-substantial change in an intimacy behavior (e.g., 2-inch distance change) falls within accepted and therefore adaptable range for intimacy change that will not elicit arousal. However, if interactant X moved 5-ft closer, that may elicit enough arousal to induce compensation. He argued that a range exists

within which adaptation (rather than compensation) occurs but that this range may vary from one person to another.

When an intimacy change is substantial enough to lead to arousal change that is labeled positive, then a *reciprocal* response will happen (Patterson, 1976). Equilibrium is achieved by rising up or falling down to match the new level of psychological intimacy achieved within the relationship through a reciprocated response. In contrast, when an intimacy change is substantial enough to lead to arousal change that is labeled negative, then a *compensatory* response will happen. In this latter case, equilibrium is restored by returning to the initial lower level of intimacy through a compensatory response.

Patterson (1976) discussed two limitations. First, compensatory and reciprocal responses may not always happen due to arousal. Sometimes they happen in complete absence of arousal. For example, if a job interviewer moved closer to an interviewee, the interviewee may compensate by moving away only because they intend to keep appropriate distance in a professional environment. In this example, the compensation the interviewee performed was *not* elicited by arousal. Second, arousal may happen because of non-intimacy stimuli (e.g., impersonal or situational), which could then elicit emotional reactions that may lead to changes in intimacy behaviors. For example, being on top of a mountain (situational/environmental stimulus) may increase fear (arousal) in a person, which may elicit getting more proximate (intimacy behavior change) to their hiking partner. In this example, the scary nature of being on top of a mountain (non-intimacy environmental stimulus) elicited fear (arousal), which led to the person getting closer to their hiking partner (intimacy behavior change). In other words, although the *response* was a change in an intimacy behavior (proximity), this response was *not* elicited by

a stimulus coming from an intimacy behavior change. Therefore, the *source* of arousal was non-intimacy related.

Interaction adaptation theory (IAT). In order to explain how people react to the nonverbal expressions of liking (such as smiles, touch, gaze, interpersonal distance, postural matching, and forward lean), the interaction adaptation theory was developed (Burgoon, Stern, & Dillman, 1995; Burgoon et al., 1998).

Interaction adaptation theory (Burgoon et al., 1998) proposes that individuals enter interactions with certain expectations (anticipations based on social norms), requirements (necessities while interacting), and desires (personal goals). Together these form an *interaction position*. This interaction position is the idea an individual has about what they need, anticipate, and prefer in the interaction. While interacting, this interaction position is compared to the *actual behavior* by the partner. *Adaptive responses* occur when the behavior by the partner does not match the initial interaction position. In other words, our nonverbal behaviors react to, and adjust for, the nonverbal behaviors of others based on our expectations for them.

It is very important to emphasize that ‘adapting’ in this theory does not mean the same thing as in Patterson’s arousal labeling theory above. In the arousal labeling theory, adapting refers to a *lack of a reactive response* (no response). In interaction adaptation theory, adapting refers to *responding* (one way or another) to how much an actual behavior exhibited by a partner matches the individual’s initial interaction position.

Sequential functional model. Patterson (1982) came to believe there was a need for a newer, more comprehensive model to approach nonverbal exchange in interactions. He operated under the assumption that to explain nonverbal exchange, “different *functional* bases will lead to

different patterns of exchange” (p. 232). This means that knowing the function an interaction is going to serve perhaps gives us a better chance to understand the behavior in it. Patterson (1982) proposed the sequential functional model of nonverbal exchange. The model is based on a set of functional classifications for nonverbal behavior. These are: a) providing information, b) regulating interaction, c) expressing intimacy, d) exercising social control, and e) facilitating a service or a task. These functional classifications do not fully address the variety in nonverbal exchange in people and situations. Patterson believed that to understand such variety in people and situations, we should examine the sequential development of events before and during the interaction. This means laying out stages for the processes involved in interactions and examining their relationship to the assumed functional classification, which will probably help identify patterns of behavior (Figure 1.2).

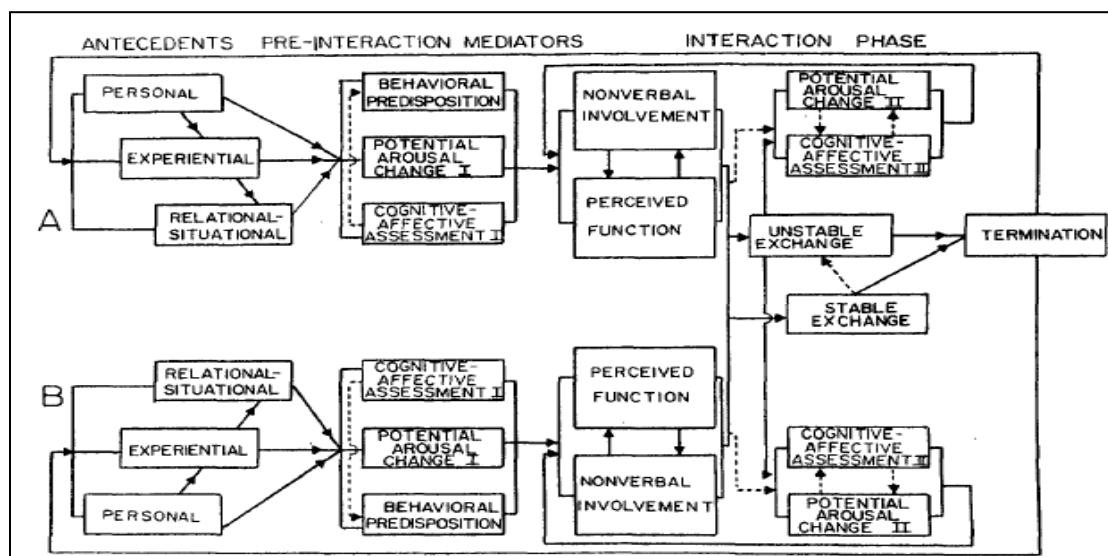


Figure 1.2. The sequential functional model for nonverbal exchange from Patterson (1982)

At the time, Patterson suggested we view nonverbal and verbal intimacy behaviors within the parameters of this model to better understand all aspects of nonverbal exchange. One reason is that the model views interactional behavior as a sequence of events that affect each other.

Also, the model in its most basic form draws a distinction between behaviors in interactions and what function these behaviors serve in interactions.

One limitation of this model is that it does not specify the circumstances under which a particular *function* is likely to be elicited. Patterson (1982) suggested the lack of a specific function may mean that the interaction will default to serving the intimacy expressing function. For example, if two people were to interact spontaneously on a subway with no specific goals for the interaction, then the interaction defaults to serving the intimacy expressing function between these two interactants. In this example, a behavioral predisposition, such as being extroverted, may lead to sitting closer. The behavioral predisposition automatically determined the amount of nonverbal involvement (proximity). In a scenario where the function of the interaction is social control, controlled behavior like managing nonverbal involvement to impress a job interviewer is what determines nonverbal involvement. In the *function-less* subway example, behavioral predisposition played a bigger role whereas controlled behavior in the job interview example played a bigger role. In short, interactions that serve no function will default to the intimacy expressing function, which will mean factors like behavioral predispositions are largely going to determine nonverbal involvement.

Both this model and interaction adaptation theory moved away from simple reactive adjustments to behavioral changes to incorporate various settings and various functions of nonverbal behavior (Patterson, 2006). They were among the first theories to emphasize the multivariability of factors influencing nonverbal behavior such as biology, culture, gender and personality. Patterson believed, however, that such comprehensiveness made the derivation of testable hypotheses more difficult than it was from simpler models.

Parallel process model. One of the most comprehensive models of all was the parallel process model of nonverbal exchange which attempted to address the limitations of earlier theories (Patterson, 1995). This model expands the functional model and extends its assumptions. The basic idea of this newer model is that all factors that affect nonverbal exchange may lead to an interactant engaging in two processes that work in parallel and dynamically shape interactions: a) the interactant's behavior and b) their perception of the partner (Figure 1.3). Patterson called these two components *behavioral processes* and *partner perception processes* (right side of the diagram). These components are affected by the same "chain" of influencing factors (middle of the diagram).

Patterson (1995) suggested that any change in goals may elicit a new distribution of how much cognitive resources are devoted to attentional focus and how much are devoted to cognitive effort, which could affect both the behavior processes and the person perception processes. For example, a person who needs to build rapport on a date (goal) may invest effort (cognitive resources) in performing likeable behavior (behavioral processes) and constantly evaluating the partner (partner perception processes). Evaluating the partner is a way to check the effectiveness of behavioral attempts to build rapport, but this evaluation may also depend heavily on the person's own behavioral attempts. In this example, both the person's behavior and the evaluation of the partner work *in parallel* throughout the interaction.

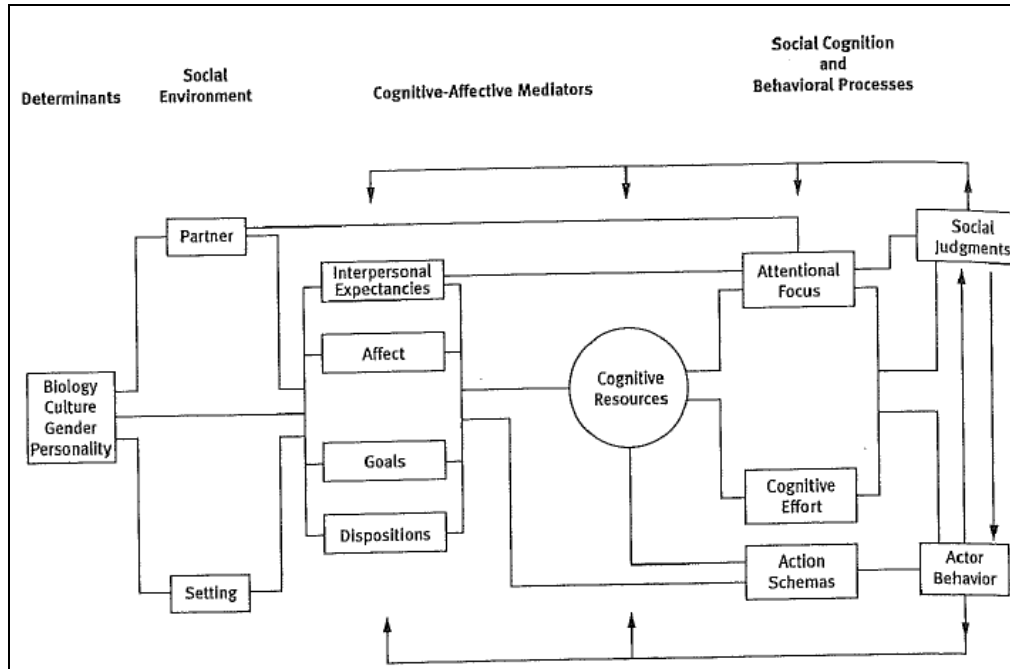


Figure 1.3. Patterson’s parallel process model from Patterson (2013)

This model assumes that social behavior and social cognition cannot be understood if we examined them independently (Patterson, 2006). Because they are integrated and interconnected, understanding one without the other gives an incomplete idea about nonverbal exchange. Therefore, the model claims to capture this interconnectedness and provide a complex but useful means to approach and understand social behavior and social cognition in interactions. Additionally, the model emphasizes the importance of automatic processes (partner perception) while still not ignoring controlled processes (conscious behavioral attempts) that accompany them (Patterson, 2013).

One of the limitations in the model is the difficulty to examine cognitive or mental processes that may lead to, for example, behavioral adjustment. Specifically, the difficulty is intensified once the behavioral adjustment is automatic. In other words, we may not have any means to directly examine mental processes and what automatic or controlled cognitive mechanisms elicit them. In addition, the model was designed to offer a framework for

understanding a person's nonverbal behavior in an interaction. An interaction typically involves a partner. The model does not fully necessarily incorporate dynamic dyadic processes into its mechanisms (Patterson, 2013). Despite limitations, however, this model is a more comprehensive approach to nonverbal exchange and a helpful model to enhance our understanding of compensation in intimacy behaviors that this thesis examines.

Equilibrium Compensation Evidence

Nonverbal intimacy behaviors include gaze, interpersonal distance, body lean, body orientation, forward lean, touch, and smile (Argyle & Dean, 1965). Theoretically, they are called intimacy behaviors because they work together to maintain a level of mutual comfort in the total expression of intimacy. There seems to be a balance in how much each of these behaviors is expressed. This balance must be maintained—they have to be in equilibrium so the total expression of intimacy is not inappropriately high. The total becomes inappropriately high once one of the behaviors is expressed a bit too much (e.g., sitting only 5-inch away from a stranger). Then, to restore the right balance of intimacy expression (equilibrium) in these behaviors, another behavior will compensate by adjusting the level of expression (e.g., less gaze). Compensation is a means to make sure equilibrium is maintained.

Breed (1972) varied the confederate's body orientation, forward lean, and amount of gaze. He had participants self-disclose to a silent confederate for 4-minutes. He found some supportive evidence for compensation in gaze when female confederates interacted with male participants. In response to disturbed equilibrium (inappropriate total of intimacy expression) in the form of more direct body orientation, more forward lean, and more confederate gaze, male participants compensated by decreasing their gaze toward the confederate.

In an experimental lab setting, Patterson (1977) asked participants to position their swivel chairs within a distance from the interviewer's chair that they found comfortable before the interviewer walked in. He found that decreased interpersonal distance significantly correlated with decreased eye contact and correlated with less confronting body orientation. However, Patterson suspected that being in an experimental room may not reflect what would happen in real life; especially considering that participants were sitting down. As a follow up study designed to increase external validity, he observed dyads that were standing in public. He found that the more confronting body orientation was, the further the distance was between a dyad. In the first study, compensation was exhibited in gaze and body orientation in response to the decreased distance (experimental). In the second study, compensation was exhibited in distance in response to more confronting body orientation (correlational).

Jourard and Friedman (1970) set out to examine the effect of distance, operationalized as whether or not the experimenter was present in the room, on participants' verbal self-disclosure operationalized as the duration a participant spoke. Participants, particularly women, self-disclosed significantly less when the experimenter was in the room. When an experimenter was not physically in the room, many intimacy behaviors were no longer relevant and present (e.g., gaze at or interpersonal distance from the experimenter could not be exhibited). Decreasing self-disclosure was the compensatory adjustment in response to the presence of the experimenter (higher intimacy in gaze, distance...etc) which presumably occurred to restore an appropriate level of intimacy expression—equilibrium.

Carr and Dabbs (1974) set out to examine the effects of manipulating the intimacy level of the verbal content, interpersonal distance, and brightness/dimness of the lights in the room on compensation. Supportive evidence for compensation would be if other intimacy behaviors were

found to be expressed less (e.g., less gaze, less self-disclosure, further distance...etc) as the manipulated intimacy variables increase (higher topic intimacy, closer distance, and lower light brightness). They found that compared to a baseline initial interview with a lower level of topic intimacy, subjects changed their verbal and visual behaviors in a compensatory direction when topic intimacy increased in a second interview.

Johnson and Dabbs (1976) conducted a study where confederates interviewed participants while seated. They varied the distance between chairs (18-inch, 36-inch, or 54-inch), varied affect (neutral/impersonal or positive affect characterized by acted warmth), and varied amount of self-disclosure (some disclosure or none). Participants self-disclosed significantly less the closer the confederates sat to them. Framing it within theoretical equilibrium, the increased total of intimacy expression in the form of closer distance and higher self-disclosure by the confederate elicited compensatory adjustments in the form of decreased self-disclosure by the participants.

Sundstrom (1978) set out to examine the effect of topic intimacy and interpersonal distance on compensation. He had pairs of female friends and pairs of strangers interact at a fixed chair orientation (90 degree angle) and manipulated: a) the intimacy of the topic being discussed, and b) the interpersonal distance (2.5-ft or 4.5-ft). Sundstrom found that only topic intimacy was associated to compensatory responses not interpersonal distance. As the intimacy level of the topic being discussed increased (perceived by participants as more difficult to discuss), both friends and strangers talked less and made less face gaze. In other words, both friends and strangers compensated for high topic intimacy by self-disclosing less and making less face gaze.

Verbal Intimacy

Theories of disclosure. Laurenceau, Barrett, and Rovine (2005) suggested that a feeling of closeness is induced by self-disclosing, which takes the form of sequential responses. The mechanism they suggested was that exchanging self-disclosure increases the perception of partner responsiveness and this snowball effect is exactly what elicits and maintains the reciprocity in self-disclosure.

The social penetration theory by Altman and Taylor (1973) suggested that systematic and incremental changes in our communication are needed to develop relationships. Self-disclosure is one of the areas where these *gradual* changes must happen in order to increase relational intimacy. Self-disclosure is a core prerequisite in developing intimacy. In fact, developing intimacy may not be possible without self-disclosure.

Burgoon's (2009) expectancy violations theory (EVT) suggested that we form expectations about the interactional partner before we meet them. While confirming an interactant's expectations about the interaction is preferred, sometimes expectations may be violated when we actually meet them. Positively violating expectations will probably lead to a desirable outcome. However, negatively violating expectations may lead to an undesirable outcome. There are factors that will determine whether the violation will be positive or negative. Burgoon suggested that people form an evaluation of how much reward they expect to get from interacting with someone and then this forms for them a "valence continuum" (p. 3). This continuum ranges from very negative to very positive, which the violator's act will fall into.

Consistent throughout the literature is the theme that interactions are more successful and comfortable when they match someone's expectations for what will be communicated. However,

if expectations are violated then it had better be in an emotionally positive way. Apparently, nice surprises are welcomed by everyone, but unpleasant surprises are a different matter.

Operationalizing self-disclosure. According to Cozby (1973), *self-disclosure* is, “any information about himself [*sic*] which Person A communicates verbally to Person B” (p. 73). Cozby (1973) suggested that there are three aspects to self-disclosure: a) the *breadth* of shared information, b) the *depth* of intimacy of what is being shared, and c) the *duration* spent self-disclosing. Interestingly, the informational content within self-disclosing statements has received little attention. This thesis is notable in that it is one of the relatively few studies that considered the content of each statement in its operationalization of self-disclosure.

When both interactants are engaging in self-disclosure, it is known as *reciprocal self-disclosure*. Reciprocal self-disclosure has been defined as sharing a piece of personal information by one interactant immediately followed by the other interactant sharing a piece that is equally personal (Derlega, Wilson, & Chaikin, 1976). Jourard and Richman (1963) found a positive correlation between a person’s self-disclosure and self-disclosure by their mother, father, best female friend, and best male friend. Levinger and Senn (1967) also found the same correlation between wives and husbands.

Across studies *verbal content* has been operationalized in different ways depending on the function it is serving in the study. Dindia (1981) indicated that the general operationalization could be reduced to four categories: a) level of intimacy in the verbal content, b) the amount of verbal content, c) the desirability of the verbal content, and d) the specific topic. Ellsworth and Carlsmith (1968) operationalized it as favorable verbal content (discussing one’s self in a positive way) or unfavorable (discussing one’s self in a negative way). Sundstrom (1978)

operationalized the verbal content as intimate topics and non-intimate topics based on the topic ratings from the Taylor and Altman's (1966) Topic Intimacy Scale.

Other scholars have operationalized self-disclosure as the amount spoken (i.e., duration of time a person speaks). Johnson and Dabbs (1976) also used the duration of participants' self-disclosure as a dependent variable to see if that correlated with how much the experimenter self-disclosed. Jourard and Friedman (1970) measured in seconds the duration of how long participants self-disclosed to an audio recorder compared to an experimenter with varying amount of gaze. In the present study, we examine verbal content (i.e., self-disclosure) as a correlational variable and operationalize it in terms of the number of self-disclosing statements made during the course of a conversation (see Chapter 3).

CHAPTER 2—Present Study

The Current Investigation

The study presented below was an extension of a study by Sommer and Bernieri (2015) that examined the consequences of social rejection. Sommer and Bernieri (2015) suggested that rejection intensifies or polarizes our behavior either in an approach direction or an avoidance direction. People tend to engage in approach behaviors (e.g., express higher interest in relational closeness) after being socially rejected (Maner et al., 2007). In this context, reciprocation in intimacy behaviors can be understood as an *approach* behavior whereas compensation can be understood as *avoidance* behavior (Argyle & Dean, 1965). The social rejection scenario could provide an opportunistic setting for a careful examination of the equilibrium process. However, it is important to emphasize that this thesis focuses on examining equilibrium, not social rejection.

It is possible that upon experiencing social rejection participants will *increase* their effort to connect intimately with their partner either by self-disclosing or perhaps increasing their nonverbal intimacy behaviors. If this is true, considering that the task we introduce is designed to increase self-disclosure, it would not be surprising to see compensation in the nonverbal behaviors (decrease) in response to rapid verbal intimacy increase.

What Provides Evidence for Equilibrium Compensation?

The literature discussed thus far implies that when one intimacy behavior is expressed inappropriately and compensation is elicited, it will not result in compensation in every intimacy behavior. Rather, one (or some) of the behaviors engaging in the compensatory process will suffice. For example, if self-disclosure was inappropriately high and needed compensation, only decreasing distance (not gaze, body orientation, or others) will be enough to restore acceptable

equilibrium in the total expression of intimacy. Therefore, in the present investigation, if compensation happens between only two variables (e.g., more self-disclosure at further distance), that may be enough evidence for equilibrium dynamics.

How will equilibrium theory manifest in terms of statistical results? Evidence for compensation would be indicated by either of the following: 1) a negative correlation between self-disclosure and a nonverbal intimacy behavior, such as proximity, and/or 2) opposite linear trends over time for self-disclosure and a nonverbal intimacy behavior.

However, despite what we hypothesize below, it remains a possibility that increasing self-disclosure may help build intimacy, which may elicit enough comfort in both verbal and nonverbal intimacy. Specifically, we may see reciprocation in two possible forms: a) reciprocation in verbal self-disclosure and b) an increase in nonverbal intimacy behaviors as a *reciprocal* response to increasing verbal intimacy.

Hypotheses

Hypothesis 1. Given that the participants in Sommer and Bernieri (2015) engaged in an intimacy building task, our first hypothesis was: *Measures of verbal intimacy will increase over time due to the nature of the task.*

Hypothesis 2. Since self-disclosure is expected to increase over time, our second hypothesis was: *There will be a corresponding **decrease** in the expression of nonverbal intimacy to compensate for the expected rapid increase in verbal intimacy.* This hypothesis was derived from equilibrium theory and constituted the primary objective of this thesis.

Hypothesis 2a (different effects of time). Across all interactions, mean levels of self-disclosure will significantly increase over time while mean levels of nonverbal intimacy will significantly decrease over time.

Hypothesis 2b (within time effects). There will be a negative correlation between self-disclosure and nonverbal intimacy behavior(s).

CHAPTER 3—Methods

Overview

This thesis extended the study reported by Sommer and Bernieri (2015). Dyads were videotaped having a 5-minute getting-acquainted conversation. Participants were provided a set of questions taken from the Relationship Closeness Induction Task—(RCIT; Sedikides et al., 1999) that afforded an increasing opportunity to self-disclose over time. The primary objective of this thesis was to code and assess the nonverbal intimacy behaviors and verbal intimacy (self-disclosure) between unacquainted dyads while engaged in this brief intimacy building task.

Participants

Participants received extra credit for their time. Participants were treated in accordance with the American Psychological Association guidelines (2002). In all, 190 participants came in to the lab to participate in this study. Six were not able to complete the study because their partner did not show up. Two more (one dyad) were removed because one was under the age of 18 at the time of the study. Another dyad was dropped from the analyses because they ended their conversation prematurely after only 3-minutes.

The analyses reported here were performed on the remaining 180 participants (121 female and 59 male) between the ages of 18 and 49 ($M = 20.18$, $SD = 3.49$). Of the 175 who self-reported it, 93% spoke English as a first language. The gender composition across interactions was as follows; 47 female-male, 37 female-female, and 6 male-male dyads.

Procedure

Four participants were scheduled for each session.¹ Upon arrival, each completed a questionnaire that assessed their feelings about self and others (Appendix A). Participants were then told they would take part in two videotaped interactions with two different partners. Participants were randomly paired for the first interaction held in different rooms. After the first interaction, each participant completed self-reports about their interaction, their partner, and their expectations for their next interaction (Appendix B).

Before the second interaction, each participant was given a sheet of paper that had interview questions from the RCIT described above to ask their partner (Figure 3.1). An example question was, “*What is something you have always wanted to do but probably never will be able to do?*” (See Appendix C for the full list). After that, each participant was paired with a different partner for the second interaction, which was the focus of this thesis. After the second interaction, each participant completed the *same set* of self-reports as ones from after the first interaction about their impression of the interaction and the partner. Participants were then debriefed and dismissed.

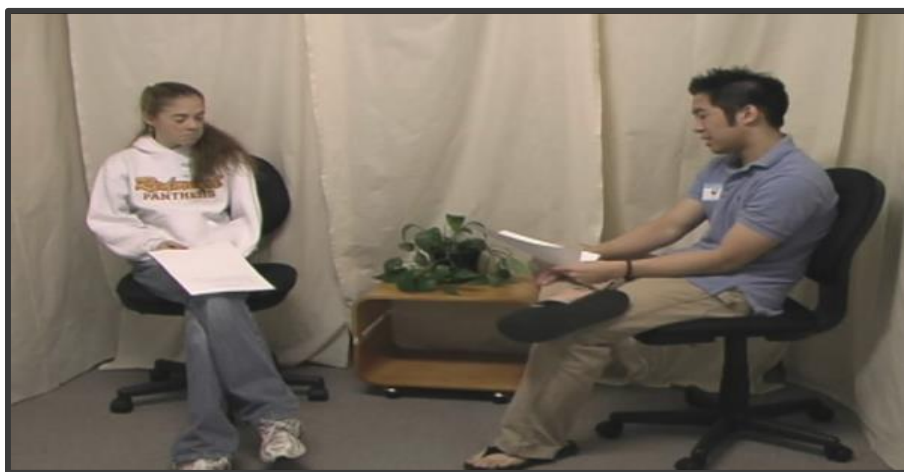


Figure 3.1. Two participants in an interaction

¹ Only one dyad was run when three participants showed up

Rejection Manipulation

Participants were told they would engage first in a practice session in preparation for a subsequent interaction with a new partner that constituted the actual study being conducted.² Dyads were given about 3-minutes to talk about anything during this *practice* session. To prepare for the partner swap after the practice interaction, the dyads were separated and participants reported privately their impression of one another on a 4-item, 7-point scale. One of the two dyads run during this practice stage was selected randomly to receive the rejection/acceptance manipulation. In this dyad, one participant was assigned randomly to receive rejection manipulation and the other received acceptance manipulation. The participants in the dyad receiving no feedback served as neutral partners for the two separate subsequent interactions.

Before the second interaction, the experimenter casually mentioned that, “*Participants are typically curious to know if they formed similar impressions of one another,*” and allowed each participant in the experimental condition to see each other’s reported ratings. These bogus reports were placed face up where the participant was seated between interaction sessions. The rejection feedback was in the form of the self-report that was presumably just completed by their practice session partner. The actual rejection feedback appears in Figure 3.2. The acceptance feedback appears in Figure 3.3. No participant had access to their partner’s data in this study. It is important to note, however, that each participant had the option of not looking at this information if they chose not to.

² The full script experimenters followed is in Appendix D

As a result of the experimental design, the second stage consisted of two simultaneously run interaction sessions where only one participant in each was given the manipulation (either accepted or rejected) while their partner received no manipulation. We use the term “role” to distinguish between participants. Those in the role of *target* were either accepted or rejected whereas those in the role of *partner* (or neutral) received no manipulation. Figure 3.4 below shows the flow of the four participants as they progressed through the first interaction, switched partners, and continued with the second interaction that was the interaction analyzed for this thesis.

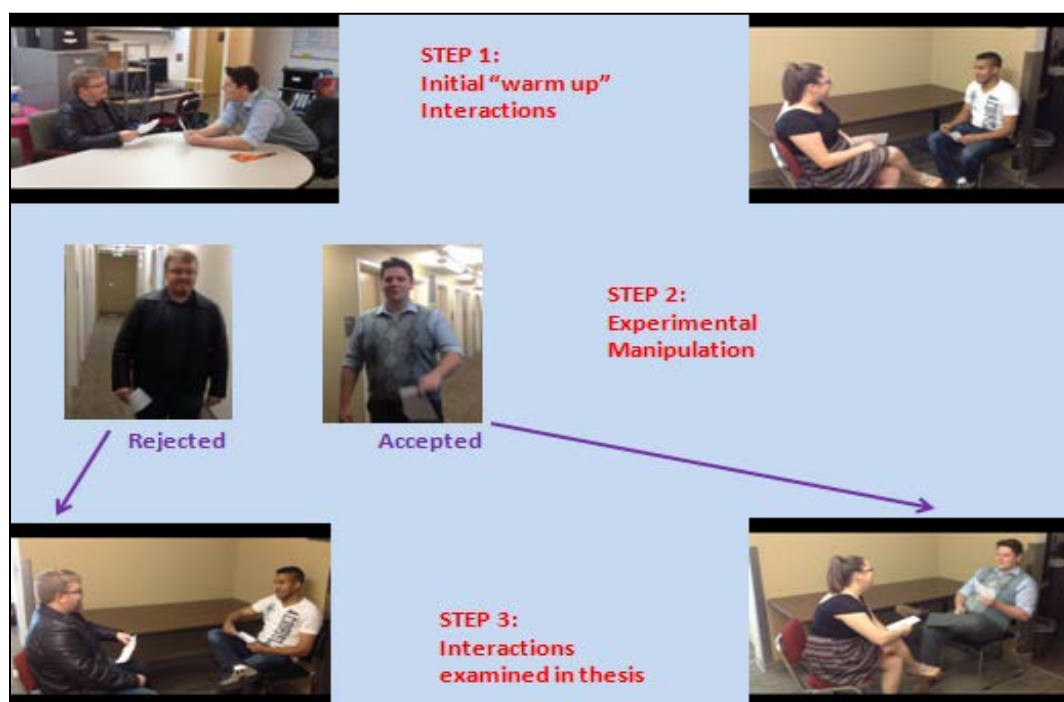


Figure 3.4. Delivery of experimental manipulation after initial “warm up” interactions

Overview of Behavior Assessments

Video recordings of the second interaction were coded extensively over a period of several years to assess both the verbal and nonverbal behavior. Guidelines by Rosenthal and Rosnow (1991) and Rosenthal (2005) for conducting judgment studies were followed to

maximize the validity of these measurements. The number of coders used for each behavior assessed was determined by inter-coder reliability. The higher the reliability among coders, the fewer were needed for that particular assessment. The effective reliability for all behaviors coded ranged from .74 to .98. There were three different types of assessments: a) self-report, b) nonverbal behavior assessment of intimacy, and c) assessment of verbal self-disclosure. The self-reports from this experiment were analyzed and reported more completely in Sommer and Bernieri (2015). Only one of these is relevant to this thesis, *Predicting Future Interactions*. This measure revealed the participant's expectancy for rapport in the second interaction and served as a manipulation check for the rejection manipulation.

Nonverbal Intimacy Behavior Assessment

Behavior codings were made by research assistants blind to the research hypotheses.³ The coding of nonverbal cues was done using two different sampling methods: a) sampled still-frames extracted at three critical points in time from the 5-minute interactions, and b) an exhaustive coding of the entire 5-minute interaction.

Although there exists no formal standardized prescribed methodology to sample thin slice dynamic videos or still-frames from recorded sessions of nonverbal behavior, methodologists have recommended that researchers take samples from the beginning, the middle, and the end of each interaction studied (Ambady, Bernieri, & Richeson, 2000). There are two advantages to this technique. The first advantage is that this sampling corresponds to the structure in real life social interactions that are influenced by culture and norms. For example, both the beginning 'meeting-and-greeting' and the ending of human interactions are ritualized and structured to some extent within cultures whereas the behavior in the middle of an interaction is more idiosyncratic to the

³ The first author of this thesis was one of four coders for forward lean

individuals. The other advantage is that sampling from at least three time periods allows for the statistical assessment of linear trends throughout an interaction.

A still-frame was extracted from the beginning (Beg), middle (Mid), and end (End) of each 5-minute interaction. To eliminate unintended coding bias, sampling times were decided beforehand (before we started any coding). The specific times at which these still-frames were sampled were: At minute 00:30 for Beg, at minute 02:30 for Mid, and at minute 05:00 for End. Three nonverbal behaviors were coded from still-frames: a) distance, b) forward lean, and c) body orientation.⁴ Face gaze was not coded from photos. Instead it was operationalized as the *proportion of time* a person spent looking at their partner without reciprocal gaze by the partner; so entire videos were used for coding face gaze.

Distance. Distance was operationalized as the distance from a person's head to the functional midpoint plane of the interaction space (Figure 3.5). As shown in Figure 3.5, the experimental room was divided in half by drawing a "territoriality plane" in the middle of the room. Half of the room was operationalized as a plane that connects the middle of the far end of the table (vertical line #1) with the middle of the side of the room that is closest to the camera (vertical line #3). The positioning of vertical line #3 was based on familiarity with the experimental room. To help coders with the 3D depth of the plane, we also drew vertical line #2, which connects the middle of the proximal end of the table to vertical line #1. The positioning of the vanishing point (the *star* in Figure 3.5) was also estimated. Based on this vanishing point, grids on the territoriality plane were drawn also to help coders measure distance utilizing the 3D feature of the plane.

⁴ For body orientation and forward lean, informal assessment of how representative the sampled still-frames were of videos was done by eye checking the videos 15-seconds before and 15-seconds after the still-frame

Coders used Adobe Photoshop to draw and measure a horizontal line between the participant's head and the corresponding point on the plane. Two coders were trained to code distance by the first author utilizing in-person practice sessions. The intraclass reliability for the two coders was $r = .96$, and the effective reliability (upped Spearman-Brown) was $R = .98$.

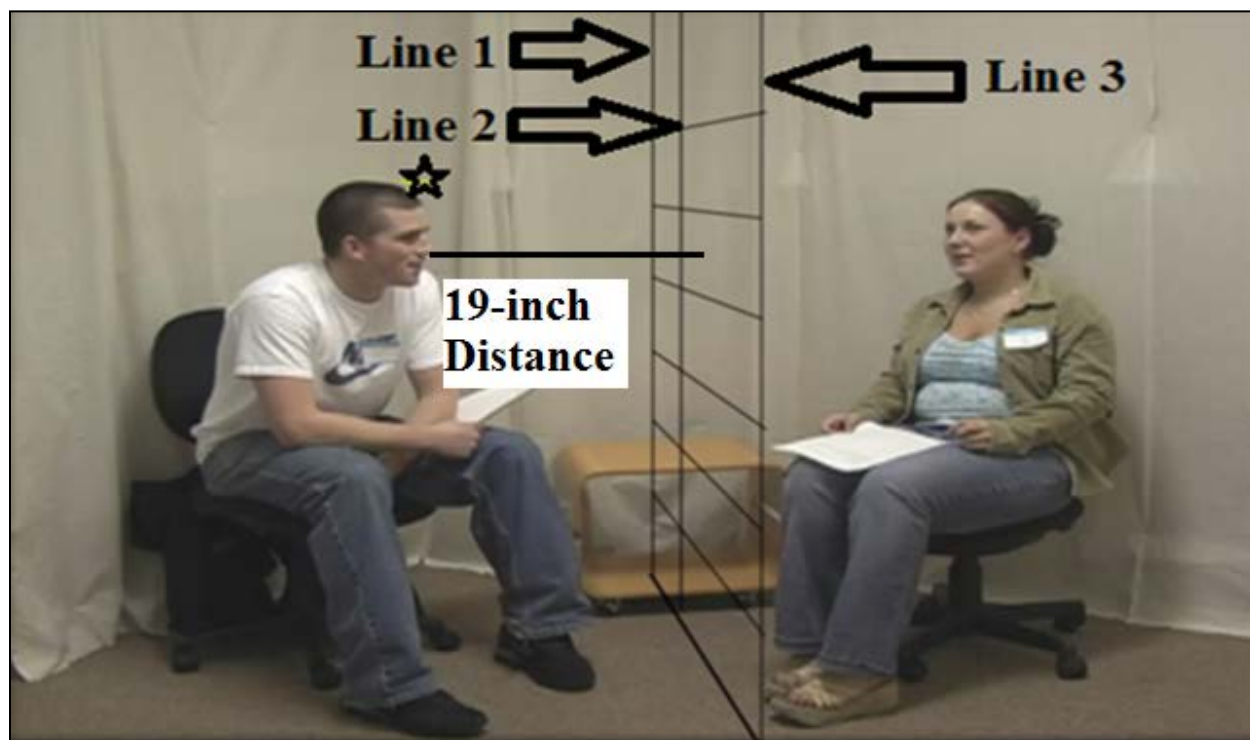


Figure 3.5. Distance coding using the plane for the person on the left (19-inch)

Body orientation. Coders were trained by the author. Coders estimated the angle at which each participant sat in relation to the midpoint plane using their shoulders (Figure 3.6). A participant who was perfectly facing the plane was given zero degrees and a participant sitting perfectly perpendicular to the plane was given 90 degrees. The diagram in Figure 3.7 from Watson and Graves (1966) was used to guide the estimation of positions in the still-frames. The intraclass reliability for the two coders was $r = .70$, and the effective reliability (upped Spearman-Brown) was $R = .82$.



Figure 3.6. Example of a body (shoulder) orientation operationalization (estimated 30 degrees)

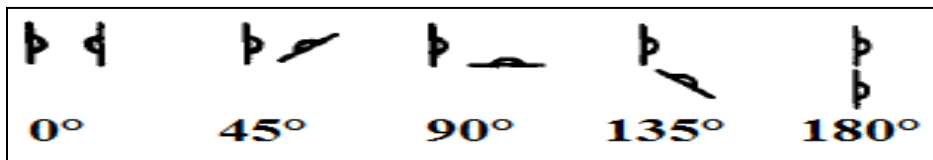


Figure 3.7. Diagram from Watson and Graves (1966) used to guide body orientation coders

Forward (trunk) lean. Four coders were trained by the first author. Coders categorized the participants' posture into one of three positions: backward lean = 1, upright = 2, and forward lean = 3. The lean was defined by the angle between a line of the trunk (front side) of a person and another horizontal line parallel to the ground referenced by coders (Figure 3.8 below). The intraclass reliability for the four coders was $r = .77$, and the effective reliability (upped Spearman-Brown) was $R = .93$.

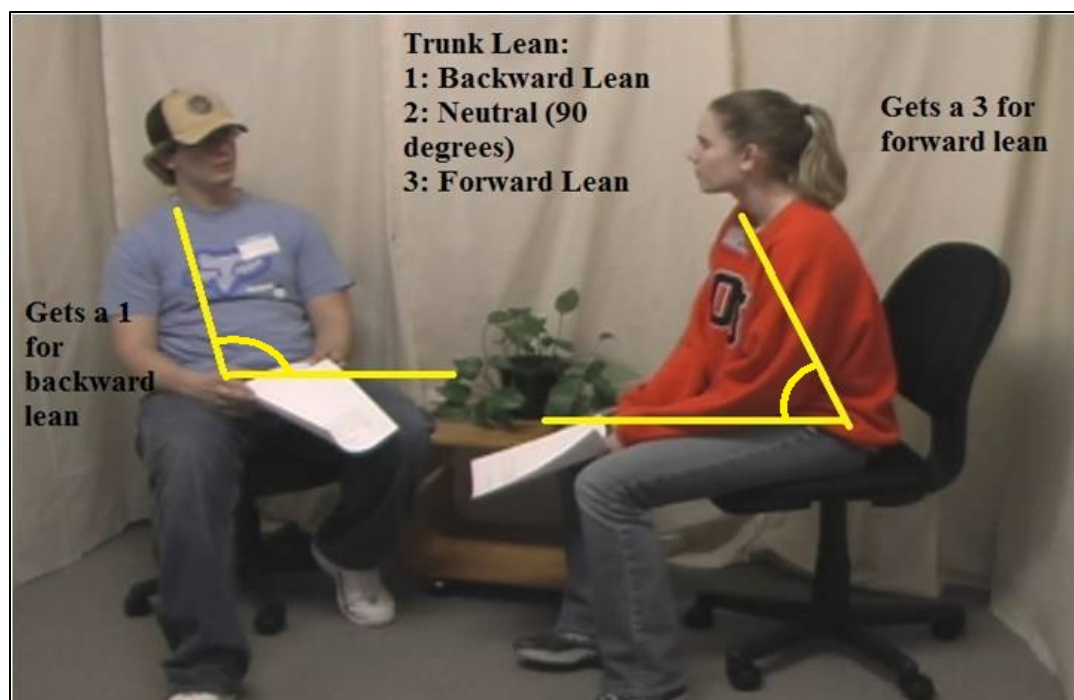


Figure 3.8. Example of forward lean operationalization

Face gaze. Kleinke (1986) defined face gaze as, “the direction of one person’s gaze at another’s face” (p. 78). Face gaze was operationalized as the proportion of time spent in nonreciprocated gaze. In this thesis, face gaze was only assessed when a participant was looking at their partner while their partner was looking away (Figure 3.9 below). Although theoretically relevant, mutual eye-contact was excluded because it could only be operationalized at the dyad level; this measure could not be assigned to one of the two people involved in this behavior. Behaviors that are defined exclusively at the dyad level (e.g., simultaneous speech, interpersonal distance, and interactional synchrony) were not a focus of this investigation.

Four coders were trained by the first author utilizing a brief training manual (Appendix E). Exploratory pilot coding using 5-second segments and entire 5-minute clips revealed that 30-second segments were the longest duration from which reliable coding could be generated in this study. Each 5-minute interaction was thus divided into ten 30-second segments. Coders

estimated face gaze within each of these 30-second segments. The first three 30-second segments constituted the “beginning” of the interaction. The next four segments constituted the “middle” of the interaction. The final three segments constituted the “end” of the interaction. The intraclass reliability for the four coders was $r = .75$, and the effective reliability (upped Spearman-Brown) was $R = .92$.



Figure 3.9. Example of face gaze operationalization

Verbal Self-Disclosure

Self-disclosure. Transcripts were made of every conversation (see Figure 3.10). Self-disclosure was operationalized as a verbal communication that had the following attributes: a) it provided the listener with optional information not mandated by the conversational topic or necessary to maintain the conversational flow; b) it revealed something that was either private and not publicly available to a typical stranger within this context, or c) revealed socially

desirable or undesirable information that could potentially have positive or negative interpersonal consequences.

0:06	alright, so what are your hobbies?	do you wanna go first, person one?	0:05
	SD1	hobbies? um, I really elike music. I try to play the guitar, but I'm horrible at it.	0:09
0:17	yeah,	I'm trying to learn over the summer some more. um, other than that, probably just working out and playing basketball. I elike to be active. I don't want, rlike, sitting around, pretty much. uh, just kinda ii, do you answer your question too or?	0:17
0:34	I don't,	I think we just go from here.	0:34
0:35	are they different?	yeah.	0:36
0:37	okay,	okay, uh, I'll just go with mine. um, what's one thing happening in your life that makes you stressed out?	0:37
	SD3	that makes me stressed out, um, school,	
0:43		school,	0:47
0:47	I guess, heheh	SD4	
	I guess that's pretty much the obvious one,	eheh,	0:50
0:50	since that's kinda what we're doing, but yeah, I'm kind of anal, and so I always probably, Idunno, try to push myself harder than I should right,	SD5	
	Most private and personal statement.	yeah,	1:02
		kind of stresses you out, but, um, what is	

Figure 3.10. Example of self-disclosure coding from a transcript

A single self-disclosure *statement* was bounded by any vocal disruptions by a listener. For example, if, during a monologue, a speaker’s statement was broken up by vocal disruption by the listener (e.g., “*mmhmm*”, “*yeah*”, or “*right*”), each portion of dialogue between vocalizations would then be considered a separate unit of self-disclosure. Using transcripts, coders identified and counted the number of self-disclosing statements made by each interactant. An example of a self-disclosing statement was, “*I have a cat*” or “*I’ve never gone to class.*” Both examples reveal something about the speaker. If a statement was simply a direct answer to an explicit question (e.g., “*Do you have a cat?*”) then the statement was not counted as a self-

disclosing statement. However, if in response to the question, “*Do you have a cat?*” the response was, “*Yes, I have a stupid cat named Leo*” then the statement *would* be categorized as self-disclosing because it volunteered information that went beyond what was required to answer the question. The highlighted utterances in Figure 3.10 are examples of this coding.

Five coders were trained to code self-disclosure by the author using a brief training manual (Appendix E) and training sessions led by Dr. Bernieri. The intraclass reliability of this self-disclosure measure for the five coders was $r = .55$, and the effective reliability (upped Spearman-Brown) was $R = .86$.

Coders also identified the most intense self-disclosing statement in the entire interaction made by each interactant. The level of this intensity was rated on a 10-point scale. See Table 3.1 for hypothetical examples of statements with their rated level of intensity. This variable was not assessed at each time period so it was not subjected to the same time analysis as were the other variables in this thesis. However, this measure was important because it provided a validation of the self-disclosure count variable that we did analyze. Self-disclosure intensity correlated significantly with self-disclosure count ($r = .45, p < .01$) and provided empirical evidence that self-disclosure count was a valid way to measure self-disclosure.

Table 3.1

Examples of Hypothetical Self-Disclosing Statements Used to Operationalize the Intensity Scale

Self-Disclosing Statement Examples	Intensity Level
“I have a cat.”	1
“I’ve failed this class.”	2-4
“I’ve never gone to class.”	5-7
“I was kicked out of my high school for bullying.”	8-9
“I murdered my neighbor last year.”	10

The intraclass reliability for the five coders of self-disclosing intensity was $r = .36$, and the effective reliability (upped Spearman-Brown) was $R = .74$.

Summary of All Behavior Assessments

Table 3.2 reports all of the relevant reliability data for the behavioral assessments generated for this thesis.

Table 3.2

Summary of Reliability Analysis of Coded Cues

Variable	Effective Reliability R	Intraclass r	# of Coders
Face Gaze	.92	.75	4
Distance	.98	.96	2
Body Orientation	.82	.70	2
Forward Lean	.93	.77	4
SD Count ^a	.83	.54	4
SD Intensity	.74	.36	5

^aSelf-Disclosure Count. For a subset of 534 clips, a 5th coder was used and the effective reliability for these clips was even higher ($R = .86$) as a result.

CHAPTER 4—Results

Manipulation Check for Rejection/Acceptance Conditions

Self-reports from the questionnaire *Predicting Future Interactions* were Z-scored and then averaged. As can be seen in Table 4.1, accepted individuals had the highest expectations for rapport in the upcoming interaction ($M = .40$, $SD = 1.01$). Expectations for neutral individuals were slightly lower ($M = -.05$, $SD = .75$). Rejected individuals had the lowest expectations for rapport ($M = -.36$, $SD = .86$). As displayed in Table 4.2, a one-way ANOVA on these data reveals the means differ significantly ($F_{(2,179)} = 9.17$, $p < .01$). Specifically, pairwise comparisons showed a significant difference between rejected and accepted individuals ($p < .01$). It seems that the more social acceptance a person gets the more optimistic they are about how much rapport they expect to have in their upcoming interaction.

Table 4.1

Rapport Expectancy Means (Standardized) for Rejected, Neutral (Partners), and Accepted Individuals

	Rejected ($N = 44$)	Neutral ($N = 90$)	Accepted ($N = 46$)
Rapport Expectancy Mean	-.36	-.05	.40
<i>SD</i>	(.86)	(.75)	(1.01)

Table 4.2

One-Way ANOVA (N = 180) Testing the Effect of Experimental Manipulation on Rapport Expectations

Source	SS	df	MS	F	p
Participant Role	13.26	2	6.63	9.17	< .01
Error	128.06	177	.72		
Total	141.32	179			

Simple Statistics for Coded Behaviors

Table 4.3 reports the simple statistics for variables coded. Tests of significance for all apparent effects will follow later. The amount of unreciprocated gaze ranged from a low of 3% to a high of 60%. Average distance away from the middle of the room (i.e., the territorial plane pictured in the methods section) ranged from a low of 5.57 inches to a high of 33.82 inches. It appears that participants drifted back away from each other over the course of the interaction. As for forward lean, it *categorically* ranged from a rating of 3 for trunk lean that was the most forward to a rating of 1 for trunk lean that was the most backward. Considering that a rating of 2 was given to an upright trunk lean, the average of 1.63 indicates that interactants, on average, sat with a trunk lean between backward and upright, but closer to upright. Body orientation ranged from a low of -2.50 degrees (negative indicates the participant was oriented toward the opposite side of the camera) in relation to the territoriality plane (perfectly facing the plane) to a high of 95 degrees. A larger score indicates that the interactant is facing the camera. A smaller score indicates that the interactant is facing their partner directly. Participants tended to face each other more directly at the very beginning of the interaction and at the end of the interaction, which may be the result of cultural norms for polite greeting behavior and leave taking. Finally, participants

varied greatly in their self-disclosure. Across our sample, the amount ranged from a low of 4.80 self-disclosing statements to a high of 50 statements.

Table 4.3

Means and Standard Deviations of Variables for All 180 Participants

	Beg	Mid	End	Overall
	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>
Nonverbal Cues				
Face Gaze ^a	20.03 (11.71)	21.56 (13.57)	20.94 (12.41)	20.84 (11.29)
Distance ^b	19.93 (3.99)	20.22 (4.25)	20.45 (4.31)	20.20 (4.01)
Body Orientation ^c	44.85 (26.68)	48.89 (25.23)	45.90 (25.12)	46.55 (23.26)
Forward Lean ^d	1.66 (.65)	1.63 (.66)	1.59 (.67)	1.63 (.60)
Verbal Cues				
Self-Disclosure Count ^e	6.06 (2.62)	5.59 ^f (2.72)	5.26 (2.89)	19.32 (6.82)

^aThe unit was in % of interaction duration.

^bDistance in inches between a person's head and the midpoint of the experimental room. The larger the value, the further back the person retreated into their own "territory."

^cThe unit was in terms of angle degrees. The lower the value, the more directly they were facing their partner.

^dForward lean was coded categorically (3 for forward lean, 2 for upright, and 1 for backward).

^eThe number of self-disclosing statements (the overall numbers reported are totals not means).

^fThis count was re-scaled by multiplying by .75. This was due to the middle being 120 seconds compared to 90 seconds for the beginning and end.

Intercorrelations between Coded Behaviors

The correlations between nonverbal intimacy variables (face gaze, distance, body orientation, and forward lean) and verbal intimacy (self-disclosure) are reported in Table 4.4 below. A negative correlation between one (or more) nonverbal behavior and self-disclosure may indicate psychological intimacy compensation where an increase in intimacy in one behavior is

offset by a decrease in intimacy of another. Only one such correlation was found. As people verbally self-disclosed more to their partner they averted their gaze more.

Table 4.4

Correlation Matrix for All 180 Participants

	Face Gaze	Distance	Body Orientation	Forward Lean	Self-Disclosure Count	Self-Disclosure Intensity
Face Gaze	1	-.00	.09	-.08	-.27**	-.11
Distance		1	-.02	-.54**	-.05	.04
Body Orientation			1	-.11	-.08	-.04
Forward Lean				1	-.02	-.01
Self-Disclosure Count					1	.45**
Self-Disclosure Intensity						1

Note. * $p < .05$, ** $p < .01$.

Another function of the intercorrelation matrix was to identify nonverbal behaviors that co-varied together and constituted behavioral redundancies. I.e., a possible set of different coded behaviors that were essentially measuring one larger but distinct complex pattern of behavior. In such instances, a possible set of related movements and behaviors would not be independent behaviors but instead would comprise a single complex behavior. For example, the correlation matrix revealed that people who were leaning backward in their chair were also further back in their respective territories ($r = -.54, p < .01$). This correlation suggested that distance and trunk lean may have been confounded. This is likely given that distance was measured from the head. Thus, for any given location, the further back someone leaned in their chair the longer the distance would increase accordingly. This indicated that these two nonverbal behaviors may be combined into one composite rather than treating them as two distinct behaviors. However, to confirm whether or not composites should be formed, a principal component analysis was run.

Results appear in Table 4.5. The purpose of this analysis was merely to support the formation of this one composite variable with respect to the others. The analysis followed the prescribed procedures put forth by O'Rourke and Hatcher (2013).

Table 4.5

Factor Loadings Based on a Principal Components Analysis with Varimax Rotation for 6 Intimacy Variables Measured (N = 180)

Behavior	Component 1	Component 2	Component 3	Component 4
Distance	.89			
Forward Lean	-.87			
Self-Disclosure Intensity ^a		.88		
Self-disclosure Count		.81		
Face Gaze			.98	
Body Orientation				.99

Note. Factor loadings < .30 were not reported.

^aIntensity will not be analyzed any further. Loading into the same factor as self-disclosure count simply helped make sure count was a valid measure of self-disclosure construct.

A principal components analysis extraction method with Varimax Rotation and Kaiser Normalization was run on the six intimacy variables. The analysis supported a four factor solution. The four factors revealed interesting findings about what constituted overall intimacy in our study. The first factor indicated that distance and forward lean were connected. A “dist-lean” composite variable was formed by Z-scoring distance scores (reversed scores for distance so that higher values reflect higher intimacy) and forward lean scores and averaging them. The second factor indicated that self-disclosure count and self-disclosure intensity were assessing a similar construct, which we noted in the methods section earlier. The two remaining nonverbal behaviors measured (face gaze and body orientation) loaded onto their own factor.

A 'global nonverbal intimacy composite' variable was also formed, strictly on theoretical grounds. Argyle and Dean (1965) specified that intimacy is increasing when: a) people are closer, b) they lean forward, c) they face each other more directly, and d) they look at their partner more. Therefore, theoretically, this composite represents the overall level of nonverbal intimacy taking place during a conversation. Reversed scoring and standardization was performed on variables where appropriate before combining them to form the composite.

Trends over Time

It was hypothesized that across time, verbal intimacy would increase due to the nature of the intimacy building task (Sedikides et al., 1999). It was further hypothesized that nonverbal intimacy behavior would decrease over time due to compensation (Argyle & Dean, 1965; Patterson, 1973). There were no precise predictions about how much decrease would happen or when it would happen nor was there a definitive prediction about how the rejection manipulation would impact behavior.

To examine the changes in the variables over time, a (2 x 2 x 2 between) x (3 repeated measures) ANOVA was performed on each behavior. The between factors were dyad condition (rejection/acceptance), individual role (target/partner), and sex (female/male). The repeated measure factor was time (beginning/middle/end).

There were unequal *N*'s by sex across these conditions. For the targets, there were 10 rejected males, 34 rejected females, 17 accepted males, and 29 accepted females. For the partners in the rejection dyads, there were 19 neutral males, and 25 neutral females. For the partners in the acceptance dyads, there were 13 neutral males, and 33 neutral females.

Verbal Self-Disclosure

Table 4.6 reports the means for self-disclosure by factor. Table 4.7 reports the ANOVA results. There were no effects for the experimental condition or sex. The only significant effect was time ($F_{(2,172)} = 5.70, p < .01$). The F testing the linear trend was significant, $F_{(1,172)} = 11.39, p < .01$. Contrary to what was predicted, the amount of disclosure *declined*, not increased, over the course of this intimacy building task. Figure 4.1 displays the average number of self-disclosing statements made in each of the three different conditions across time.

Table 4.6

Simple Statistics for Self-Disclosure by Factor

	Target			Partner of Target		
	Male	Female	\bar{x}	Male	Female	\bar{x}
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)		<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	
Rejected	18.06 (7.06)	20.37 (6.64)	19.22	17.80 (5.37)	19.70 (8.48)	18.75
Accepted	21.21 (7.49)	19.01 (6.22)	20.11	18.82 (6.29)	18.70 (6.95)	18.76
\bar{x}	19.64	19.69	19.67	18.31	19.20	18.76

Note. Higher values mean higher number of self-disclosing statements.

Table 4.7

Mixed (2 X 2 X 2) ANOVA with Repeated Measures (Beg, Mid, End) on Self-Disclosure Count for 180 Participants

Source	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	<i>eta</i> ²
Between Subjects						
DyadCond ^a	.14	1	.14	.14	.71	.00
Role ^b	.64	1	.64	.65	.42	.00
Sex	.01	1	.01	.01	.95	.00
DyadCond*Role	.02	1	.02	.02	.89	.00
DyadCond*Sex	2.33	1	2.33	2.38	.13	.01

Role*Sex	.09	1	.09	.09	.76	.00
DyadCond*Role*Sex	.00	1	.00	.00	.99	.00
Error	168.00	172	.98			
Within Subjects						
Time	5.70	2	2.85	6.3	< .01	.04
Time* DyadCond	.29	2	.15	.32	.72	.00
Time*Role	.68	2	.34	.75	.47	.00
Time*Sex	1.65	2	.83	1.83	.16	.01
Time*DyadCond*Role	1.66	2	.83	1.83	.16	.01
Time*DyadCond*Sex	1.33	2	.67	1.47	.23	.01
Time*Role*Sex	1.26	2	.63	1.39	.25	.01
Time*DyadCond*Role*Sex	.56	2	.28	.62	.54	.00
Error	155.25	344	.45			

^aDyad condition: The individual belonged to a dyad with a rejected target or an accepted target.

^bRole: The individual was either a target or a partner.

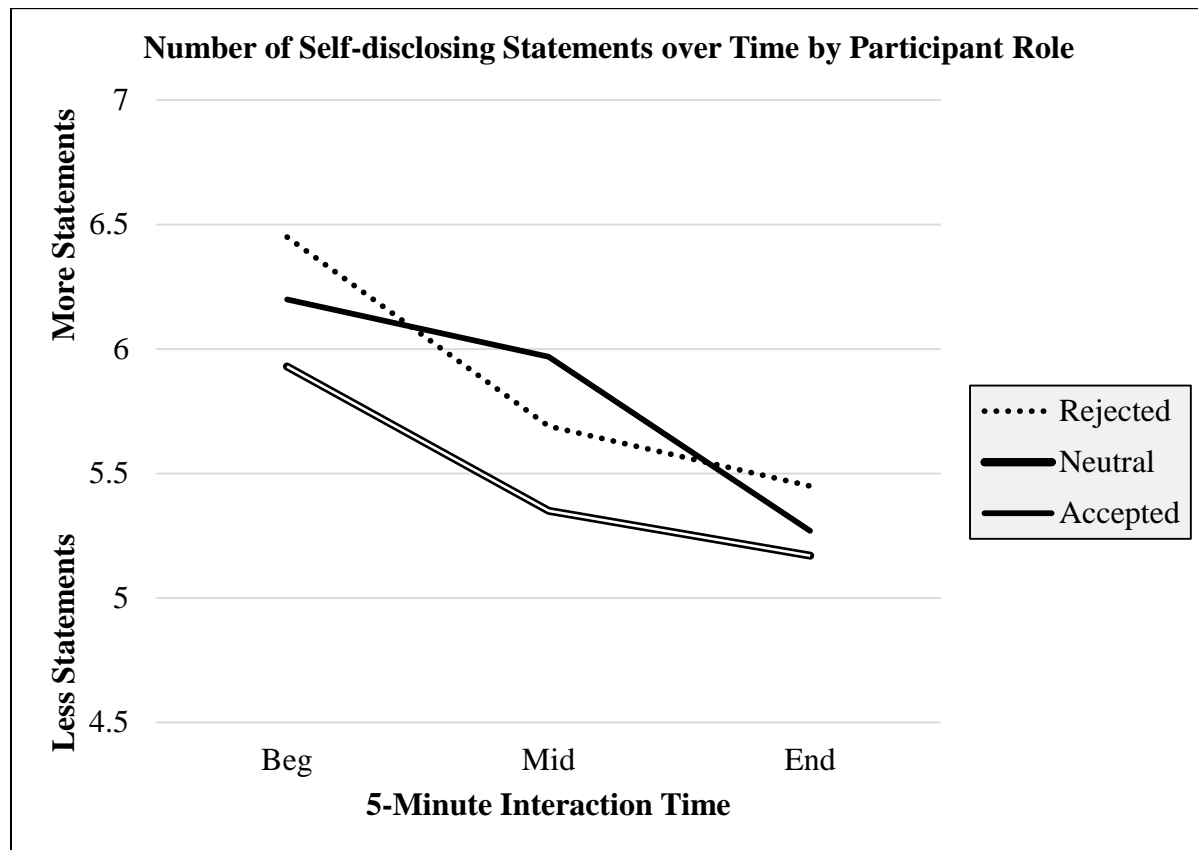


Figure 4.1. Change over time in number of self-disclosing statements.

Face Gaze

Table 4.8 reports the means for face gaze by factor. Values represent the proportion of time spent looking at the partner without the partner reciprocating gaze.

Table 4.8

Simple Statistics for Face Gaze by Factor

	Target			Partner of Target		
	Male	Female	\bar{x}	Male	Female	\bar{x}
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)		<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	
Rejected	19.19 (9.51)	22.57 (10.87)	20.88	18.98 (8.33)	18.87 (12.07)	18.93
Accepted	22.79 (9.94)	22.23 (13.01)	22.51	21.16 (9.5)	19.79 (13.13)	20.48
\bar{x}	20.99	22.4	21.70	20.07	19.33	19.70

Note. Higher values mean higher amount of unreciprocated face gaze in the interaction.

Unreciprocated face gaze was not significantly impacted by any factor we analyzed. However, the differences across time were *marginally* significant, $F_{(2,172)} = 2.70, p = .07$. The F testing the linear trend was not significant, $F_{(1,172)} = 1.77, p = .19$. As displayed in Table 4.9, none of the effects were significant. Figure 4.2 displays the average amount of unreciprocated face gaze in the three participant conditions across time.

Table 4.9

Mixed (2 X 2 X 2) ANOVA with Repeated Measures (Beg, Mid, End) on Face Gaze for 180 Participants

Source	SS	df	MS	F	p	η^2
Between Subjects						
DyadCond ^a	1.44	1	1.44	.72	.40	.00
Role ^b	2.32	1	2.32	1.16	.28	.01
Sex	.04	1	.04	.02	.88	.00

DyadCond*Role	.00	1	.00	.00	.99	.00
DyadCond*Sex	.96	1	.96	.48	.49	.00
Role*Sex	.66	1	.66	.33	.57	.00
DyadCond*Role*Sex	.23	1	.23	.11	.74	.00
Error	344.87	172	2.01			
Within Subjects						
Time	1.31	2	.66	2.70	.07	.02
Time* DyadCond	.10	2	.05	.20	.82	.00
Time*Role	.42	2	.21	.87	.42	.01
Time*Sex	.26	2	.13	.53	.59	.00
Time*DyadCond*Role	.32	2	.16	.65	.52	.00
Time*DyadCond*Sex	.59	2	.30	1.22	.30	.01
Time*Role*Sex	.14	2	.07	.29	.75	.00
Time*DyadCond*Role*Sex	.19	2	.10	.39	.68	.00
Error	83.53	344	.24			

^aDyad condition: The individual belonged to a dyad with a rejected target or an accepted target.

^bRole: The individual was either a target or a partner.

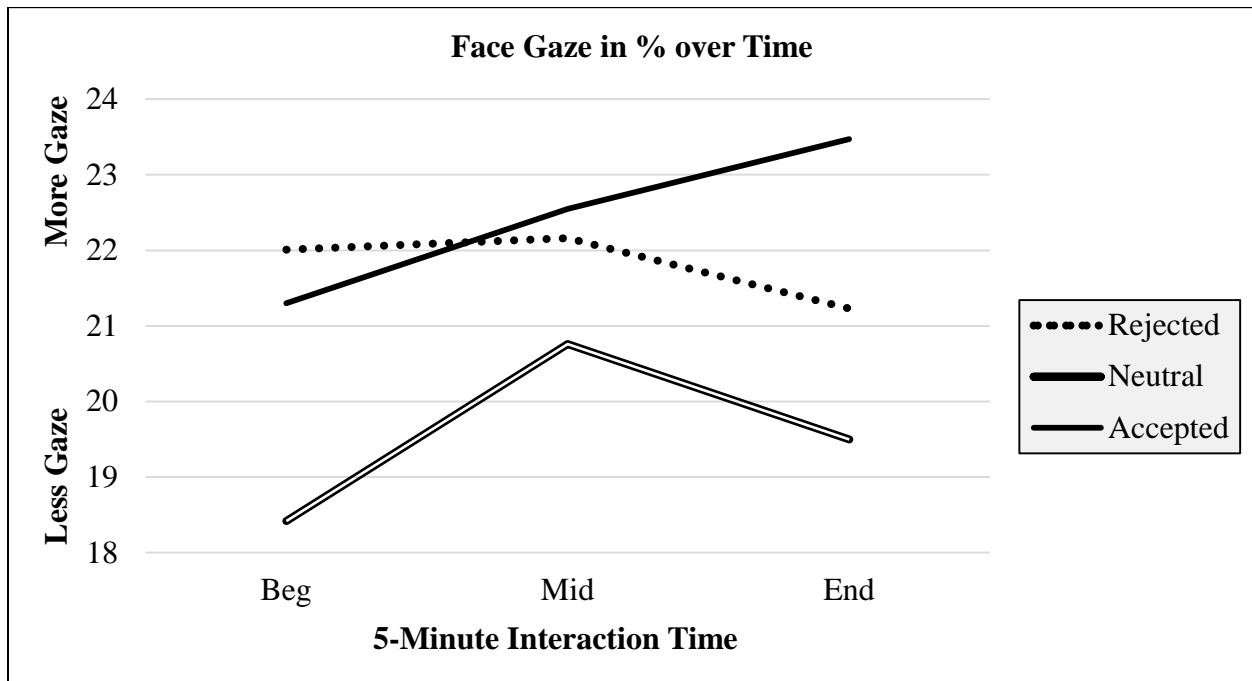


Figure 4.2. Change over time in the percentage of face gaze.

Dist-Lean Composite

Table 4.10 reports the means for the dist-lean composite by factor. Positive values mean the participant was closer to the center of the room whereas negative values mean they were further away. Table 4.11 displays time was the only significant effect ($F_{(2,172)} = 7.56, p < .01$). The F testing the linear trend was significant, $F_{(1,172)} = 11.16, p < .01$. Figure 4.3 displays the average scores for the dist-lean composite by participant condition.

Table 4.10

Simple Statistics for Dist-Lean Composite by Factor

	Target			Partner of Target		
	Male	Female	\bar{x}	Male	Female	\bar{x}
	<i>M</i>	<i>M</i>		<i>M</i>	<i>M</i>	
	(<i>SD</i>)	(<i>SD</i>)		(<i>SD</i>)	(<i>SD</i>)	
Rejected	-.45 (.03)	.03 (.75)	-.21	-.02 (.81)	-.17 (.58)	-.10
Accepted	-.11 (.88)	.15 (.72)	.02	-.04 (.88)	.06 (.60)	.01
\bar{x}	-.28	.09	-.10	-.03	-.06	-.05

Note. Positive values mean higher intimacy. More specifically, it means closer distance and a more forward trunk lean.

Table 4.11

Mixed (2 X 2 X 2) ANOVA with Repeated Measures (Beg, Mid, End) on Dist-Lean Composite for 180 Participants

Source	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	<i>eta</i> ²
Between Subjects						
DyadCond ^a	3.02	1	3.02	1.87	.17	.01
Role ^b	.32	1	.32	.20	.66	.00
Sex	3.29	1	3.29	2.03	.16	.01
DyadCond*Role	.46	1	.46	.28	.60	.00
DyadCond*Sex	.00	1	.00	.00	.97	.00
Role*Sex	4.39	1	4.39	2.71	.10	.02
DyadCond*Role*Sex	1.57	1	1.57	.97	.33	.01

Error	278.35	172	1.62			
Within Subjects						
Time	2.23	2	1.11	7.56	< .01	.04
Time* DyadCond	.57	2	.28	1.93	.15	.01
Time*Role	.27	2	.14	.92	.40	.01
Time*Sex	.01	2	.00	.03	.97	.00
Time*DyadCond*Role	.02	2	.01	.06	.94	.00
Time*DyadCond*Sex	.22	2	.11	.75	.47	.00
Time*Role*Sex	.27	2	.14	.92	.40	.01
Time*DyadCond*Role*Sex	.04	2	.02	.13	.88	.00
Error	50.65	344	.147			

^aDyad condition: The individual belonged to a dyad with a rejected target or an accepted target.

^bRole: The individual was either a target or a partner.

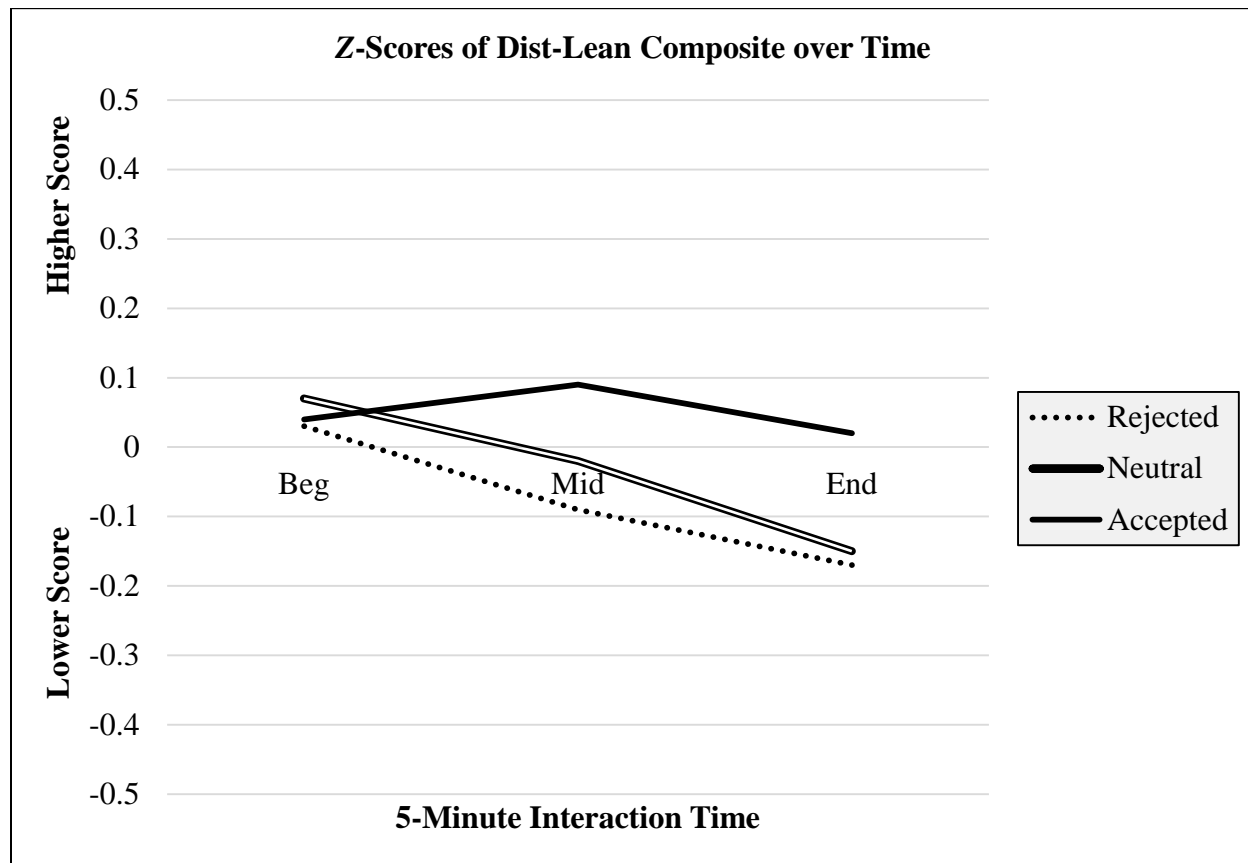


Figure 4.3. Change in dist-lean composite scores over time.

Body Orientation

Table 4.12 reports the means for body orientation by factor. The lower the value the more directly the participant was facing their partner. As displayed in Table 4.13, there was a statistically significant effect of time on body orientation ($F_{(2,172)} = 3.50, p = .03$). The F testing the quadratic trend was significant, $F_{(1,172)} = 6.27, p = .01$. There were no other significant effects. Figure 4.4 displays the average body orientation in each of the three different participant conditions across time.

Table 4.12

Simple Statistics for Body Orientation by Factor

	Target			Partner of Target		
	Male	Female	\bar{x}	Male	Female	\bar{x}
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)		<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	
Rejected	49.50 (20.62)	43.36 (22.76)	46.43	45.70 (23.30)	40.10 (26.25)	42.90
Accepted	47.75 (26.63)	47.61 (19.43)	47.68	47.95 (21.49)	52.20 (24.68)	50.08
\bar{x}	48.63	45.49	47.06	46.83	46.15	46.49

Note. Higher values mean less direct shoulder orientation toward the partner.

Table 4.13

Mixed (2 X 2 X 2) ANOVA with Repeated Measures (Beg, Mid, End) on Body Orientation for 180 Participants

Source	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	<i>eta</i> ²
Between Subjects						
DyadCond ^a	2.76	1	2.76	1.29	.26	.01
Role ^b	.03	1	.03	.01	.91	.00
Sex	.58	1	.58	.27	.60	.00
DyadCond*Role	1.23	1	1.23	.58	.45	.00
DyadCond*Sex	2.35	1	2.35	1.10	.30	.01

Role*Sex	.34	1	.34	.16	.69	.00
DyadCond*Role*Sex	.14	1	.14	.07	.80	.00
Error	367.23	172	2.14			
Within Subjects						
Time	1.62	2	.81	3.50	.03	.02
Time* DyadCond	.66	2	.327	1.41	.25	.01
Time*Role	.16	2	.08	.35	.71	.00
Time*Sex	.27	2	.13	.58	.56	.00
Time*DyadCond*Role	.38	2	.19	.82	.44	.01
Time*DyadCond*Sex	.56	2	.28	1.20	.30	.01
Time*Role*Sex	.13	2	.06	.27	.76	.00
Time*DyadCond*Role*Sex	.44	2	.22	.96	.39	.01
Error	79.79	344	.23			

^aDyad condition: The individual belonged to a dyad with a rejected target or an accepted target.

^bRole: The individual was either a target or a partner.

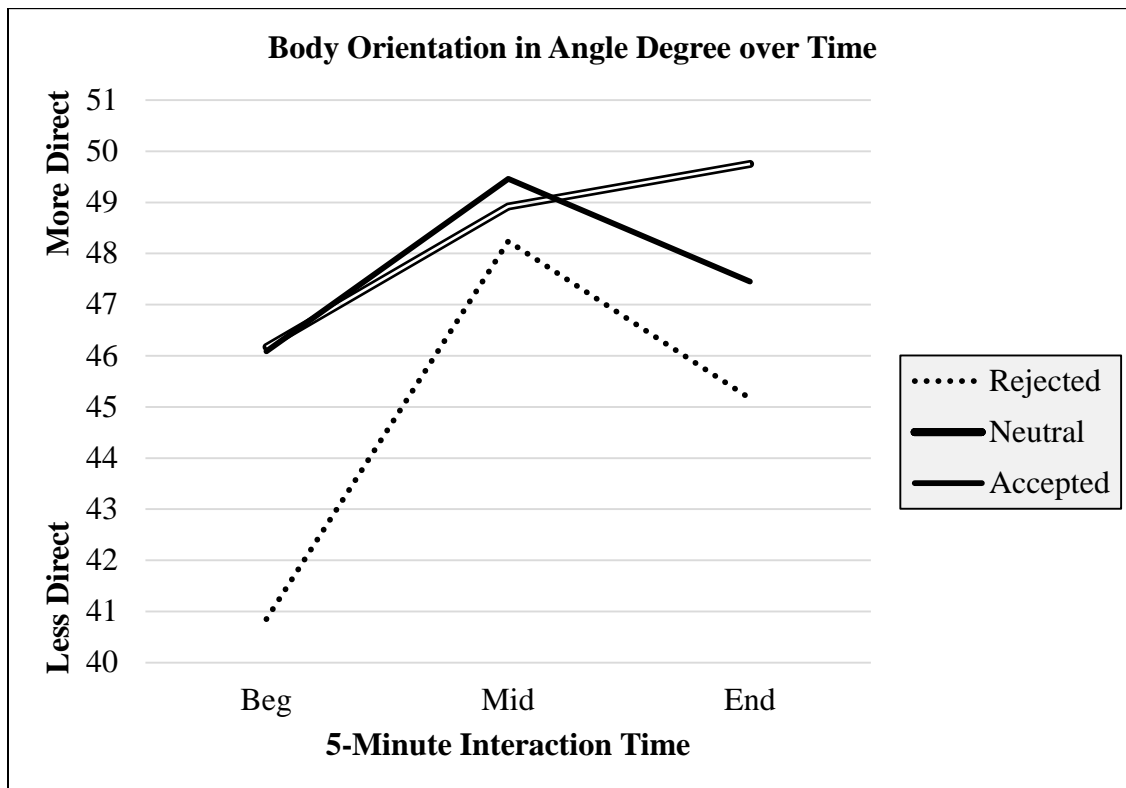


Figure 4.4. Change over time in body orientation.

Nonverbal Intimacy Composite

Table 4.14 reports the means for global nonverbal intimacy by factor. As values for this variable increase it reflects a higher level of nonverbal intimacy (more gaze, closer distance, more direct orientation, and more forward lean). As Table 4.15 displays, time was the only significant effect ($F_{(2,172)} = 3.82, p = .02$). The F testing the linear trend was significant, $F_{(1,172)} = 6.49, p = .01$. Nonverbal intimacy appeared to have diminished throughout the course of the interaction.

Table 4.14

Simple Statistics for Nonverbal Intimacy Composite by Factor

	Target			Partner of Target		
	Male	Female	\bar{x}	Male	Female	\bar{x}
	<i>M</i>	<i>M</i>		<i>M</i>	<i>M</i>	
	(<i>SD</i>)	(<i>SD</i>)		(<i>SD</i>)	(<i>SD</i>)	
Rejected	-.28 (.48)	.08 (.41)	-.10	-.03 (.49)	-.06 (.45)	-.05
Accepted	-.03 (.49)	.09 (.50)	.03	-.02 (.50)	-.04 (.44)	-.03
\bar{x}	-.16	.09	-.04	-.03	-.05	-.04

Note. Positive values mean higher intimacy. More specifically, it means more face gaze, closer distance, more direct body orientation, and more forward trunk lean.

Table 4.15

Mixed (2 X 2 X 2) ANOVA with Repeated Measures (Beg, Mid, End) on Nonverbal Intimacy Composite for 180 Participants

Source	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	<i>eta</i> ²
Between Subjects						
DyadCond ^a	.57	1	.57	.88	.35	.01
Role ^b	.00	1	.00	.01	.94	.00
Sex	1.32	1	1.32	2.05	.15	.01
DyadCond*Role	.39	1	.39	.60	.44	.00

DyadCond*Sex	.36	1	.36	.56	.45	.00
Role*Sex	1.95	1	1.95	3.03	.08	.02
DyadCond*Role*Sex	.43	1	.43	.66	.42	.00
Error	110.63	172	.643			
Within Subjects						
Time	.54	2	.27	3.82	.02	.02
Time* DyadCond	.35	2	.17	2.43	.09	.01
Time*Role	.05	2	.03	.38	.69	.00
Time*Sex	.04	2	.02	.31	.73	.00
Time*DyadCond*Role	.11	2	.05	.76	.47	.00
Time*DyadCond*Sex	.23	2	.12	1.64	.20	.01
Time*Role*Sex	.07	2	.04	.51	.60	.00
Time*DyadCond*Role*Sex	.09	2	.05	.63	.53	.00
Error	24.45	344	.07			

^aDyad condition: The individual belonged to a dyad with a rejected target or an accepted target.

^bRole: The individual was either a target or a partner.

Summary of Results

There were three main findings in this thesis. First, when a composite of nonverbal intimacy behaviors was compared to verbal intimacy (self-disclosure), both *declined* over time (Figure 4.5 below). This is possibly suggesting that our intimacy induction task failed (failed to increase verbal intimacy over time). This was evident in the significant decline in verbal intimacy over time (Table 4.7).

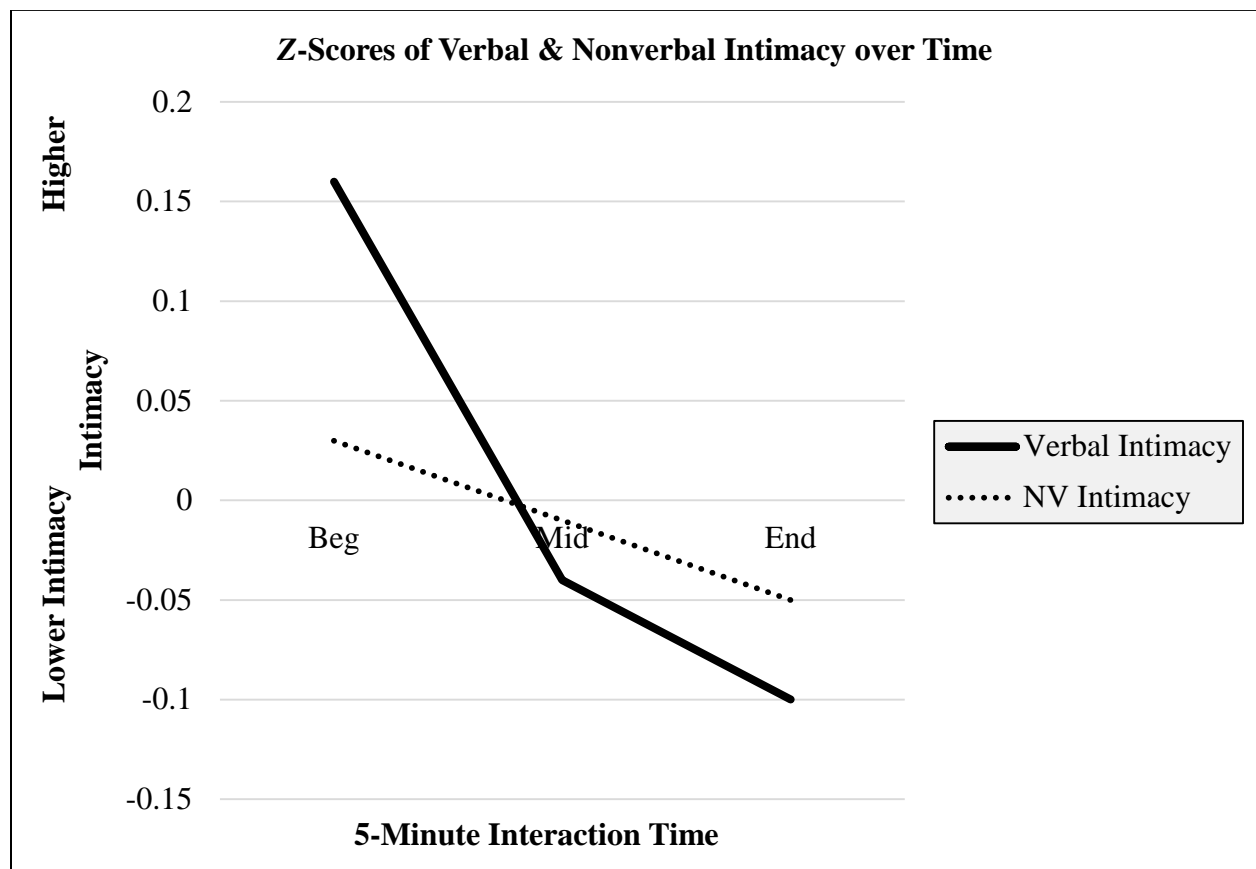


Figure 4.5. Change over time in verbal and nonverbal intimacy

Second, the rejection manipulation and the sex of the participants did not matter. There were no significant effects for either. The overall patterns were very similar across conditions and across sexes.

Third, there seemed to be evidence for verbal-nonverbal coordination indicated by the negative correlation between face gaze and verbal self-disclosure (Table 4.4). It is well established that speakers (i.e., self-disclosers) gaze less than listeners (Knapp & Hall, 2006). Therefore, this may not be compelling evidence for the compensation hypothesis. However, in the discussion section, we reason further why we view it this way.

CHAPTER 5—Discussion

It was hypothesized that the intimacy building task (RCIT; Sedikides et al., 1999) would lead to increasing verbal self-disclosure over time. It was also hypothesized that, to the extent nonverbal compensation in intimacy behaviors takes place, there would be a corresponding decrease in nonverbal intimacy behaviors. Neither hypothesis was supported. It may be important to keep in mind, however, that this study introduced two elements that are conventionally not present in equilibrium studies: a) an experimental procedure that was intended to compel people to disclose increasingly more personal information to a stranger over a very brief time span than would otherwise not be normal; and b) the rejection manipulation could have influenced equilibrium dynamics.

First Hypothesis

Contrary to expectations, verbal intimacy (self-disclosure) did not increase over time despite the fact that each successive interview question was designed to be more personal than the preceding one. Instead, the level of self-disclosure *decreased* as the interaction progressed.

An interpretation could be explained by expectancy violations theory discussed in the introduction (Burgoon, 2009). In the present study, the fast rate of self-disclosure may have negatively violated interactants' expectations and conceivably elicited less self-disclosure over time. People seem to have *expectations* for an optimal pace for how much and how soon to self-disclose. According to Mikulincer and Nachson (1991), self-disclosing per se does not promote the process of intimacy; rather, it is self-disclosing at the right time at a normally expected rate. They also warned that unexpectedly premature self-disclosure may often be off-putting. Perhaps the RCIT pushed participants to self-disclosure at a faster pace than usually expected. This

unexpected fast pace may have activated said off-putting mechanism during the highest self-disclosing period (the beginning) and elicited the significant decline in self-disclosure throughout the rest of the interaction time. In other words, instead of experiencing a typical meet-and-greet introduction *warm up*, the RCIT unintentionally forced participants to jump right into a personal conversation that neither was expecting.

Second Hypothesis

The second hypothesis predicted that there would be a corresponding *decrease* in nonverbal intimacy that would compensate for the expected increase in verbal intimacy. Although we did see a decline in nonverbal intimacy as expected, this was not compensatory because it occurred while verbal intimacy was also declining. There was no compensation between verbal intimacy and the overall nonverbal intimacy. If compensation took place then verbal and nonverbal intimacy would have correlated negatively. Instead, both decreased over time. Perhaps the failure to develop increasing levels of verbal intimacy over time (i.e., not finding evidence to support the first hypothesis) was a factor in not finding evidence to support the second hypothesis.

However, as discussed in the introduction, Patterson (1976) proposed that if the disturbance of equilibrium is due to a substantial *increase* in intimacy expression, a *reciprocal increase* is what matches the changed (higher) level of intimacy expression. If the disturbance of equilibrium is due to a substantial *decrease* in intimacy, a reciprocal decrease is what matches the new (lower) level of intimacy expression. The latter is one way to view the decrease in both verbal and nonverbal behaviors we found in this thesis. Due to the RCIT questions, the initial level of verbal self-disclosure may have been inappropriately high, which may have led to the

gradual decline over time. This decline is a change in intimacy (lower intimacy). If this decline in intimacy was substantial, and needed a reciprocal response, then the decrease in nonverbal intimacy over time may have served this reciprocation. Therefore, the results of this thesis could indicate that Sommer and Bernieri (2015) did not succeed in facilitating the development of intimacy over the 5-minute interaction. In fact, results showed the opposite—the RCIT back fired and elicited a decline in the overall intimacy expression over time.

One nonverbal behavior (face gaze) did, however, correlate negatively with verbal intimacy ($r = -.27, p < .01$). But does this correlation actually provide evidence for compensation in intimacy equilibrium maintenance proposed by Argyle and Dean (1965)? There are several reasons why this may not be the case.

Scholars have studied and established the relationship between these two behaviors when examining the general effects of eye behavior on human communication (Knapp & Hall, 2006). Gaze has a role in regulating and facilitating conversational flow (Kendon, 1967), which is conceptually different than the role gaze has within intimacy equilibrium (Argyle & Dean, 1965). Gaze behavior can therefore function as a '*regulator*.' Regulators according to Ekman and Friesen (1969) are "actions which maintain and regulate the back-and-fourth flow of conversation between speakers and listeners" (p. 82).

Gaze direction is also a function of whether an interactant is speaking or listening. Knapp and Hall (2006) summarized evidence that suggests speakers tend to gaze much less than listeners. In other words, the more talking (i.e., self-disclosure) a person does, the less face gaze they should engage in. Such interactional norm for the interplay between face gaze and speaking

is very common and even has roots in early development as it is observed in infants who are a few months old (Jaffe, Stern, & Peery, 1973).

Finally, Kendon (1967) suggested that due to cognitive difficulty, people are more likely to avert gaze when the conversational topic is more difficult to discuss. The more intimate and/or more cognitively-demanding the topic of the task at hand, the less gaze we will see (Glenberg, Schroeder, & Robertson, 1998). For example, gaze aversion was observed in one study when participants were asked questions such as, “Multiply twelve by thirteen” (Baken, 1971; Baken & Strayer, 1973). So considering the nature of the interactional task we had (RCIT), it makes sense that we found the negative correlation between self-disclosure and face gaze.

General Discussion

From methodology to theory. Patterson (2006; 2013) made a subtle distinction that is not often discussed when it goes to examining nonverbal exchange like examining equilibrium in intimacy expressing behaviors. He suggested that earlier theories, such as equilibrium and arousal labeling, were mostly applied to examine affective reactive adjustments (compensation or reciprocation) in nonverbal behavior. More recent theories such as sequential functional model and parallel process model were designed to approach nonverbal exchange as patterns that are affected by many factors (functions, settings, person-perception, culture, biology, etc).

This study examined equilibrium processes by measuring slow, gradual adjustments in intimacy expressing behaviors rather than moment-to-moment adjustments. This is highlighted by the fact that our coding/sampling methods assessed behaviors in the beginning, the middle, and the end of the interaction. These methods not only helped assess overall patterns for behavioral adjustments but helped track *within-subject* behavioral linear trends over time

(Ambady et al., 2000). Tracking linear trends is not often present in equilibrium studies. It should be noted however that an even more sensitive examination of equilibrium process could also examine the moment-to-moment adjustments that was not done here.

Finally, we must acknowledge that examining patterns of nonverbal exchange is incomplete with the exclusive framework that is equilibrium theory. As Patterson (2013) argued, the more recent theories offer a more comprehensive, systems approach to broader behavioral patterns.

Validity. An important aspect of the study is its design and assessment validity. We should emphasize that the internal control in the study (i.e. the rejection manipulation) was *not particularly relevant* to the primary hypotheses of this thesis. Nor did we control for any intimacy behaviors (randomly assign participants to high and low intimacy conditions). Therefore, the ability to generate strong causal inferences from the data presented here is limited. However, considering the dynamic nature of equilibrium in intimacy behaviors, it is arguably more externally valid when studies do not attempt to manipulate intimacy because this facilitates natural interplay between the behaviors, which may be more helpful in adopting a systems approach to examine broader behavioral patterns (Patterson, 2013). The undisturbed natural interplay between intimacy behaviors was one of the strengths of this study.

It is true that not manipulating any intimacy behavior in the present study may have limited the ability of this thesis to offer causal explanations, but we would argue that not intervening increased the generalizability of the data for two reasons. First, the natural dynamics for equilibrium in intimacy behaviors were not disturbed. This means that what occurred was probably more reflective of the true interpersonal reality between participants given their social

rejection experience (which had no statistical impact on any intimacy measures), and therefore more generalizable. Second, the interrelationships between intimacy behaviors are more correlational than causal. For example, the relationship between closer distance and decline in gaze is correlational not causal. In other words, closer distance does not necessarily cause less gaze in and by itself; it is simply associated with it. With respect to the tradeoff between internal and external validity, it is acknowledged that this thesis sought to increase external validity and generalizability at the expense of experimental control and causal inference (Rosenthal & Rosnow, 1991).

CHAPTER 6—Limitations and Future Directions

Environmental Constraints

Videotaped interactions took place in experimental rooms that were roughly 7-ft by 8-ft. This is relatively a small space. One factor that should be paid attention to when considering the framework for our findings is this environment. Sundstrom (1975) found that the smaller the room participants were in the less self-disclosure they showed. His interpretation was that the smaller room created stress that had to be compensated for in affiliative behaviors as was the case with self-disclosure. The compensatory reaction, in his opinion, was due to “inappropriate signs of intimacy” that resulted from environmental crowding (p. 653). Therefore, an important consideration for this study should involve crowding (i.e., the square footage and lay out of the room with respect to the participants interacting within it).

Interactants had RCIT questions in their hands which may have affected the direction of their gaze compared to a natural conversation where nothing is in one’s hands. Interactants looked at the paper whenever they needed to read the next question or sometimes while listening. Specifically, interactants used some of the interaction time to gaze at the paper that could have otherwise been spent engaging in face gaze, for example.

Finally, the camera and its placement may have affected two things: a) self-disclosure, and b) body orientation. For self-disclosure, participants may not have said things they otherwise would have said if they were not videotaped. So the videotaping may have decreased overall self-disclosure. Although a possibility, self-disclosing an average of about 19 times in a 5-minute interaction suggests that the videotaping probably did not affect self-disclosure. The placement of the camera recording the interaction probably did matter, however, particularly for body

orientation. Participants appeared (automatically, not consciously) to orient themselves in between facing the camera and their partner as opposed to facing their partner directly. This may have been a demand characteristic where participants assumed they should orient themselves, at least a little bit, toward the camera that was recording them. If this was true, this would have exaggerated the body orientation measurements to larger than normal due to being anchored toward the camera.

Methodological Limitations

Due to the fact that our examination of equilibrium in intimacy behaviors was a post hoc analysis after the initial study by Sommer and Bernieri (2015), which was performed for a different purpose, we were limited in the coding techniques we could employ. For example, it would have been easier if we marked the room with distance units to utilize for measuring distance. Instead, we were forced to estimate the midpoint of the room (the plane discussed in the methods section) to measure distance.

In addition, Sedikides et al. (1999) used the RCIT in *9-minute-long* interactions divided into three parts with separate sets of questions that get progressively more personal. The first part lasted 1-minute, the second part lasted 3-minutes, and the third part lasted 5-minutes. In their study, dyads were interrupted by the experimenter after each part and asked to use questions from the more personal subsequent part. In this thesis, only a subset (10-questions) from *part two* of the RCIT was used in an uninterrupted 5-minute interaction—a different methodology. While this subset was part of a longer list validated to induce interpersonal closeness by Sedikides et al. (1999), the *methodology* in this thesis was not validated by them. This could have been a factor in the failure to increase self-disclosure overtime displayed in the results section (Figure 4.1).

Limitations Due to Unanalyzed Relevant Behavior

The present study did not examine all variables that have been associated with the equilibrium theory of intimacy (Argyle & Dean, 1965). For example, touch and smiles have also been established to be intimacy expressing behaviors in dyadic interactions. We could have possibly seen salient compensation in touch or smiles with increased self-disclosure (Jourard & Friedman, 1970). However, we did not code touch because it did not happen often enough. There were only a couple handshakes. Perhaps the design of the study as well as appropriateness in an experimental setting at a university prompted participants not to touch. Smiles were not coded because of two reasons: a) It was very difficult to operationalize smiling behavior due to the different types of smiles, and b) the quality of the videotapes did not allow accurate coding of smiles even if we were able to properly operationalize it.

Future Directions

Many questions about the dynamics of intimacy behaviors remain unanswered when considering the theories discussed in this thesis. These unanswered questions are fundamental to the phenomenon such as when we should predict compensation to happen and when we should predict reciprocation. One reason these questions are difficult to examine is that more comprehensive examination requires a more sophisticated theory. Although the parallel process model is one of the most advanced theoretical frameworks out there, it is still insufficient according to Patterson (2013). He suggested a few additions to the model were needed and proposed adopting a systems approach. In this systems approach, more emphasis would be given to dyadic interactive exchange alongside with the individual in the context of social setting.

Testability may remain an issue, but adopting the proposed systems approach framework may be our most probable shot at understanding the phenomenon in intimacy behaviors. Perhaps not a single study, but a sequence of studies needs to be conducted to help us understand the phenomenon. According to Patterson (2013), these studies would have to examine each of the following components of the nonverbal exchange: a) patterns as well as isolated frame-by-frame factors, b) simultaneous sending (encoding) and receiving (decoding/social judgment), c) automatic and control processes, d) the involvement of personality, culture, biology, and gender, e) conscious and unconscious goals in the interaction, f) integration of dyadic and individual processes, g) settings of the interaction, h) cognitive resources availability, and i) motivated effort.

Therefore, in the future, researchers will need to look at three broader domains to lead to a testable hypothesis. First, constructs like perceptual predisposition, cognitive predisposition, behavioral predisposition, and interactional goals of the individual need to be examined. Second, these same constructs also need to be examined for the partner, not just the individual. Third, the extent to which the interactants agree on these constructs will need to be assessed because the amount of agreement theoretically determines the interaction stability (i.e., the higher the agreement the more stable the interaction). This stability will help us predict the output of the interaction. In a stable interaction, we would predict to see reciprocation. In contrast, we would predict to see compensation in unstable interactions (Patterson, 2013).

The broader conclusion is that it is important to understand nonverbal communication in interactions and how it works dynamically with verbal communication. The expression of intimacy is one area where this is highlighted. The complex nature of intimacy makes it difficult for scholars to isolate intimacy variables and examine them. Instead, it requires adopting

sophisticated theoretical frameworks with broader approach. However, existing theoretical frameworks may be insufficient and expanding them may only make it difficult to generate testable hypotheses.

CHAPTER 7—Conclusion

The conclusion specific to this study is that equilibrium did not undergo disturbance that was substantial enough to elicit compensation. This thesis adopted the equilibrium approach and attempted to examine compensation in intimacy behaviors. We predicted to see an increase in self-disclosure over time and a corresponding compensatory decline in nonverbal intimacy behaviors. The decline in self-disclosure made it difficult to find the predicted results. Evident in not finding an increase in self-disclosure over time, the task (verbal intimacy building task) that was supposed to elicit compensation in other intimacy behaviors was not effective. Therefore, this study did not necessarily fail to support compensation.

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Appendices

Appendix A—Pre-interaction Questionnaires (Sommer & Bernieri, 2015)

Background Questionnaire

Respond to each item according to how you feel in general, on an everyday basis. (Circle one response for each question).

1. I feel that I am a person of worth, at least on an equal basis with others.

strongly disagree disagree agree strongly agree

2. I feel that I have a number of good qualities.

strongly disagree disagree agree strongly agree

3. All in all, I am inclined to feel that I am a failure.

strongly disagree disagree agree strongly agree

4. I am able to do things as well as most other people.

strongly disagree disagree agree strongly agree

5. I feel I do not have much to be proud of.

strongly disagree disagree agree strongly agree

6. I take a positive attitude toward myself.

strongly disagree disagree agree strongly agree

7. On the whole, I am satisfied with myself.

strongly disagree disagree agree strongly agree

8. I wish I could have more respect for myself.

strongly disagree disagree agree strongly agree

9. I certainly feel useless at times.

strongly disagree disagree agree strongly agree

10. At times, I think I am no good at all.

strongly disagree disagree agree strongly agree

Sensitivity to Rejection Scale (Downey & Feldman, 1996)

Each of the items below describes things college students sometimes ask of other people. Please imagine that you are in each situation. You will be asked to answer the following questions:

How concerned or anxious would you be about how the other person would respond?
 How do you think the other person would be likely to respond?

1. You ask someone in class if you can borrow his/her notes.
 How concerned or anxious would you be over whether or not the person would want to lend you his/her notes?

very unconcerned 1 2 3 4 5 6 very concerned

I would expect that the person would willingly give me his/her notes.

very unlikely 1 2 3 4 5 6 very likely

2. You ask your boyfriend/girlfriend to move in with you.
 How concerned or anxious would you be over whether or not he/she also would want to move in with you?

very unconcerned 1 2 3 4 5 6 very concerned

I would expect that he/she would want to move in with me.

very unlikely 1 2 3 4 5 6 very likely

3. You ask your parents for help in deciding what programs to apply to.
 How concerned or anxious would you be over whether or not your parents would want to help you?

very unconcerned 1 2 3 4 5 6 very concerned

I would expect that they would want to help me.

very unlikely 1 2 3 4 5 6 very likely

4. You ask someone you don't know well out on a date.
 How concerned or anxious would you be over whether or not the person would want to go out with you?

very unconcerned 1 2 3 4 5 6 very concerned

I would expect that the person would want to go out on a date with me

very unlikely 1 2 3 4 5 6 very likely

5. Your boyfriend/girlfriend has plans to go out with friends tonight, but you really want to spend the evening with him/her, and you tell him/her so.

How concerned or anxious would you be over whether or not your boyfriend/girlfriend would decide to stay in?

very unconcerned 1 2 3 4 5 6 very concerned

I would expect that he/she would willingly choose to stay in with me.

very unlikely very likely

1 2 3 4 5 6

6. You ask your parents for extra money to cover living expenses.

How concerned or anxious would you be over whether or not your parents would help you out?

very unconcerned very concerned

1 2 3 4 5 6

I would expect that my parents would not mind helping me out.

very unlikely very likely

1 2 3 4 5 6

7. After class, you tell your professor that you have been having some trouble with a section of the course and ask if he/she can give you some extra help.

How concerned or anxious would you be over whether or not your professor would want to help you out?

very unconcerned very concerned

1 2 3 4 5 6

I would expect that the professor would want to help me.

very unlikely very likely

1 2 3 4 5 6

8. You approach a close friend to talk after doing or saying something that seriously upset him/her.

How concerned or anxious would you be over whether or not your friend would want to talk with you?

very unconcerned very concerned

1 2 3 4 5 6

I would expect that he/she would want to talk with me to try to work things out.

very unlikely very likely

1 2 3 4 5 6

9. You ask someone in one of your classes to coffee.

How concerned or anxious would you be over whether or not the person would want to go?

very unconcerned very concerned

1 2 3 4 5 6

I would expect that he/she would want to go with me.

very unlikely very likely

1 2 3 4 5 6

10. After graduation you can't find a job and you ask your parents if you can live at home for a while.

How concerned or anxious would you be over whether or not your parents would want you to come home?

very unconcerned very concerned

1 2 3 4 5 6

I would expect that I would be welcome at home.

very unlikely very likely

1 2 3 4 5 6

11. You ask your friend to go on vacation with you over Spring Break.

How concerned or anxious would you be over whether or not your friend would want to go with you?

very unconcerned 1 2 3 4 5 6 very concerned

I would expect that he/she would want to go with me.

very unlikely 1 2 3 4 5 6 very likely

12. You call your boyfriend/girlfriend after a bitter argument and tell him/her you want to see him/her.

How concerned or anxious would you be over whether or not your boyfriend/girlfriend would want to see you?

very unconcerned 1 2 3 4 5 6 very concerned

I would expect that he/she would want to see me.

very unlikely 1 2 3 4 5 6 very likely

13. You ask a friend if you can borrow something of his/hers.

How concerned or anxious would you be over whether or not your friend would want to loan it to you?

very unconcerned 1 2 3 4 5 6 very concerned

I would expect that he/she would willingly loan me it.

very unlikely 1 2 3 4 5 6 very likely

14. You ask your parents to come to an occasion important to you.

How concerned or anxious would you be over whether or not your parents would want to come?

very unconcerned 1 2 3 4 5 6 very concerned

I would expect that they would want to come.

very unlikely 1 2 3 4 5 6 very likely

15. You ask a friend to do you a big favor.

How concerned or anxious would you be over whether or not your friend would want to help you out?

very unconcerned 1 2 3 4 5 6 very concerned

I would expect that he/she would willingly agree to help me out.

very unlikely 1 2 3 4 5 6 very likely

16. You ask your boyfriend/girlfriend if he/she really loves you.

How concerned or anxious would you be over whether or not your boyfriend/girlfriend would say yes?

very unconcerned 1 2 3 4 5 6 very concerned

I would expect that he/she would answer yes sincerely.

very unlikely 1 2 3 4 5 6 very likely

1 2 3 4 5 6
 17. You go to a party and notice someone on the other side of the room, and then you ask them to dance.

How concerned would you be over whether or not the person would want to dance with you?
 very unconcerned very concerned

1 2 3 4 5 6
 I would expect that he/she would want to dance with me.
 very unlikely very likely

1 2 3 4 5 6
 18. You ask your boyfriend/girlfriend to come home to meet your parents.
 How concerned would you be about whether or not your boyfriend/girlfriend would want to meet your parents?

very unconcerned very concerned

1 2 3 4 5 6
 I would expect that he/she would want to meet my parents.
 very unlikely very likely

1 2 3 4 5 6

Predicting Future Interactions

The next part of this experiment involves meeting and interacting with another participant whom you have not yet met. We are interested in how well people can predict the outcomes of future social interactions. Please answer the questions that follow. Note that your responses to this questionnaire are completely confidential. They will not be shown to the other participant.

1. How much are you looking forward to the upcoming interaction?

1 2 3 4 5 6 7
not at all very much

2. Do you think you will enjoy your conversation with this person?

1 2 3 4 5 6 7
not at all very much

3. Do you think this person will like you?

1 2 3 4 5 6 7
not at all very much

4. Do you think this person will want to be friends with you in the future?

1 2 3 4 5 6 7
not at all very much

5. Do you think you will like this person?

1 2 3 4 5 6 7
not at all very much

6. Do you think you will want to be friends with this person in the future?

1 2 3 4 5 6 7
not at all very much

7. How important is it to you that this person likes you?

1 2 3 4 5 6 7
not at all important very important

8. How much do you care about the quality of your future interaction with this person?

1 2 3 4 5 6 7
not at all very much

Appendix B— Post-interaction Questionnaires used in Sommer & Bernieri (2015)

First Impressions

Please answer the following questions about the brief interaction that just took place. Remember that your First Impressions will be exchanged with the other participant.

1. How much did you enjoy your conversation with the other participant?

1	2	3	4	5	6	7
not at all						very much

2. In general, how much did you like the other participant?

1	2	3	4	5	6	7
not at all						very much

3. Do you feel you could be friends with this person in the future?

1	2	3	4	5	6	7
not at all						very much

4. As part of this research project, we may invite you back this term to participate in a similar study. This time you would spend about an hour interacting with another person. If we decide to do this, we could schedule you with the same person with whom you just interacted.

- a. Would you like us to try to match you up with the person you just met? Yes No
- b. Would you prefer that we schedule you with someone else? Yes No

FINAL RATING SHEET

Please rate the extent to which your interaction partner displayed each of the traits below. Try to respond to every item, even if you are not completely sure of your answer. Note that these ratings will remain confidential and will not be exchanged with your partner.

The person with whom I just interacted was:

	not at all						very much so
...kind and affectionate	1	2	3	4	5	6	7
...open and disclosing	1	2	3	4	5	6	7
...patient	1	2	3	4	5	6	7
...understanding	1	2	3	4	5	6	7
...responsive to another's needs	1	2	3	4	5	6	7
...tolerant and accepting	1	2	3	4	5	6	7
...critical and judgmental	1	2	3	4	5	6	7
...lazy	1	2	3	4	5	6	7
...controlling and dominant	1	2	3	4	5	6	7
...emotional	1	2	3	4	5	6	7
...moody	1	2	3	4	5	6	7
...thoughtless	1	2	3	4	5	6	7
...irrational	1	2	3	4	5	6	7
...distant	1	2	3	4	5	6	7
...complaining	1	2	3	4	5	6	7
...childish	1	2	3	4	5	6	7
...self-assured	1	2	3	4	5	6	7
...sociable or extraverted	1	2	3	4	5	6	7
...intelligent	1	2	3	4	5	6	7
...witty	1	2	3	4	5	6	7
...arrogant	1	2	3	4	5	6	7
...fake	1	2	3	4	5	6	7
...uncooperative	1	2	3	4	5	6	7
...rude	1	2	3	4	5	6	7
...unfriendly	1	2	3	4	5	6	7

Appendix C— RCIT Questions (Sedikides et al., 1999) used in Sommer and Bernieri (2015)**Questions to facilitate social interaction**Person 1

What are your hobbies?

What is one strange thing that has happened to you since you've been at Oregon State?

What would you like to do after graduating from Oregon State?

What is one embarrassing thing that has happened to you since arriving at Oregon State?

What would be the perfect lifestyle for you?

Person 2

What is one thing happening in your life that makes you stressed out?

What is something you have always wanted to do but probably never will be able to do?

If you could change anything that happened to you in high school, what would that be?

If you could travel anywhere in the world, where would you go and why?

If you could change one thing about yourself, what would that be?

Appendix D—Experimenter Instruction Script**INSTRUCTIONS FOR LEAD EXPERIMENTER**

- 1) Administer the informed consent document and ask participants to print their names and instructors on the credit sheet.
- 2) Read (paraphrase) the following: “The overarching goal of the study is to examine how people form first impressions of one another. In a few moments, the two of you will engage in a brief interaction. A little later in the study, you will be paired with a new person and engage in a second interaction. Right now, we would like you to complete a background questionnaire. This is simply to learn a little more about you before proceeding to the main study.” (Administer and collect the “Background Questionnaire.”)
- 3) Read the following: “For the next part of the study, the two of you are going to have a brief conversation. Afterwards, you will be separated and asked to report your impressions of one another. This is a practice session in preparation for the main first impressions task you will be having later in the study. For the next few minutes, you may talk about whatever you want, such as where you grew up. I will then separate you and give you a brief questionnaire about your interaction. We have found that for these practice sessions, people really want to know what kind of impression they made on their partners, so we will exchange the rating sheets so you can see how you were evaluated. Do you have any questions?”
- 4) Leave the room and return in three minutes. Move S 2 across the hallway into RM 204d. Administer the “First Impressions Questionnaire” to both participants and leave the rooms for about a minute. Collect the questionnaires and return to your desk behind the partition in RM 214. Check the random assignment sheet and choose the appropriate feedback (acceptance or rejection). Deliver the feedback “as a side” to the main instructions, which involve “completing a questionnaire in preparation for the upcoming social interaction.” Administer the “Perceptions of Future Interaction” questionnaire. Leave Ss 1 and 2 separated until the co-experimenter arrives with S 3. Collect the materials. The co-experimenter will move S 2 downstairs. Invite S 3 to enter RM 214 (where S 1 is already seated) and begin the second part of the study.
- 5) Ensure that participants 1 and 3 are seated facing each other, approximately three feet apart and at a 120-degree angle from a camera behind the curtain. Read the following: “We are interested in how people form impressions of one another. We would like the two of you to spend the next five minutes getting to know one another. To assist you, we have generated a list of questions that you can ask one another while I am out of the room. You should move down the list in a reciprocal fashion, with each person asking and answering question 1, then question 2 and so on. You may skip any questions that you do not feel comfortable answering. Do you have any questions?” Hand Ss 1 and 3 the list of questions. On your way out of the room, start the videotaping only if both participants consented earlier to being videotaped.
- 6) Return to the room and read the following instructions: “You will now rate each other and your interaction along a series of dimensions. Your impressions of one another will not be exchanged. Your ratings will remain confidential.”
- 7) Move S 3 to RM 204d and give both participants the “Final Rating Scale.” Move S 3 back into RM 214 and conduct the debriefing.
- 8) Administer the “Post-Experimental Consent Form” and dismiss with a final expression of gratitude.

Appendix E—Behavior Coding Training Sheets

Gaze Training Sheet

What is gaze?

Gaze in this study is defined by its direction, simply meaning where an individual is looking. Where an individual is looking could be *toward* something or *exactly at* something; both will be coded in the same way in this study. For example, in certain video clips, it is difficult to decide where *exactly* someone is looking but easy to determine where the gaze is *directed*.

Types of gaze:

A) Four types of gaze will be coded based on *duration*. Meaning that each type will get a percentage, and all four must add up to 100%.

1. Face: “the direction of [a] person's gaze at [or toward] another's face” (Klienke , 1986, p. 78).
2. Mutual: “refers to two people gazing at [or toward] each other's faces” (Klienke , 1986, p. 78).
3. Paper: direction of a person's gaze toward their own paper.
4. Elsewhere: person's gaze is directed somewhere that is not face or paper.

B) The other three types of gaze will be coded in a *check-list* format. Meaning that you will circle the types that you see at least once in a clip (see example below). You will **not** give estimate percentages for these types of gazes.

1. Eye shut: when a person closes their eyes (i.e. sometimes this occurs while laughing). There is a difference between blinking and shutting the eyes. Shutting the eyes lasts for longer. Determining whether an eye shut or a blink happen is a judgment call that you will be trained to make.
2. Experimenter: located to the side of the screen (i.e. if you perceive someone else walks into the room, code this as experimenter). That is not the case in every clip but it will happen.
3. Camera: when a person fixates their gaze onto the camera. If a participant makes “eye contact” with the camera that is clearly looking at the camera, code that. It does not matter how long this lasts.

Example of distributing portions in the 100% total for each clip:

Clip # _____					
Person on LEFT			Person on RIGHT		
Gaze Direction	Percentage (in %)		Gaze Direction	Percentage (in %)	
Face Gaze	20		Face Gaze	25	
Mutual Gaze	40		Mutual Gaze	40	
Paper	15		Paper	25	
Elsewhere	15		Elsewhere	10	
Which gaze(s) appeared at least once in the clip? (please circle)			Which gaze(s) appeared at least once in the clip? (please circle)		
Eye Shut	Experimenter	Camera	Eye Shut	Experimenter	Camera

Self-Disclosure Training Sheet

Self-disclosure is generally a property of verbal communication that captures the extent to which the information being transmitted has the potential to provide a listener insight into the speaker’s history, personality, psychological state, and intentions. By this definition, anything that the listener already knows about the speaker is *not* considered self-disclosure. Self-disclosure increases the probability of future interpersonal consequences that vary in their desirability, threat, and anxiety (e.g., personal embarrassment, being disliked or ostracized, risking legal actions for criminal behavior, but also reciprocated or confirmed interpersonal attraction, or admiration). Self-disclosure could be defined as a verbalization which refers to the speaker’s experiences. Another could be a verbalization that is descriptive of some quality or aspect of the speaker.

In this study, a self-disclosure statement is operationalized as a verbal communication that provides the listener with information that is either unnecessary to maintain the conversational flow and has the potential to change the probability of interpersonal consequences. A single self-disclosure statement is bounded by any vocal disruptions by a listener. For example, if, during a monologue, a speaker’s statement is broken up by vocal disruption by the listener (e.g., “mmhmm”, “yeah”, or “right”), each portion of dialogue between vocalizations would then be considered a separate unit of self-disclosure.

Criteria for deciding if a statement is self-disclosing are embedded in two main questions:

- 1) Does the statement tell something private?
- 2) Does the statement tell something risky (i.e., of potential negative consequences)?

Example	Self-Disclosure	Number of Self-Disclosure Statements
“I really enjoy dogs, they make me feel loved.”	Yes	1
Person A: “ <u>I really enjoy dogs the most out of all animal</u> ” Person B: “Mmhmm.” Person A: “ <u>They make me feel loved.</u> ”	Yes	2 (underlined)
“ <u>I really love dogs (1), and while we are on the topic of things I love, Mexican food is my favorite, those enchiladas get me every time (2).</u> ”	Yes	2 (underlined)
Person A: “So you have a dog?” Person B: “ <u>Yes, I named her Padfoot because she had an injured paw when I rescued her from the animal shelter and had to walk around with a bandaged foot for a week.</u> ”	Yes	1
Person A: “So you have dogs?” Person B: “Yes.”	No	0

Intensity is a rating of self-disclosure statement made on a 1-10 scale. It is meant to estimate the possible consequences that might result from making the statement. In this study, only the most intense statement of self-disclosure is being rated.

It is assumed that different coders will assign different subjective values to the possible consequences from different self-disclosure statements. For example, some coders may consider embarrassment to be more consequential than getting arrested. Your role as a coder is to attempt to estimate the privacy level and risks/consequences of a statement considering every perspective. However, when using every perspective, we ask that you don't stop and consciously "analyze" a statement; USE YOUR GUTS.

When considering the intensity, use the same criteria asked when deciding whether a statement is self-disclosing but in terms of *extent*. The two questions would be:

- 1) How private is the information revealed?
- 2) How risky is the information revealed?

Examples	Intensity Level
"I have a cat."	1
"I've failed this class."	2-4
"I've never gone to class."	5-7
"I was kicked out of my high school for bullying."	8-9
"I murdered my neighbor last year."	10

Descriptions:

Intensity level 1: These are descriptive facts that have relatively neutral value in our culture. They are not necessarily good things or bad things to know about a person.

Intensity level 2-9: These statements provide information that varies in social desirability in this culture. They are likely to influence the listener's interpersonal evaluation, attraction, and judgment of the speaker.

Intensity level 10: These are unlikely to be seen in this study. A 10 would be reserved for any statement that is likely to bring about physical harm, extreme psychological harassment, or trouble from the law to the speaker.