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COGNITIVE STRATEGIES FOR CONTROLLING EMOTIONAL CONTAGION

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By
Dan Rempala

Dissertation Committee:

Dr. Elaine Hatfield, Chairperson
Dr. Amy Hubbard
Dr. Charles Mueller
Dr. Walter Stephan
Dr. Shuqiang Zhang

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We certify that we have read this dissertation and that, in our opinion, it is satisfactory in scope and quality as a dissertation for the degree of Doctor of Philosophy in Psychology.

DISSERTATION COMMITTEE

James Garfield
Chairperson

Amy Hubbard

Bh. Moh

Walter Stephen

Shuziang Zhang

ABSTRACT

Emotional contagion involves “catching” the emotions of others. In many instances, such contagion is beneficial, as it allows us to partake in another person’s joy or gain greater understanding of another’s experience. However, persistent exposure to a people who are experiencing negative emotions can take a toll on an individual, with consequences ranging from discomfort to emotional burn-out. This study examined the effect of three moderating strategies on emotional contagion.

Participants watched three video clips of individuals speaking to the camera and were instructed to treat the situation as though they were a therapist observing a client—the person on the video tape. Half of the participants watched three clips of individuals talking about the happiest day of their lives, while the other half watched three clips of individuals talking about the saddest day of their lives. When each clip was complete, the participant was asked to provide a two or three sentence verbal response to the “client.” The entire process was video taped. The measures of emotional contagion involved were facial affect and self-reported emotion.

Prior to engaging in the experimental task, each of the participants was given one of four sets of instructions corresponding with one of the following cognitive strategies: a) Empathic Imagery, b) Dissociation, c) Empathic Reflection, and d) no instruction (control). The Empathic Imagery strategy was expected to increase the experience of contagion, while Voluntary Dissociation and Empathic Reflection were expected to decrease the experience of contagion. However, when the verbal content was analyzed, participants given Empathic Reflection instructions were expected to be more engaged in the interaction than those instructed to dissociate.

Based on the Self-Report Contagion variable, there was evidence to indicate that Dissociation and Empathic Reflection decreased emotional contagion as compared to the other two conditions. However, there was no significant impact of the instruction condition on the facial affect contagion variable. Even more surprising, there was no effect of instruction on any of the engagement variables.

The results of this study fail to provide much support for the experimental hypotheses. Several possible reasons for the lack of significant results are discussed.

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Introduction

The last decade has seen a dramatic increase in interest in emotional contagion and empathy. This scientific interest has been fueled, in part, by the discovery of “mirror neurons,” which provide a psychological basis for the phenomenon of emotional contagion, and in part, by technological developments that make it easier to study the phenomenon. In this research, there have been two implicit assumptions: a) the ability to “catch” others’ emotions is generally valuable, and b) psychologists should devote themselves to increasing people’s abilities at contagion and empathy. This study attempts to pose an alternative view: a) on occasion, the ability to feel what others feel – especially if it is a negative emotion – can be painful and debilitating, and b) on occasion, people would do well to learn to avoid catching others’ emotions. This study attempts to test some of the techniques that people might employ to do just that.

This dissertation is essentially a marriage of two established bodies of literature: emotional contagion and emotional regulation. I will begin by defining emotional contagion and the process by which it arises. I will then proceed to discuss what is currently known about emotions in general. I will define emotion and discuss what emotions seem to be universal. Then, I will discuss the impact of emotional displays on the transmitter and the receiver. I point out that there are individual differences in transmitting and receiving emotions.

I turn next to factors that produce emotional contagion. First, I will consider the neurological basis of emotional contagion. Then, I will consider the various aspects of emotional contagion and how they affect people. I will consider the role of

interactional synchrony and mimicry, and the somatic and emotional effects they produce. Next, I will consider both the advantages and disadvantages of susceptibility to emotional contagion and empathy, focusing primarily on the area that has been neglected by researchers heretofore: the costs of sensitivity to the feelings of others.

I conclude by reviewing the literature on self-regulation of emotional state and offering some hypotheses as to how people can decrease their susceptibility to the emotions of others. The experiment tests the efficaciousness of four of these techniques in a setting where emotional contagion of both positive and negative emotions is possible.

Emotional Contagion Defined

Emotional contagion has been defined as “the tendency to automatically mimic and synchronize facial expressions, vocalizations, postures, and movements with those of another person, and, consequently, to converge emotionally” (Hatfield, Cacioppo, & Rapson, 1992, p. 153-154). Others have defined it as: “total identification without discrimination between one’s feelings and those of the other” (de Waal, 1996, p. 80). Emotional contagion is a process that is largely automatic and unconscious and contributes to attitudinal, emotional, and behavioral synchrony between interactants (Hatfield Cacioppo, & Rapson, 1994). Generally, contagion is described, in its most basic form, as taking place within a dyadic interaction, with one member of the dyad transmitting emotion and the other receiving the emotion. The reality, however, is potentially much more complex, with a transmitter affecting multiple targets and each interactant alternately transmitting and receiving emotions.

While interacting with others, people show several indicators that emotional contagion is taking place. First, people tend to mimic the facial expression (Dimberg, 1982), posture (Bernieri, Davis, Knee, & Rosenthal, 1991), and vocal qualities of the person with whom they are interacting (Chapple, 1982). Vocalizations and movements between interactants also naturally synchronize (Bernieri et al., 1991). The emotional contagion that people experience while engaged in an interaction could be affected by the parts of the nervous system that initially activate this synchrony and mimicry, the feedback they receive from the person they are interacting with, or their own self-perception (e.g., “I am scowling, so I must be angry”) (Hatfield, Cacioppo, & Rapson, 1994). All three mechanisms are thought to work in concert to elicit emotional contagion.

Emotional Contagion versus Empathy

Emotional contagion is not the same thing as empathy. Empathy has been defined many different ways, including “the natural ability to understand the emotions and feelings of others” (Decety & Jackson, 2004, p. 71), “an effortful process by which we try to comprehend another’s experience,” (Decety & Chaminade, 2003, p. 127), or simply “sharing the emotional experience of others,” (Lerner & Meindl, 1981, p. 224). A comprehensive way of stating it would be that empathy involves recognizing, feeling, and responding to what another person is experiencing (Levenson & Ruef, 1992).

Emotional contagion is a necessary component for empathy, but empathy contains an additional pair of cognitive components as well. According to Decety and Jackson (2004), the three components of empathy are: a) emotional contagion, b)

a degree of self-awareness on the part of the empathizer such that he or she can avoid confusing his or her own subjective experience with that of the target, and c) the cognitive ability of the empathizer to take the perspective of the receiver. Emotional contagion does not have to lead to empathy, however. In the absence of these latter two components, emotional contagion of negative emotions can lead to personal distress and may result in *decreasing* one's tendency to help (Fabes, Eisenberg, & Eisenbud, 1993).

I will now turn to a discussion of the emotions utilized in contagion and empathy and the basic means by which they are outwardly expressed.

Emotions

Fischer, Shaver, and Carnochan (1990) defined emotions as “organized, meaningful, generally adaptive action systems” that are comprised of “appraisals or appreciations, patterned physiological processes, action tendencies, subjective feelings, expressions, and instrumental behaviors” (p. 84). Emotions alternately have been defined as “a motivational construct that is characterized by changes in affect, physiological responses, cognitions, and overt behavior” (Schaffer, 2005, p. 101).

The motivational component associated with emotions involves either approach toward or withdraw from the emotion-eliciting stimuli (Hatfield et al., 1994). Each emotion is associated with any or all of the following: conscious awareness, nonverbal reactions, neurophysiological reactions, and instrumental behaviors (Hatfield et al., 1994).

Development of Emotions

According to Bridges (1932) and Sroufe (1979), infants enter the world capable of a single emotion: diffuse excitement. Then, as they become familiar with stimuli that are either pleasurable or aversive, they differentiate their emotions into delight (a positive emotion) and distress (a negative emotion). More complex emotions develop as children grow older and their cognitive apparatus becomes more elaborate. Cross-cultural and cross-species research has identified six primary emotions: happiness, surprise, anger, sadness, fear, and disgust (Plutchick, 1994). Primary emotions are those that: a) are evident in all cultures, b) contribute to survival, c) are evident in non-human primates, and d) are associated with distinct facial expressions.

A slightly different typology comes from Fischer and colleagues (1990), who also divide emotions into superordinate categories of Positive and Negative Emotions. However, these categories are divided into a different set of Basic Categories. Positive emotions are divided into Love and Joy (which are further subdivided into subordinate categories featuring more specific emotions, such as Pride or Contentment) and negative emotions are divided into Anger, Sadness, and Fear. Regardless of whether one refers to them as “primary emotions” or “basic categories of emotions,” they involve distinct facial expressions that indicate the presenter’s emotional state.

Effects of Emotional Display on the Transmitter

One of the functions of facial expressions is to communicate the emotions that one is experiencing. According to Hatfield and colleagues (1994), the ability to transmit emotions is comprised of three basic components: a) the “sender” must be

able to feel strong emotions (or be able to accurately fake these feelings), b) the sender must be able to outwardly display these emotions, and c) the sender must be insulated from the conflicting emotions coming from his or her audience.

Theorists have argued that the facial expressions that one displays affect one's subjective experience of emotion. This contention has received a great deal of empirical support, but the precise nature of that effect is still in doubt (Hatfield et al., 1994). One school of thought asserts that internal physiological states associated with emotion are amplified by exaggerated, corresponding facial expressions and inhibited by a conscious effort to avoid facial expressions (Kleck, Vaughan, Cartwright-Smith, Vaughan, Colby, & Lanzetta, 1976; Lanzetta, Cartwright-Smith, & Kleck, 1976). An alternative idea is that by inhibiting external reactions, we are expending great effort to suppress a naturally occurring response, and this increases our physiological arousal, regardless of the nature of the expression (Gross & Levenson, 1993; Gross, 2001). This pair of studies by Gross showed that suppression increases only physiological reactions, not self-reports of the expected emotion.

There is some evidence to show that simulating facial expressions through artificial means can induce emotional responses corresponding with the facial expression (Laird, 1984; Strack, Martin, & Stepper, 1988). Ekman, Levenson, and Friesen (1983) have shown that mimicking different emotions with one's facial expression is associated with different physiological responses. This was something of a departure from the Two-Factor Theory of Emotion (Schacter & Singer, 1962), which stated that in order to experience emotion, one must a) experience a diffuse, physiological arousal, and b) attribute that factor to a cause. Thus, according to this

latter theory, the physiological states of anger, fear, surprise, and so on are all the same, the attribution of their cause is merely different.

Ekman and his colleagues (1983), however, found that the common arousal state for some emotions may be quite different than for others. For example, producing an angry face increases one's heart rate and skin temperature, while displaying a disgusted expression decreases both measures. There do seem to be individual differences on this continuum, such that some individuals are more sensitive to internal feedback when generating an emotion, while others are more sensitive to situational feedback (Laird & Crosby, 1974).

Several studies have shown that altering other aspects of display, not merely facial display, can facilitate the subjective experience of emotion. The phenomenon seems to occur with one's vocalizations, such that when a person simulates the vocal qualities of different emotions, he or she reports feeling those emotions, and when those same vocal qualities are inhibited during emotional situations, the subjective experience of emotion is inhibited as well (Hatfield et al., 1994). There also appear to be specific postures associated with specific emotional experiences, and by artificially producing a specific posture, a person is more likely to experience the corresponding emotion (Hatfield et al., 1994).

Individual Differences in Display

Individual differences have been shown to exist in terms of people's expressiveness (i.e., an individual's tendency or ability to show that they are experiencing an emotion) (Friedman, Prince, Riggio, & DiMatteo, 1980). Cultural norms also exist dictating who is allowed to express different emotions and in what

setting (Ekman & Friesen, 1975). For example, Western, individualistic cultures allow for greater freedom in outwardly expressing negative emotions as compared to Eastern, more collectivist cultures (Matsumoto & Kupperbusch, 2001). Similarly, females in individualistic cultures are granted more freedom in expressing emotion than are males (O'Leary & Smith, 1988). This last instance is especially illustrative, because even though there is little evidence to indicate that men and women experience differing levels of emotionality when subjected to the same emotion-evoking situation, their outward indication that they are experiencing these emotions can vary wildly (Hatfield et al., 1994).

The discussion of sex-based emotional display has generally focused on acquisition by social learning in accordance with the roles expected of males and females. However, the tendency of males to be less outwardly emotional may not be a solely learned tendency. A recent study by Ellis (2006) adds another perspective, namely, it is argued that patterns of mate selection make smiling detrimental to a male's evolutionary fitness. The argument holds that a) females are attracted to dominance, and b) smiling interferes with dominance. Ergo, the tendency to smile is detrimental to a male's reproductive fitness and is selected against.

The Effects of Emotional Display on Receivers

Individuals who are particularly expressive seem to be best at transmitting emotions, especially negative emotion, to individuals with whom they are interacting (Friedman & Riggio, 1981; Sullins, 1991). Facial expressions possess specific, easily learned meanings for observers. In the 1920's, John Watson showed that emotions could be classically conditioned. That is, a specific stimulus could come to evoke

specific emotional responses in an individual (Watson & Rayner, 1920). Facial expression seems to be an especially effective emotion-invoking stimulus (Hatfield et al., 1994). For example, a person who endures repeated physical abuse may become conditioned to respond to an abuser's angry facial expression with fear. Similarly, a person may quickly learn to respond to the stimulus of another person's smile with a smile of his or her own. Finally, in situations of social threat, a person may learn that if a member of his or her group is threatened and responds with an expression of anger or fear, they would be well served to experience the same emotion and engage in the corresponding behavior (i.e., fight or flight).

The ability to be conditioned to associate distressed expressions with danger seems to be a naturally inherited trait, because studies featuring both humans and monkeys have shown that it is easier to condition fear reactions to distressed faces than faces exhibiting other emotions, and the responses conditioned to distressed faces persist longer (Lanzetta & Orr, 1986; Miller, Banks, & Ogawa, 1963).

Individual Differences in Receiving Emotions

The ability to experience the emotions of others seems to be a largely automatic process. In one experiment, when participants expected to view people who were in one mood state (e.g., happy) but who displayed characteristics of another emotion (e.g., sad), the participants reacted to the displayed emotion, not the expectation (Uchino, Hatfield, Carlson, & Chemtob, 1991). However, conscious cognitive processes can influence the reception of emotion as well. For example, when a videotaped individual reported feeling one emotion but showed the facial

display of another, participants viewing the videotape were influenced affectively by both the verbal report and the facial display (Hsee, Hatfield, & Chemtob, 1991).

With this said, Hatfield and others (1994) have identified six factors that make a person especially susceptible to emotional contagion. People are most responsive if:

- a) The attention of the observer is fixated on the person transmitting the emotion.
- b) The observer perceives the existence of some sort of connection between himself or herself and the target.
- c) The observer is especially good at reading the facial expressions, vocal qualities, and other nonverbal behavior of the target.
- d) The observer engages in frequent and elaborate mimicry during interpersonal interactions.
- e) The observer is an especially good judge of his or her own internal states.
- f) The observer is especially reactive to his or her own emotional experience.

Several theories also suggest that the way in which people process incoming social information can affect their ability to experience emotional contagion. For example, Byrne (1964) indicated that personality differences may affect how we respond to emotional distress. He distinguishes between “sensitizers” (i.e., individuals who are hypervigilant of their own emotions and those of others) and “repressors” (those who ignore internal and external emotional information). It would stand to reason that, among these two extremes, repressors would be less susceptible to contagion (Hatfield et al., 1994). A similar dichotomy seems to exist based on the observer’s initial mood state, such that initially happy observer’s are

susceptible to contagion, while initially depressed observers are more self-focused and therefore, insulated from the mood of others (Hsee et al., 1991).

Aspects of the social situation also can affect both one's motivation to "receive" emotions of others and one's susceptibility to emotional contagion. For example, in a dyadic interaction, the more powerful (e.g., higher status) of the pair is less affected by (and possibly less interested in) the emotions of the weaker other than vice versa (Hsee, Hatfield, Carlson, & Chemtob, 1990). Similarly, if the observer is able to generate substantial animosity toward the target, emotional contagion is inhibited (Zillmann & Cantor, 1977).

There seem to be other motivational components to one's ability to experience contagion. Extroverts, for example, are more outwardly focused, specifically toward those they are interacting with or wish to interact with. It is no surprise, then, that extroverts are more susceptible to emotional contagion than introverts (Fowles, Roberts, & Nagel, 1977). Similarly, we are more susceptible to the emotions of members of our in-group (Wheeler, 1966; Schacter & Singer, 1962), and the more important the relationship with the target is to the receiver, the more susceptible the receiver is (Hatfield et al., 1992).

Based on a case study of an incident of mass hysteria that took place in 1962, it seems that individuals who were experiencing a great deal of stress and physical exhaustion, but who had a secure enough occupational status that they could afford to become ill, were more likely to experience the effects of the hysteria (Kerckhoff & Back, 1968). Although it has not been empirically studied, it is quite possible that mass hysteria is an example of emotional contagion on a broad scale. This fits into

the hypothesis that emotional contagion works on an automatic, unconscious channel, and is mediated by the workings of a conscious, cognitive channel. If the cognitive apparatus is unable to focus (e.g., due to exhaustion or intoxication) or is overloaded (e.g., due to cognitive load), then the person is unable to keep the results of the automatic, affective component in check. Similarly, if an individual detects that the experience and display of emotion are socially acceptable, they relax the cognitive apparatus and allow themselves to become vulnerable.

This last point, in fact, may be key to understanding one of the most consistent findings of the empathy literature: that females are more empathic than males. Most studies that have cared to look at sex differences in empathic ability have found significant differences in this direction (Eisenberg & Lennon, 1983; Hall, 1978). However, this may be because emotional contagion is inhibited in males (Hatfield et al., 1994; Wild, Erb, & Bartels, 2001).

Although there is no sex difference in expressiveness at birth, female infants quickly become more expressive than male infants (except for distress-related responses, which are more common in males) (Haviland & Malatesta, 1981). Social rules for emotional display are almost universally more restrictive for males than females (the lone exception being display of anger) (O'Leary & Smith, 1988; Brody, 1985; Fischer, Rodriguez-Mosquera, van-Vianen, & Manstead, 2004). After all, while females showed no difference in decoding the symbolic and nonverbal messages of intimates versus strangers, men were substantially better at decoding the messages of intimates than they are decoding the messages of strangers (Noller, 1986). This could be due to greater relaxation of display rules and cognitive defenses

when dealing with those with whom they are familiar. Based on the behavioral components of emotional contagion (e.g., mimicry of facial expression), if males have less freedom to express emotion, they may be less likely to feel the emotions projected by others (Wild et al., 2001). Through some of the attentional or perceptual mediators mentioned above, males may be able to inhibit the experience of emotional contagion. By extension, then, since emotional contagion is a vital component to empathy, the emotions are less likely to reach the conscious awareness of males, and the process is interrupted.

Now that a basic understanding of how emotional display affects the subjective experience of transmitters and receivers has been established, the next topic to be examined is the processes that take place in our brains while this transmission is taking place.

The Neurological Basis of Emotional Contagion

As one would expect with a complex, reflexive process, many different areas of the brain are associated with emotional contagion. When detecting emotions in others, we are also activating parts of the brain associated with producing corresponding emotions (Adolphs, 2002). This may in part have to do with the external stimuli activating somatic and motor responses associated with producing an emotion (Ekman et al., 1983; Adolphs, Damasio, Tranel, Cooper, & Damasio, 2000) such that if we witness someone else smiling, it causes us to smile, and that makes us feel happy, like the person who initially smiled (Dimberg, Thunberg, & Elmehed, 2000).

Recent fMRI studies have shown that when a person is asked to produce an emotional facial expression or observe facial expressions in others, activity increases in the superior temporal sulcus, the anterior insula, and the amygdala, in general, and specific areas of the premotor cortex, based on the facial expression witnessed/produced (Carr, Iacoboni, Dubeau, Mazziotta, & Lenzi, 2003). Another fMRI study identified the medial basotemporal lobes as the primary region activated when observing and mimicking facial expressions (Wild Erb, Eyb, Bartels, & Grodd, 2003). Watching another person display disgust and experiencing disgust personally through olfactory stimulation both have been shown to activate the anterior insula and the anterior cingulated cortex (Wicker, Perrett, Baron-Cohen, & Decety, 2003). The anterior cingulated cortex has also been shown to be activated by both the actual experience of pain and the experience of witnessing someone in pain (Hutchinson, Davis, & Lozano, 1999), along with the anterior insula, cerebellum, and brainstem (Singer, Seymour, O'Doherty, Kanube, Dolan, & Frith, 2004).

Studies using PET scans showed an increase in activation of the medial prefrontal cortex and the thalamus both when participants were experiencing emotion or observing emotion (Reiman et al., 1997). In the former case, the anterior insula and the orbital frontal cortex were also activated, while in the latter case, the hypothalamus, the amygdala, the anterior temporal cortex, and the occipito-tempo-parietal junction were activated.

Lesion studies have also shown that damage to somatosensory-related areas can impair the recognition of emotions in others (Adolphs et al., 2000). Case studies of patients with damaged amygdalae indicate that the patients show impairment in

their abilities to detect and produce the emotion of fear (Adolphs, Tranel, Damasio, & Damasio, 1995; Sprengelmeyer et al., 1999), while a case study of an individual with damage to his/her left insula and putamen was impaired in his/her ability to detect and produce disgust reactions (Calder, Keane, Manes, Antoun, & Young, 2000).

In addition to generating emotional responses, the brain must be able to regulate those responses. For instance, while the right hemisphere has been hypothesized as being the dominant side of the brain in producing emotional expressions (Borod, 1992), it seems that the left hemisphere is capable of blocking the incoming transmission of emotional information from the right hemisphere (Galin, 1974). The prefrontal cortex performs a similar task by undertaking executive and inhibitory functions to prevent a person from immediately reacting to emotional information (Miller & Cohen, 2001).

Although the neurological research on emotional contagion is still in its infancy, it appears that there are specific neurological structures in place that allow us to experience the emotions of others. Such being the case, one would expect that emotional contagion would be evident very early on in human development. Below, evidence of this will be discussed, along with how emotional contagion interacts with developing cognitive processes.

The Development of Emotional Contagion

It seems that the tendency to be sensitive to the emotions of another is present from birth. At thirty-six hours of age, infants display the ability to discriminate between happy, sad, and surprised faces (Field, Woodson, Greenberg, & Cohen, 1982). This is remarkable because at this age, the infant visual apparatus is only able

to perceive stimuli with any degree of clarity when the stimuli are within eight to ten inches (Maurer & Maurer, 1988). In face-to-face interactions, smiling mothers are able to engage their infant, while neutral, distracted mothers cause their infant to withdraw (Trevarthen, 1979). Simner (1971) found that neonates cried when presented with the sound of another crying newborn, but did not cry when exposed to the sound of a crying five-year-old, white noise, or a synthetic cry. Another study showed that neonates did not even respond to a recording of their own crying, but would still cry in response to another crying infant (Martin & Clark, 1987).

The transformation from primitive emotional contagion to empathy occurs as a function of the development of self. Around one year of age, children begin to realize that the suffering of another is not happening to them, and some time between the age of two and three, children are expertly able to make this distinction (Goleman, 1989). Infants are also able to learn appropriate situations for displaying various emotions from observing parents and other adults in their environments, especially emotions related to distress (Hoffman, 1987). This combination of sensitivity to the emotions of others and learned responses to distress is one means by which anxiety and mood disorders experienced by parents are transmitted to their children (Downey & Coyne, 1990).

To this point in the review, emotional contagion has been viewed primarily from an internal standpoint. Now, the behavioral aspects of emotional contagion and how they affect people during an interaction will be examined.

The Role of Interactional Synchrony and Mimicry

Two important components of Emotional Contagion are an individual's tendency to engage in synchronized movements and mimicry (facial, vocal, postural, etc.) with a person with whom they are interacting (Hatfield et al., 1994). In fact, greater synchrony during a dyadic interaction has shown to be positively correlated with feelings of rapport between interactants and with accuracy in reading internal states of a target (Bernieri, 1988; Levenson & Ruef, 1992). Similarly, facial mimicry seems to be greatest when dealing with targets we care about (Schefflen, 1964), while interacting with targets about whom we do not care or with whom we are in competition can evoke opposite facial responses (e.g., smiling when they display sorrow) (McHugo, Lanzetta, Sullivan, Masters, & Englis, 1985; Englis, Vaughan, & Lanzetta, 1981).

It was suggested long ago that mimicry is a reflexive response to an empathic bond occurring within a dyad (Lipps, 1903). A target generates an automatic response to an emotion they are experiencing, and by mimicking the target's display or movements, we are given a window into the internal experience of the target. Several decades later, it was suggested that synchrony was a physical manifestation of the general autonomic response within an observer that was generated by an observable condition of a target (Ax, 1964; Basch, 1983). That is, we respond to the target's display with a corresponding emotion, which generates an expression of our own. Later research supported this hypothesis (Dimberg, 1990). However, the facial feedback associated with mimicry seems to involve almost instantaneous response and activation of facial muscles (Dimberg, 1982), so it appears that adopting the same

expression as the target may help to generate the internal emotional state, rather than the other way around.

From an early age, humans seem to be able to unconsciously engage in facial mimicry and match synchronous behaviors. Shortly after birth, infants have been shown to mimic their mothers' facial motor behavior (e.g., sticking out their tongues) (Meltzoff & Moor, 1977), and by ten weeks of age, they can mimic emotional expressions (Haviland & Lelwica, 1987). Using microanalysis procedures, video tapes of mother-infant dyadic interactions also show a great deal of synchrony (Malatesta & Haviland, 1982). As we grow older, mimicry and interactional synchrony becomes so commonplace that we are more likely to notice its absence than its presence (Hatfield et al., 1994). Like most emotional processing, display, and contagion, these behavioral components take place predominately as unconscious processes. Vocalizations taking place within a dyad, for example, can be synchronized within fifty milliseconds, which is physically impossible if attempted through conscious effort (Condon, 1982).

Somatic and Emotional Effects of Mimicry and Synchrony

Mimicry and synchrony studies have shown that this behavioral matching is associated with congruence in autonomic symptoms of interactants. Matching one's facial expression to a target is associated with matching the target's mood state (Levenson & Ruef, 1997). Participants have been shown to unconsciously alter their breathing patterns and muscular contractions to mimic an athlete whose performance they are observing (Paccalin & Jeannerod, 2000). Observing a target wince from touching a hot stove also causes observers to respond in kind (Hodges & Wegner,

1997). Often times, even when there is no outwardly visible response from an observer, the muscle groups associated with the observed expression or the body movement subtly have been activated (Hatfield & Rapson, 1990). Similarly, Rothschild (2006) reports that in a client-therapist interaction, conscious “unmirroring” (avoiding movements, postures, and facial expressions that are synchronous with a client) on the part of the therapist will *decrease* the amount of somatic distress the therapist experiences.

According to the theory of somatic markers (Damasio, 1994), emotions are internally generated sensations produced by internal or external stimuli. Thus, just as a person developing a nausea reaction can be conditioned to develop a taste aversion to a particular food, a person who smiles or frowns or grimaces can experience an internal emotional state corresponding to those facial expressions. This comparison to classical conditioning is appropriate, because mimicry and synchrony may have been adaptively significant, beyond facilitating social activity through feelings of understanding and togetherness (Levenson & Ruef, 1997). A person can be conditioned to respond to a specific stimulus or situation with the appropriate emotion, merely by observing those with whom they are interacting (Rothschild, 2006).

The discovery of “mirror neurons” takes this idea a step further. With mirror neurons, witnessing a target performing an action can cause neurons associated with that action to fire in the brain of the *observer* (Gallese, 1999). In this way, a person does not even have to mimic the facial expression or body posture of the target in

order to experience the same neurological or somatic response, although the mirroring of behavior undoubtedly could further facilitate the process.

It has thus far been established that emotional contagion takes place largely automatically, and through a combination of neurological and behavioral mechanisms, potentially allows interacting individuals to gain a greater understanding of one another. Next, other adaptive aspects of emotional contagion will be examined.

Beneficial Effects of Emotional Contagion

As discussed earlier, emotional contagion is one of the basic components of the experience of empathy in humans (Decety & Jackson, 2004) and thus, indirectly plays a vital role in altruistic behavior (Batson, Batson, Slingsby, Harrell, Peekna, & Todd, 1991). Even in nonhuman primates, it has been shown that distress can be transferred from transmitting monkey to receiving monkey (Miller et al., 1963) and cause the distressed receiver to perform an altruistic response (Miller, Murphy, & Mirsky, 1959).

Emotional contagion also serves as a primitive form of communication between parents and infants. This process becomes adaptive regardless of the direction of the transmission. For instance, infants can pick up the emotion transmitted by their parents to gauge the appropriateness of their behavior (Campos & Sternberg, 1981). On the other hand, since infants lack the verbal skills to articulate their troubles, it is helpful that parents can detect when their child is experiencing distress (Frodi, Lamb, Leavitt, Donovan, Neffy, & Sherry, 1978; Malatesta & Haviland, 1982).

Later on in life, the ability to detect and understand the emotions of others is highly correlated with social competence (Brown, & Dunn, 1996; Mostow, Izard, Fine, & Trentacosta, 2002). In extreme circumstances, when observers are unable to comprehend (or become distressed by) the emotions of others, a diagnosis of antisocial personality disorder or psychopathy may result (Hatfield et al., 1994).

Thus, on a daily basis, emotional contagion serves an integral role in vital social processes, such as communication and prosocial behavior. In addition, when we are around people who are experiencing joy, this can allow us to vicariously partake in the excitement. However, given the complexity of modern society and all the different emotion-arousing situations one finds one's self in, it is understandable that process of emotional contagion is not automatically beneficial to those involved in an interaction. In instances where the transmitter is experiencing unpleasant emotions, the receiver is vulnerable to "catching" them as well.

Detrimental Effects of Emotional Contagion

While emotional contagion facilitates social interaction and plays a key role in the experience of empathy, it also places one in a precarious position by making one vulnerable to the negative emotions that others are experiencing. Being bombarded by the negative emotions (i.e., fear, anger, or sadness) of others can lead one to suffer from many of the stresses associated with experiencing those emotions personally. This could lead to instances of extreme behavior, such as mass hysteria, where numerous individuals in a specific locality take on the same aversive emotional or psychosomatic symptoms (Hatfield et al., 1994). In a more typical example, being in close proximity to a person saddled with chronic, negative emotions can cause one to

adopt a similar affect. In a representative instance, Howes, Hokanson, and Lowenstein (1985) found that individuals who lived with mildly depressed roommates were more likely to become depressed over time than those living with non-depressed roommates.

Therapists of all types are exposed to emotionally traumatized individuals on a daily basis. They are expected to form an empathic bond with their clients, and that bond can cause therapist and client to become quite emotionally close (Rothschild, 2006). In fact, therapists who have endured a client suicide have shown stress reactions similar to people traumatized by the death of family members (McAdams & Foster, 2000). This empathic bond also makes therapists especially vulnerable to the effects of emotional contagion, and that fact that they can spend a large portion of their day with emotionally unstable individuals makes them especially likely to suffer negative effects as a result of the contagion. In fact, severe mental and emotional fatigue is so common among therapists that the term “therapist burnout” has been adopted to describe it (Rothschild, 2006), and scales have been developed to measure this phenomenon (Maslach, Jackson, & Leiter, 1996).

The expression that clients “share their trauma” with their therapists is more than a turn of a phrase. The heart rates of clients and therapists have been found to speed up and slow down in a synchronized fashion over the course of the session (DiMascio, Boyd, & Greenblatt, 1957), and one study examined mental health practitioners who worked with populations of trauma victims and found that 14% of these mental health practitioners showed symptoms consistent with post-traumatic stress disorder (Shindul-Rothschild, 2001). A more recent study suggests that

therapist burnout is just as common among therapists who work with non-trauma cases as it is among those who work with trauma cases (Kadambi & Truscott, 2004).

Psychotherapists are not the only population at risk. The number of years that a person has spent working as a substance abuse treatment therapist has been shown to correlate positively with episodes of depersonalization (Elman & Dowd, 1997), and an occupational therapist's hours of direct contact with patients have shown a positive correlation with instances of depersonalization and emotional exhaustion (Rogers & Dodson, 1988).

In a study by Linehan, Cochran, Mar, Levensky, and Comtois (2000), the authors examined and confirmed that clients could also suffer from burnout from the stress of therapy sessions. Although causality was not expressly examined, and it is possible that therapy sessions could be stressful for the client for other reasons, this study raises a disturbing possibility: that therapists, through accumulated patient contact, can become burned-out, and then bring their emotional fatigue into therapy sessions and transmit this back to the client, thereby adding to the client's stress and emotional baggage.

Thus, the process of emotional contagion can lead to traumatized individuals transmitting unpleasant emotions to receivers, and this process may contribute to therapist burnout. However, it has already been discussed that receiving emotions is not an entirely passive process, and depending on the strategy that people apply, cognitive functions can either facilitate or inhibit emotional contagion. Given this, the next question is to ask what tactics can be utilized to limit the effects of this largely unconscious process.

Self-Regulating One's Emotional State

A brief perusal of Internet sites will yield a multitude of strategies for emotional self-regulation, some with more empirical support than others. An article on buildfreedom.com claims that emotions can be controlled by making a conscious effort to keep a positive outlook and utilize self-perception before reacting to our attributional tendencies and “automatic thoughts” (Lindsay, 2003). The book *The Mood Cure* (Ross, 2002) asserts that changing one's diet (specifically, increasing our intake of omega-3 fats and creamy saturated fats) can combat mood disorders. One, multi-step, self-help technique for emotional control, “freeze-framing,” involves 1) recognizing stressful feelings and calling a “time out,” 2) shifting one's focus away from emotions and toward the area around our heart, 3) thinking about a fun moment of our lives, 4) asking our heart “for a more efficient and effective response,” and 5) listening to the answer our heart gives us (Childe, 1994). Another technique, called Thought Field Therapy, claims to involve regulating emotions by removing blockages from the body's energy systems (Lindsay, 2003), while yet another technique, Idenics, provides no description of how it helps with emotional regulation, but assures prospective customers that it is 95% effective (Idenics, 2006).

Although many of the citations above are based on questionable (or non-existent) research, some of the techniques (such as those involving effortful cognitive control and selective attention) have some empirical support. Some of these techniques will be discussed in more detail below, but first, the general process by we learn to self-regulate will be discussed.

The Development of Self-Regulation

Emotional regulation involves both positive and negative emotions and involves an attempt to change the length, intensity, and onset of emotions (Thompson & Meyer, 2007). However, it does not usually involve changing the valence of emotion (i.e., one may decrease the impact of a negative emotional experience through emotional regulation, but it is highly unlikely that one can change a negative emotion into a positive emotion). Regulation strategies have a developmental course and they arise based on the physical and cognitive abilities of the individual, but with use, they ultimately can become default, automatic responses to emotional situations (Bargh & Williams, 2007).

The ability to regulate one's own emotions is not present at birth. During the first six months of life, infants are dependent upon their caregiver for the regulation of their emotional state (Campos, 1989; Calkins & Hill, 2007). When an infant is over-stimulated, it reacts with distress, and it is up to the caregiver to hold, rock, sing to, or otherwise sooth the infant back into a calm state. As motor skills increase, six-month-old infants are able to engage in simple forms of emotional self-regulation, such as turning away from the offending stimulus or sucking on pacifying objects (Mangelsdorf, Shapiro, & Marzolf, 1995).

From an early age, a child's experience with emotional situations, and the parents' ability to help regulate those emotions, gradually leads to children using certain strategies that they have experience with over less effective strategies (Calkins & Hill, 2007). According to Calkins and Hill, the family can influence emotional regulation through: direct intervention, parental evaluation of children's emotions,

setting an emotional climate for the family, relationship quality between parent and child, and conversation between the parents and children about emotions.

Beginning at about eighteen months of age, as verbal ability increases one's tools for interacting with one's environment, self-regulation options increase accordingly. Children of this age are able to use their motor skills or verbal ability to directly manipulate the source of their frustration (Mangelsdorf et al., 1995) or to distract themselves from the source of their frustration (Grolnick, Bridges, & Connell, 1996). Distraction-based behavioral strategies that children implement include activities such as playing with toys in order to avoid dwelling on unpleasant emotions (Grolnick et al., 1996). In young children, the ability to subtly suppress outward display of emotion remains poorly developed (Malatesta, Culver, Tesman, & Shepard, 1989).

As verbal ability increases, communication between a child and caregiver increases as well. Around the age of three, display rules that parents have taught to their children begin to become internalized and children show greater capacity for suppressing outward signs of emotion (Lewis, Sullivan, Stranger, & Weiss, 1989). The self-regulation strategies that parents advocate often involve either mental distraction or attempting to understand the emotion-evoking experiences (Thompson, 1994; 1998).

Interestingly, these are the same two strategies that adults often utilize, although it is males who are most likely to engage in distraction based behavior and females who are more likely to ruminate on the sources of the emotional distress (Nolen-Hoeksema & Corte, 2004). Maladaptive use of distracting behavior is

generally thought to be associated with higher rates of drug and alcohol abuse (Nolen-Hoeksema & Corte, 2004), while maladaptive use of rumination is associated with higher rates of depression (Lyumbomirsky, Caldwell, & Nolen-Hoeksema, 1998), which may account for sex differences in the prevalence of these disorders.

Neurologically, this ability to regulate emotional experience is associated with a mature parasympathetic nervous system (Porges, 1996) and functional prefrontal cortex (Miller & Cohen, 2001), the latter seemingly a vital factor in moderating the effects of emotional contagion, especially when dealing with negatively valenced emotions. Specifically, the left prefrontal cortex seems to be associated with processing negative emotional information and the right prefrontal cortex seems to be associated with positive emotional information (Sutton, Davidson, Donzella, Irwin, & Dottl, 1997; Wager, Phan, Liberzon, Taylor, 2003), although there is an alternative interpretation that the left hemisphere is associated with approach-related emotions and the right hemisphere is associated with withdrawal-related emotions (Coan & Allen, 2004). The right prefrontal cortex is also associated with the use of emotional regulation and coping skills (Schore, 2000). In general, the more developed the prefrontal cortex, the more complex the emotional regulation strategy that can be utilized (Fox, 1989). For example, Stegge and Terwogt (2007) identify regulation strategies that involve controlling outward expression and behavior as the first to develop, followed by strategies that regulate one's inner feelings.

The process of controlling reflexive emotional responses after they surface is similar to what takes place during attitude evaluation, based on the Dual-Processing Model (Cacioppo & Petty, 1979). According to this model, information is received

and processed heuristically, but can be evaluated through a more effortful, deliberate process (Devine & Baker, 1991). For example, effortful inhibition can prevent one from responding to automatically generated prejudices that one has against homosexuals (Monteith, 1993). In terms of emotional self-regulation, a similar process could involve examining the nature of the emotion one is experiencing and deciding if that is a rational response to the situation, rather than getting swept up in the emotion.

Emotion Regulation Strategies

Gross and Thompson (2007) identified five general strategies for regulating emotion. *Situation Selection* involves making choices that are going to put one in a position to maximize positive emotions and minimize negative emotions. *Situation Modification* involves changing aspects of the situation so that one can make the situation as pleasant as possible. *Attentional Deployment* involves focusing on specific aspects of the situation that is taking place. *Cognitive Change* involves interpreting events of a situation in a specific way (e.g., optimistically or pessimistically) to affect the strength of an emotion. *Response Modulation* involves outwardly responding to an emotion-eliciting situation in specific ways (e.g., controlling emotional display).

Situation Selection and Situation Modification involve selecting a setting in which to interact. Since emotional contagion takes place while face-to-face interactions are in process, only Attentional Deployment, Cognitive Change, and Response Modulation are applicable to the current discussion. Gross (2001) referred to Attentional Deployment and Cognitive Change as “antecedent-focused strategies”

because they impact the nature of the emotions one experiences very early on in the process. Antecedent-focused strategies are seen as changing the appraisal of the input system (Stegge & Terwogt, 2007). Conversely, a category of response he referred to as “response-focused strategies” are seen as changing one’s response probability (i.e., output) (Stegge & Terwogt).

Several specific deliberate, cognitive strategies for processing emotion are discussed below. This is by no means a comprehensive list of emotional regulation strategies, merely ones that are thought to be especially applicable in face-to-face interactions.

Response Modulation Strategies

Suppression. Suppression involves deliberately trying to inhibit emotional expression (Gross & Levenson, 1993). Similar to Lazarus’s (1985) “emotion-focused denial,” it is a response-focused strategy because it is utilized after the emotional response has taken place. When comparing the effects of reappraisal and suppression on participants watching the video of an arm amputation, Gross and Levenson found that suppression decreased expressive behaviors and had no effect on self-reports of disgust, but increased the physiological activation experienced because of the effort required to inhibit the naturally occurring facial and nonverbal responses.

Reappraisal, conversely, decreased expressive behavior and self-reported disgust, and had no effect on physiological activation. Similar increases in physiological activation have been found with participants trying to suppress amusement and sadness (Gross & Levenson). Finally, suppression has been shown to inhibit memory retention from information presented during the emotion-inducing event, while

reappraisal has shown no such effect (Richardson & Gross, 2000). For this reason, suppression seems to be an inferior regulation strategy and will not be discussed further.

Attentional Deployment Strategies

Attentional Deployment involves selectively attending to some aspect of a situation. The impact of specific forms of this strategy can vary greatly, depending on the aspect of the situation to which one attends.

Perspective-taking. Several strategies have been developed to alter the cognitive distance between target and observer. One such cognitive process is perspective-taking. Asking participants to imagine what a traumatized target is feeling has been shown to increase physiological and verbal indications that one is experiencing distress compared to participants who were asked to merely observe the traumatized target (Stotland, 1969). A similar effect was shown by asking participants to imagine themselves in the same situation as the traumatized target (Stotland, 1969).

In therapeutic settings, Maxfield (1997) reports that some therapists tend to place themselves into their clients' stories of trauma and perceive the stories from a first-person perspective. The same individual tendency would be expected of non-therapists as well. This may be an involuntary tendency, but also can be guided by instruction. In fact, in many studies of empathy, experimenters trying to invoke empathy in participants will provide instructions like "try to take the perspective of the student being interviewed, imagining how she is feeling about what has happened and how it has affected her life. Try not to concern yourself with attending to all the

information presented. Just imagine how this student feels about her situation” (Batson et al., 1991, p. 416).

Although the process of perspective-taking places a person psychologically and affectively closer to a traumatized target, the effects can be quite intense and in some cases, aversive (Davis, 1983; Eisenberg, Shea, Carlo, & Knight, 1991). In situations, such as a therapeutic setting, where an individual is attempting to be empathic toward a traumatized other, it often is important to maintain a distinct separation between the self and the other (Decety & Jackson, 2004). Reik (1948) and Marcia (1987) recognize the importance of understanding and internalizing a client’s experience, but they also emphasize that in order to engage in an optimal therapeutic experience, a therapist must also detach himself or herself from the client’s identity in order to occupy a more emotionally balanced state. Although this detachment would intuitively seem to inhibit the empathic process, the ability to regulate one’s emotions has been found to be positively related to experiencing concern for others (Eisenberg et al., 1994).

Dissociation. If taking the perspective of a traumatized target can increase our distress, then by logical extension, the further our perspective takes us from the traumatized target, the less impact the event will have on us. For example, taking a perspective outside of one’s own body may distance one from physiological and affective arousal. In the literature on Neurolinguistic Programming (NLP), Bodenhamer and Hall (1999) propose that “dissociating yourself from a memory removes much, if not all, of the emotion” (p. 286). It stands to reason that intentionally distancing oneself from an interaction would limit the amount of

emotion that is received from the interaction. Although the “research” from NLP is dubious at best, this voluntary cognitive distancing does fit in with the clinical research on extreme cases of involuntary dissociation (e.g., depersonalization disorder). In these cases, dissociation seems to result in a decrease in the subjective, autonomic, and neurological characteristics associated with emotional experiences (Phillips & Sierra, 2003). Therefore, one would expect that voluntary dissociation would have a similar effect.

Focusing on Submodalities

Rothschild (2006) suggests that cognitive distancing can be accomplished by focusing on and altering submodalities of a visual image. Submodalities of an image would be some perceptual aspect of the image, such as color, shape, size, or distance. “By changing elements of the images (the submodalities),” Rothschild suggests, “they can be better managed” (pp.150). This technique was actually adapted from a hypothesis proposed by NLP advocates, Andreas and Andreas (1987), who used the concept of submodalities with auditory information.

Although NLP has minimal published research behind it, there is some empirical evidence to support this idea. For instance, selectively attending to some minute aspect of the social situation can produce similar detachment. In an experiment by Kellerman, Lewis, and Laird (1989), a dyad of opposite sex individuals that stared into one another’s eyes reported greater feelings of attraction and respect than those who did not make eye contact. However, this was not the case for individuals who stared into each other’s eyes only to count the other person’s eye blinks (although there was no difference in feelings of respect between the “eye

blink” and the “eye gaze” conditions). Thus, a cognitive task inhibited the experience of emotion that otherwise would have been created artificially by the situation.

Cognitive Change Strategies

Another general category for emotional regulation that Gross and Thompson (2007) mentioned is “Cognitive Change,” which, instead of selective attention, involves selective perception. Cognitive Change refers to any process that alters the meaning or value of the stressful situation. For instance, a cognitive change tactic called “reappraisal” involves re-evaluating the stressful aspects of the situation so as to decrease their value, and therefore, their impact.

Empathic Reflection. Given that cognitive tasks can be inhibitors to emotional contagion, one interesting psychotherapeutic technique that has yet to be discussed is empathic reflection. This technique, developed by Carl Rogers and other Humanistic psychologists consists of identifying and restating a client’s concerns. According to Rogers and Stevens (1967), predictors of successful psychotherapy are a) therapist congruence (i.e., being aware of what is going on within one’s self), b) therapist empathy (i.e., being aware of the client’s thoughts and emotions), c) feeling unconditional positive regard for the client, and 4) the therapist being able to convey these things to the client. Empathic reflection illustrates this process by making the client feel understood and avoiding evaluation of the client’s state and behavior.

Rogers (1986) saw the process as an attempt to “determine whether my understanding of the client’s inner world is correct—whether I am seeing it as he or she is experiencing it at this moment” (pp. 127-128). Although he preferred to refer to the process as “Testing Understandings” or “Checking Perceptions,” he understood

the appeal of using the term “reflection” because it involved metaphorically “holding up a mirror of [the client’s] current experiencing. The feelings and personal meanings seem sharper when seen through the eyes of another, when they are reflected” (pp. 128).

Collectively, these tasks require the therapist to attend to his or her own affective response and the client’s verbal and nonverbal responses, maintain a nonjudgmental view toward the client, and carefully present the therapist’s views to avoid the appearance of evaluation. Since this process involves thinking about and responding to the client, cognitive engagement is still taking place, but it is an active engagement and potentially complex enough to ward off the negative effects of the client’s affective state.

The Current Study

Negative affect can have detrimental consequences for both members of a dyad. The “sender” can transmit emotions that cause the “receiver” distress, and in return, the distressed receiver can send distressing emotions in the opposite direction. This may cause the affective states of those involved to spiral downward. This unfortunate possibility applies to anything from interpersonal to therapeutic relationships.

This study attempted to examine the efficacy of various cognitive strategies for inhibiting emotional contagion in simulated “therapist-client” dyads. In this study, “therapists” received instructions on how to listen to three videotaped “clients.” Then, they listened to and responded to the videotaped “clients” and their reactions were analyzed. By utilizing self-reports and the participant’s facial

response, this study attempted to determine which of these techniques was most effective in reducing contagion. The study compared emotional contagion reactions among people who were asked to engage in a) Empathic Imagery, b) Voluntary Dissociation, c) Empathic Reflection, and d) a control condition.

These three experimental conditions were selected because they represent three of the major moderating strategies mentioned in the literature. Empathic Imagery involves mentally placing one's self in the position of another person and is an example of Attentional Deployment. This strategy was predicted to increase emotional contagion. Voluntary Dissociation is another Attentional Deployment strategy that involves mentally placing one's self outside the dyadic interaction. This strategy was expected to decrease emotional contagion. Empathic Reflection involves engaging in a cognitive task directly related to the interaction and probably would be categorized best as a Cognitive Change strategy. This strategy should have decreased emotional contagion. Response Modulation strategies were not examined in this study because they have already been determined to be inferior to antecedent-focused strategies (i.e., Attentional Deployment and Cognitive Change) in inhibiting negative emotional experiences (Gross, 2001; Gross & Levenson, 1993).

It was thought that greater disengagement will yield less emotional contagion. However, in most cases, it would be unwise to completely dissociate from a dyadic interaction, so this study also sought to determine how the strategies affect memory and response quality of the simulated interaction.

Hypotheses

It was hypothesized that:

- a) The Voluntary Dissociation and Empathic Reflection conditions would feature lower levels of emotional contagion than the Empathic Imagery and Control conditions, as indicated by self-reported emotional arousal (as measured by the questionnaires) and facial feedback (as determined by raters). The Voluntary Dissociation condition involves distancing one's self from the interaction, inhibiting engagement and thus, emotional contagion. Empathic Reflection involves remaining cognitively busy and self-aware while the interaction is taking place, inhibiting the reflexive response that emotional contagion involves.
- b) The Empathic Imagery condition would create a higher level of emotional contagion than the Control condition (as indicated by both self-reported emotional arousal and facial feedback). Placing one's self in the position of another facilitates understanding what the other person is experiencing.
- c) Compared with the Voluntary Dissociation condition, Empathic Reflection would produce greater engagement in the interaction (as determined by a memory test and ratings of empathy, genuineness, and positive regard). Although both conditions should have involved lower rates of emotional contagion, Voluntary Dissociation should have been less practical because it should have also inhibited engagement with the other interactant. Empathic Reflection creates engagement in a cognitive task, but since the task is directly related to the interaction itself, this should not inhibit engagement.

Method

Overview

Participants observed three videotaped monologues and were instructed to respond as though they were a therapist interacting with a client in a therapy session. The videotaped “clients” displayed either positive (i.e., happiness) or negative (i.e., sadness) emotions. Each participant was instructed to use one of the following strategies when observing the video tapes: a) Voluntary Dissociation, b) Empathic Reflection, c) Empathic Imagery, or d) no listening strategy (control condition) (see Appendix A). At the conclusion of each video clip, participants were asked to provide a verbal response to the videotaped “client” and complete some affective assessments of themselves and of the videotaped “client.” Participants were also videotaped to record their facial responses and the content of their verbal responses. After the last video clip was shown and responded to, participants were given a memory test regarding the individuals in the video clips. The entire process took approximately thirty minutes.

Participants

Participants were undergraduates from the University of Hawaii who received course credit for participation. Overall, 170 participants completed the study. However, the data from only 106 (thirty-two males and seventy-four females) was used in the data analysis. Data from eight of the participants was discarded because they either did not understand the basic task of the experiment or what the individuals in the videotaped stimuli were saying. For example, one participant responded in the third person and talked about the emotional display of the person in the video tape. In

another case, a participant responded by expressing her deepest sympathy, even though the person in the video tape was talking about the best day of his life. The remaining cases that were discarded because, during the manipulation check, there was no indication that they followed the listening instructions (i.e., they did not mention the listening instructions).

Procedure

Participants arriving at the lab were first given a copy of the consent form that included a brief description of the experiment. They were told that they would be watching three video clips of individuals as though they were therapists listening to clients, they would be giving a therapeutic response to the individuals on the videos, and their response would be videotaped. They then were asked to sign the consent form.

Participants were then provided with one of four sets of instructions that described the task in greater detail and gave them one of four sets of listening instructions (see Appendix A). These were designed to prime them for one of three emotional regulation strategies or the control (no instruction) condition. The experimenter read the instructions aloud while the participants read over them silently. If the participants had no questions, the experimenter read the sample dialogue aloud (see Appendix B) so that the participants could practice the basic task. They were also told to make their verbal response at least two or three sentences in length.

After each clip, participants were asked to answer questions about their own affective state and the perceived state of the “client” (see Appendix C). Additional

tasks that were unrelated to the central task of the experiment, such as the fluency tests (see Appendix D), were administered after the first and second clips so that a long enough period of time would pass to prevent the emotional experience of watching the previous video clip from interfering with the emotional experience generated by the subsequent video clip.

After the participant had watched and responded to all three clips, they completed the Emotional Contagion Scale (see Appendix G), a memory test (see Appendix H), and the manipulation check before being debriefed.

Video Clips

The video clips were taken from interviews with individuals who were asked to describe one of the happiest or one of the saddest days of their life. In all, thirteen people were recorded, yielding a total of twenty-four clips (one person could only think of a happy event and another person could only think of a sad event). In all instances, the individuals in the video were acquaintances of the researcher or the researcher's lab assistant who volunteered to take part in the study, and the video was recorded by either the researcher or the researcher's lab assistant.

In effort to obtain stimulus clips that utilized extreme ends of the emotional spectrum, four raters (all undergraduate research assistants) viewed all the clips and rated them on how happy and sad the target was in each of them. The three clips where the target was rated as happiest were used, along with the three clips where the target was rated as saddest. All video clips utilized received a ranking of at least "5" on a 0 to 6 scale (with "6" being "extremely happy" or "extremely sad"). Participants either viewed all three clips of happy targets or all three clips of sad targets. The

order in which the clips were presented was rotated so that they appeared equally often in each position.

The Happy Clips featured two male targets and a female target. One of the males told a story about meeting his girlfriend. The other male told a story about all the support he received when he told his co-workers that he was quitting his job to become a pastor. The female told a story about the birth of her son. The longest clip lasted one minute and forty-one seconds, while the shortest was fifty-one seconds ($M = 72.00$ seconds). Ratings of target happiness ranged from 5.75 (for the happiest target) to 5.00 (for the third happiest target) out of a maximum of 6.00 ($M = 5.33$). Inter-rater reliability for the Happy Clips was $\alpha = .96$.

The Sad Clips featured two female targets and a male target. One of the females told a story about the death of her friend's father and how she had to take care of her friend. The other female told a story about the death of her grandmother. The male told the story of his best-friend's suicide. The longest clip lasted one minute and twenty-six seconds, while the shortest was one minute and ten seconds ($M = 74.33$ seconds). These were slightly longer than the Happy Clips, but the targets generally talked slower when sad. Ratings for target sadness ranged from 5.50 (for the saddest target) to 5.25 (for the two least sad targets) out of a maximum of 6.00 ($M = 5.33$). Inter-rater reliability for the Sad Clips was $\alpha = .94$.

All videos were recorded with an Aiptek IS-DV Digital Camcorder.

Participant Facial Mimicry

Participants' facial expressions were videotaped while they were watching the film clips. During the entire process, the video recorder was situated conspicuously

on top of the computer monitor. The clips then were edited so that the last forty-five seconds was extracted (ending at the point when the stimulus clip stopped playing), which ensured that all the clips would be a standard length. Also, the sound was removed so that the Mood Condition could not be identified by the raters. All editing was done using Windows Movie Maker. Raters watched the clips and rated them on how happy or sad the participant was (see Appendix E). Raters initially watched all the first clips, then all the second clips, followed by all the third clips, so as not to see the same participant in consecutive clips.

Listening Instructions

At the beginning of the experiment, the experimenter read the instructions to the participant and gave the participant a copy of the instructions in case the participant needed to refer back to them. After the third clip, the instructions were collected. In all conditions, participants were told to watch the video as though the people on the tapes were psychotherapy clients and the participant was the therapist, and at the end of the clip, provide a verbal response that they felt was constructive. They were also informed that they would be videotaped.

Along with the standard written explanation of the task, participants were given one of the following sets of additional written instructions for listening to the clients:

- a) *Voluntary Dissociations*. "Therapies vary on many dimensions. One of the dimensions involves taking different perspectives. In this study, while the client is speaking, we would like you to take a step back from the interaction and remain detached. By this, we mean that we want to imagine that you are

sitting in a movie theater, where a movie is being shown of you watching these film clips. Picture yourself, the room, the TV, and the person on the TV screen as though you were an outside observer. At the conclusion of the clip, respond naturally.” This is similar to the strategy provided by Beauregard, Levesque, and Bourgouin (2001).

- b) *Reflection*. “Therapies vary on many dimensions. One of the dimensions involves paying attention to certain aspects of the interaction. In this study, while the client is speaking, try to understand what the client is experiencing. Then, try to understand the effect the client is having on you (that is, how is listening to them making you feel?). Finally, make an effort to think about the client’s qualities and behaviors in positive, nonjudgmental terms. At the conclusion of the clip, respond naturally.” This is similar to the listening strategy provided by Rogers and Stevens (1967).
- c) *Empathic imagery*. “Therapies vary on many dimensions. One of the dimensions involves taking different perspectives. In this study, while the client is speaking, try to visualize being in the situation they are describing and experiencing what they have experienced. Place yourself in the situation and imagine that it was happening to you. Think of what the client saw, heard, and so forth in effort to understand as much as possible what the client was experiencing when the event happened to the client. At the conclusion of the clip, respond naturally.” This is similar to the strategy provided by Batson and others (1991).
- d) *Control condition*. No additional instructions.

After the instructions have been given, the experimenter read a short bit of sample dialogue (see Appendix B) and gave the participant a chance to practice his or her assigned technique and receive feedback.

Response Effectiveness Ratings

In an interaction, whether therapeutic or otherwise, it would seldom be beneficial to take on a listening strategy that is detrimental to the quality of the interaction. For this reason, this study not only examined how the techniques influence contagion, but also how they influence a participant's engagement in the interaction.

A study by Hayden (1975) showed that five verbal qualities were associated with peer ratings of therapist effectiveness: empathy, genuineness, positive regard, inner client focus (i.e., focusing on the client's inner experiences rather than outer experiences), and experiential confrontation (i.e., pointing out the client's cognitive distortions). Due to the limited response opportunity for the participants, it would be unrealistic that the participants consistently would provide these last two qualities, so they were disregarded. The remaining dimensions, empathy, genuineness, and positive regard, also have been associated with positive client outcomes (Truax, 1971; Keijsers, Schaap, & Hoogduin, 2000).

Raters were provided with typed transcripts of the participants' responses. Using five-point scales, they rated the empathy, genuineness, and positive regard of each response (see Appendix F). A similar method previously has been used when rating empathy of verbal content (Hatcher, Favorite, Hardy, Goode, DeShetler, & Thomas, 2005), except that they utilized a three-point scale.

Memory Test

As another measure of engagement, at the conclusion of the experiment, participants were given a memory test over different aspects of the “client” interviews, including verbal and behavioral content of the video clips (see Appendix H). Participants in the Happy Mood Condition received one memory test, while those in the Sad Mood Condition received a different memory test. Richards and Gross (2000) examined the impact of emotional regulation strategies and found that reappraisal did not decrease memory retention because it occurred early on in the cognitive process. In fact, it was found to *increase* retention of nonverbal behavior.

Manipulation Check

In effort to determine if the participants followed the listening instructions when performing the task, they were asked to write a few sentences describing the instructions they had been given. This check took place after the memory test had been administered and after the experimenter had removed the written copy of the listening instructions. If the participant did not mention any aspect of the listening instructions, the data were discarded.

The manipulation check caused the data from several dozen participants to be discarded. However, steps were taken to increase participant retention. First, the experimenter reminded the participant before each clip that they could read their instructions again if they needed to. Next, participants were told, “You might want to read the instructions again, especially the second paragraph” before the second and third video clip. At this point, if the participant read the instructions three times or

mentioned the listening instructions in the manipulation check and showed an understanding of the general task, the data were retained.

Other Measures

Participants also completed a Fluency Test (see Appendix D) and the Emotional Contagion Scale (see Appendix G). The Fluency Test is comprised of measures of semantic fluency (Fama et al., 2000), which was administered between the first and second clips, and phonological fluency (Borkowski, Benton, & Spreen, 1967), which was administered between the second and third clips. It was included mainly as a simple way to account for language differences that could have produced a difference in scores on the engagement variables.

The Emotional Contagion Scale (Doherty, 1997) was administered to participants after they completed their responses to the third video clip. This scale features high internal reliability ($\alpha = .90$) and has been correlated with responsiveness to afferent feedback ($r = .30$) and facial affect mimicry ($r = .25$) (Doherty, 1997). It was included to account for individual differences in one's general susceptibility to emotional contagion.

Composite Variables

The majority of dependent variables that were analyzed in this study were composite variables. Two measures of emotional contagion were used in this study: self-reported emotion and facial feedback. Each participant was videotaped three times watching and responding to a stimulus tape, and they filled out a self-report affect scale after each response. Therefore, five composite variables were constructed: one for self-reported affect, one for facial affect (based on ratings of the

videotape), one based on the empathy rating for the verbal responses (based on ratings of written transcripts), one based on the genuineness rating for the verbal responses, and one based on the positive regard rating for the verbal responses.

The composite variable for self-reported affect was an attempt to determine emotional congruence of the participant and the person in the videotape that they were watching. Since all of the individuals on the video stimulus clips were rated as being highly emotional (with scores of 5 or greater on a 0 to 6 scale), higher self-report rating meant greater contagion. For every clip, the participant was asked to answer the following questions using seven-point Likert scales, "How much happiness did you experience while watching the video clip?" (0 = "None at all," 6 = "A great deal") and "How much sadness did you experience while watching the video clip?" (0 = "None at all," 6 = "A great deal"). However, the first question was only applicable to those participants in the Happy Mood Condition, and the second question was only applicable to the Sad Mood Condition. Therefore, participants in the Happy Mood Condition had all their scores to the "happiness" question averaged, and participants in the Sad Mood Condition had all their scores to the "sadness" question averaged. From now on, this will be referred to as the Self-Report Contagion variable.

For each participant video clip, three raters (two undergraduates and a graduate psychology student) were asked to answer two questions, "How happy is the person in this video clip?" (0 = "Not at all happy," 6 = "Extremely happy") and "How sad is the person in this video clip?" (0 = "Not at all sad," 6 = "Extremely sad"). However, as with the Self-Report Contagion variable, the first question was only

applicable for the Happy Mood Condition, and the second was only applicable for the Sad Mood Condition. Therefore, for each rater, all the “happy” ratings for the participants in the Happy Mood Condition were averaged, as were all the “sad” ratings for participants in the Sad Mood Condition. Thus, facial affect variables were created for each rater. In some instances, whether it was due to equipment failure or the participant moving out of range, there were not three usable clips of a participant. In these instances, the scores from two clips were used for the average. There were no instances of a participant providing only a single usable clip. Finally, a mean of the three raters’ facial affect variables was created ($\alpha = .84$), which will now be referred to as the Facial Affect Contagion variable.

It has been suggested, however, that combining Sadness and Happiness into the same variable was inappropriate. Therefore, additional analyses have been conducted examining the happiness and sadness variables separately (see Appendix I).

For the verbal responses, a total of four raters (one undergraduate psychology student, one graduate experimental psychology student, and two graduate clinical psychology students) read transcripts of each response and answered the following questions using five-point scales: “How empathic was the response?” (1 = “Not at all empathic,” 5 = “Extremely empathic”), “How genuine was the response?” (1 = “Not at all genuine,” 5 = “Extremely genuine”), and “How much positive regard did the response show?” (1 = “None at all,” 5 = “A great deal”). Means were taken for the three participant responses, and empathy, genuineness, and positive regard variables were created for each rater. Then, the four empathy variables were averaged, creating

a composite Empathy variable ($\alpha = .81$). The same process was used to create a Genuineness variable ($\alpha = .77$) and a Positive Regard variable ($\alpha = .68$).

Results

Hypothesis 1

The first hypothesis was that participants in the Dissociation and Empathic Reflection conditions would experience lower levels of emotional contagion than those in the Empathic Imagery and Control conditions. This hypothesis was tested by first creating an independent variable where one level featured conditions that were supposed to decrease emotional contagion (Dissociation and Empathic Reflection) and those that were not supposed to decrease emotional contagion (Empathic Imagery and the Control). A 2 x 2 MANOVA was conducted using this created variable and Mood (Happy vs. Sad) as the two independent variables and Self-Report Contagion and Facial Affect as the dependent variables. Scores on the Emotional Contagion Scale did not differ between participants in the Happy vs. Sad conditions ($p = .61$), so the two groups were considered to be compatible. The only significant effect was for Mood ($\Lambda = .92$, $F = 4.57$, $df = 2, 99$, $p < .05$, $r = .29$). There was no effect for the two-level Instruction variable, nor was there a significant interaction effect.

Individual 2 x 2 ANOVAs were conducted on each of the dependent variables. For Self-Reported Contagion, there were marginally significant main effects for the two-level instruction variable ($F(1, 102) = 3.07$, $p < .10$, $r = .17$) such that the combination of Dissociation and Empathic Reflection ($M = 4.44$, $SD = 1.13$) showed less contagion than the combination of Empathic Imagery and the Control ($M = 4.77$, $SD = .76$) (see Table 1 for the means of the individual Instruction conditions). There was also a marginally significant main effect for Mood ($F(1, 102) = 3.38$, $p < .10$, $r = .18$), such that participants in the Sad Condition ($M = 4.78$, $SD = .77$) showed

more contagion than those in the Happy Condition for ($M = 4.45$, $SD = 1.09$). There was no significant interaction effect.

For the Facial Affect dependent variable, the only significant effect was for Mood ($F(1, 100) = 5.26$, $p < .05$, $r = .22$), such that participants in the Happy Condition ($M = 2.01$, $SD = 1.25$) showed more contagion than participants in the Sad condition ($M = 1.56$, $SD = .79$). The directionality of this effect is opposite what it was for the Self-Reported Contagion variable.

Hypothesis 2:

The second hypothesis was that participants in the Empathic Imagery condition would experience more emotional contagion than those in the Control condition. This was tested using a 2 x 2 MANOVA with the Empathic Imagery and the Control condition acting as the two levels of the Instruction variable and Mood (Happy vs. Sad) acting as the other independent variable. Once again, Self-Reported Contagion and Facial Affect were the two dependent variables. There was a moderately significant effect for Instruction ($\Lambda = .91$, $F = 2.56$, $df = 2, 50$, $p < .10$, $r = .30$).

2 x 2 ANOVAs were conducted on each of the dependent variables. For the Self-Report Contagion variable, there were no main effects and no interaction effect. For the Facial Affect variable, there was a main effect for Instruction ($F(1, 51) = 4.99$, $p < .05$, $r = .30$), such that participants in the Empathic Imagery condition ($M = 2.12$, $SD = 1.09$) were rated as being more emotional than those in the Control condition ($M = 1.53$, $SD = 1.04$).

Given some of the disparate results with the dependent variables, a correlation was conducted between Facial Affect and Self-Report Contagion. The relationship was non-significant ($r(104) = .09, p = .35$).

Hypothesis 3:

The third hypothesis predicted that there would be greater engagement by participants in the Empathic Reflection condition than those in the Dissociation condition, as measured by four dependent variables (Memory, Empathy, Genuineness, and Positive Regard). To test this hypothesis, a 2 x 2 MANOVA was conducted using a two-level instruction variable (Empathic Reflection vs. Dissociation) and a two level Mood variable (Happy vs. Sad) as the independent variables. The four measures of engagement were used as the dependent variables. Consideration was given to using scores on the Fluency Test as a covariate, but since there was no significant difference ($p = .92$) in scores between participants in the Happy condition and the Sad condition, the two groups were considered to be compatible. The MANOVA produced a marginally significant effect for Instruction ($\Lambda = .82, F = 2.18, df = 4, 41, p < .10, r = .42$) but no main effect for Mood and no interaction effect.

2 x 2 ANOVAs were conducted on each of the engagement measures, using the two-level Instruction variable (Empathic Reflection vs. Dissociation) as one factor and Mood (Happy vs. Sad) as the other. There were no significant main effects or interaction effects for any of the engagement measures.

Discussion

Few of the experimental hypotheses in this study were confirmed. Although, Dissociation and Empathic Reflection seemed to reduce contagion, this was only the case when the two conditions were combined into a single category and only for the Self-Report Contagion variable and not for the Facial Affect Contagion variable. While Self-Report Contagion at least fell into the predicted pattern (see Table 1), Facial Affect Contagion did not. In fact, the Condition with the lowest value for Facial Affect Contagion was the Control Condition. However, the two dependent measures were uncorrelated, and since the Facial Affect Contagion variable also had a weaker relationship with scores on the Emotional Contagion Scale, it might be the less valid construct. Based on self-report, the participants were experiencing substantial contagion (as indicated by mean scores above “4” on a 0 to 6 scale), but the raters were not detecting it on the participants’ faces (as indicated by mean scores around “2” on a 0 to 6 scale).

Many of the students were from Asia, and individuals from collectivist societies are known for having more conservative display rules (Kalat & Shiota, 2007; Matsumoto & Kupperbusch, 2001), especially while in the presence of a higher status individual (i.e., the experimenter) (Friesen, 1972). Another possible reason for this disparity between the reported emotion felt and the emotion shown is that, since the raters were looking at forty-five-second clips of the participants rather than the entire video of the participant viewing the stimulus clips, the emotion that the participants experienced over the entire duration of the clips were greater than what was presented in the forty-five-second segments.

While it's possible that there may have been a demand characteristic that influenced participants to claim they were experiencing more emotion than they actually were, it seems more likely that Facial Affect Contagion is the less valid. Despite having a high rater-reliability, the methodology may have not provided a sensitive enough measure of emotional facial display. Although global measures of emotion based on facial expression have been used successfully in the past, this study may have been hindered by the constant, possibly intrusive presence of the experimenter. The nature of the study required that the experimenter be present to administer different measures, answer participant questions, and make sure that the video and computer equipment was working properly, but this may have worked to increase the self-consciousness and decrease the expressivity of the participants. Another possible cause of participant reactivity may have been the conspicuous camera. Even with these problems, however, more rigorous methods have been able to detect emotions that global ratings missed by looking for "micro expressions" that may leak through (Ekman, 2001). Perhaps a more rigorous coding method, such as Paul Ekman's EM-FACS system (Ekman & Friesen, 1975), could be utilized to examine the subtleties of the participants' facial expressions.

Another finding from the contagion measures was that there were actually higher Facial Affect Contagion ratings for participants in the Happy Condition than in the Sad Condition (despite the fact that the direction of the effect was reversed for the Self-Report Contagion variable). This could have been because sadness was difficult to discern when the default emotional expression of the participants is negative. Sitting through a half-hour experiment in the middle of the day is no doubt

unpleasant. In addition, participants have been shown to have anxiety reactions to being videotaped (Kalat & Shiota, 2007). So, even if participants in the Sad Condition experienced more contagion, it stood out more on the faces of those in the Happy Condition.

The most surprising result is that there seemed to be little difference between Dissociation and Empathic Reflection in terms of the engagement variables (see Table 2). This seems like an important point to clear up, because the overt results of the study would indicate that a person in a therapeutic role could take extreme steps to distance himself or herself from the emotional aspects of the interaction and the quality of the interaction would not suffer. One could make the argument that Empathic Reflection is the superior strategy because the responses in that condition showed significantly more empathy than the Control condition, while there was no difference between the Dissociation condition and Control. However, this is quite a stretch, considering that Empathic Reflection and Dissociation do not differ significantly from one another on any of the four engagement measures, and there are even mixed results on directionality of the differences.

Again, construct validity may have been a problem in this instance. While it can certainly be argued that a person who is engaged will remember more details of an interaction and will provide more effective, understanding responses, measures of memory and response quality are not, in and of themselves, measures of engagement. There are certainly other, equally important factors influencing these dependent variables, ranging from the efficiency of one's neurological functioning to personal experience providing therapeutic advice. Perhaps a more direct measure of

engagement, such as Interactional Synchrony (Bernieri, 1988), could be utilized to detect whether the instructions had an impact on this facet of the interaction.

A final set of complication that should be addressed pertains to the subject pool used in this study. For a number of reasons, over one third of the data collected had to be discarded. Participants were recruited from several different classes, but the majority came from Introductory Psychology. It is assumed that many of these Introductory Psychology students had only cursory understanding of what a client-therapist interaction consists of. Many of them had a difficult enough time understanding the basic experiment that it is understandable if they did not remember to follow the listening instructions.

A second problem is that many of the participants were not native English speakers. While none of them dropped out of the experiment due to problems understanding the experimenter, when listening to the videotaped responses, it became obvious that several had no idea what they were supposed to be doing. It is certainly possible that several more had a difficult enough time understanding the instructions or the stimulus clips that it affected their emotional reactions and verbal responses. In fact, if comprehending the speech in the stimulus clips was cognitively demanding enough, it may have accomplished across all conditions what the Empathic Reflection condition set out to do (i.e., remaining cognitively busy will decrease contagion).

Yet another problem, albeit numerically rare, was that some participants found the experience too emotionally unsettling to complete the experiment and their data

were discarded. While this only occurred two or three times, there is an obvious problem when the manipulation works extremely well, but the data cannot be used.

While there is no ethical solution for this last problem, the other two could have been dealt with by utilizing students who had a working understanding of what a therapy session was comprised of (e.g., undergraduate students who had completed Abnormal Psychology or Introduction to Clinical Psychology) and students who were fluent in English. However, since this institution has a high percentage of foreign students and no discernible subject pool, obtaining enough participants who fit both qualifications in an expedient manner would have been a daunting task.

Overall, examining the effect of emotional regulation strategies on dyadic interactions should not be abandoned, nor should examining the role of emotional contagion in therapist burnout. It remains to be seen, however, if the data collected in this study is adequate to provide answers to these questions. Given the relatively low sample size, however, the Self-Report Contagion variable worked out in the predicted directions. Despite the complications discussed above, it seems possible that with a more sensitive method of analysis, the facial affect rating might produce the desired results as well. It is too late to collect physiological data on the participants (e.g., heart rate, skin temperature), but testing for affect differences via vocal intonation remains a possibility.

As for engagement, it might be possible to obtain a global measure of engagement from another group of raters (e.g., by asking “How interested does the person in the clip appear to be?”). It is more optimistic that a better measure of engagement can be obtained through analysis of interactional synchrony, as the

measures used in this study were only peripherally related to actual engagement in the interaction. Since the original video clips were retained, the original audio recordings are available. This means that the participant clips easily could be timed to match the stimulus clips, and movement synchrony could be examined using a split-screen procedure.

Thus, while it is certainly possible that the data collected for this study could still bear compelling results, the EM-FACS (Ekman & Friesen, 1975), vocal intonation, and interactional synchrony analyses each involve a laborious process, so the answers to these issues will not be available in the near future.

Table 1. Means for Contagion Variables across Instruction and Mood Conditions

	Self-Report	Facial Affect
Dissociation	4.40 (<i>SD</i> = 1.33)	1.88 (<i>SD</i> = 1.07)
Happy	4.42 (<i>SD</i> = 1.60)	2.11 (<i>SD</i> = 1.28)
Sad	4.39 (<i>SD</i> = 1.07)	1.58 (<i>SD</i> = .78)
Empathic Reflection	4.48 (<i>SD</i> = .92)	1.72 (<i>SD</i> = 1.05)
Happy	4.00 (<i>SD</i> = .89)	1.97 (<i>SD</i> = 1.30)
Sad	5.00 (<i>SD</i> = .65)	1.41 (<i>SD</i> = .58)
Empathic Imagery	4.82 (<i>SD</i> = .57)	2.12 (<i>SD</i> = 1.09)
Happy	4.81 (<i>SD</i> = .67)	2.36 (<i>SD</i> = 1.16)
Sad	4.83 (<i>SD</i> = .57)	2.12 (<i>SD</i> = 1.05)
Control	4.73 (<i>SD</i> = .87)	1.53 (<i>SD</i> = 1.04)
Happy	4.58 (<i>SD</i> = .57)	1.67 (<i>SD</i> = 1.05)
Sad	4.87 (<i>SD</i> = .73)	1.50 (<i>SD</i> = 1.00)
Total	4.62 (<i>SD</i> = .96)	1.77 (<i>SD</i> = 1.05)
Happy	4.45 (<i>SD</i> = 1.09)	2.00 (<i>SD</i> = 1.22)
Sad	4.78 (<i>SD</i> = .77)	1.53 (<i>SD</i> = .78)

Table 2. Means for Response Variables across Instruction Conditions

	<u>Empathy</u>	<u>Genuineness</u>	<u>Pos. Regard</u>	<u>Memory</u>
Dissociation	2.54 (<i>SD</i> = .58)	3.03 (<i>SD</i> = .56)	2.39 (<i>SD</i> = .44)	12.54 (<i>SD</i> = 3.64)
Emp. Reflection	2.66 (<i>SD</i> = .64)	2.85 (<i>SD</i> = .66)	2.30 (<i>SD</i> = .52)	12.72 (<i>SD</i> = 4.49)
Emp. Imagery	2.59 (<i>SD</i> = .78)	2.96 (<i>SD</i> = .73)	2.26 (<i>SD</i> = .57)	11.29 (<i>SD</i> = 3.50)
Control	2.29 (<i>SD</i> = .57)	2.79 (<i>SD</i> = .59)	2.26 (<i>SD</i> = .45)	13.21 (<i>SD</i> = 4.21)

Appendix A

Participant Instructions

Condition A: Voluntary Dissociation

The study that you are about to participate in involves taking the role of a therapist. You are going to view three different clips of individuals and treat them as though they were clients from a therapy session. Each clip involves the client speaking between one and two minutes. At the conclusion of their speech, you will respond as though you were a therapist responding to a client in a therapy session. To make the process as natural as possible, we would like you to speak your response aloud, and it will be video recorded. After each clip, you will fill out a short questionnaire describing your observations and subjective experience of watching the clip.

Therapies vary on many dimensions. One of the dimensions involves taking different perspectives. In this study, while the clients are speaking, we would like you to take a step back from the interaction. By this, we mean that we want you to imagine that you are sitting in a movie theater, where a movie is being shown of you watching these film clips. Picture yourself, the room, the TV, and the person on the TV screen as though you were an outside observer. At the conclusion of the clip, provide your response.

Condition B: Empathic Reflection

The study that you are about to participate in involves taking the role of a therapist. You are going to view three different clips of individuals and treat them as

though they were clients from a therapy session. Each clip involves the client speaking between one and two minutes. At the conclusion of their speech, you will respond as though you were a therapist responding to a client in a therapy session. To make the process as natural as possible, we would like you to speak your response aloud, and it will be video recorded. After each clip, you will fill out a short questionnaire describing your observations and subjective experience of watching the clip.

Therapies vary on many dimensions. One of the dimensions involves paying attention to certain aspects of the interaction. In this study, while the client is speaking, try to understand what the client is experiencing. Then, try to understand the effect the client is having on you (that is, how is listening to them making you feel?). Finally, make an effort to think about the client's qualities and behaviors in positive, nonjudgmental terms. At the conclusion of the clip, provide your response.

Condition C: Empathic Imagery

The study that you are about to participate in involves taking the role of a therapist. You are going to view three different clips of individuals and treat them as though they were clients from a therapy session. Each clip involves the client speaking between one and two minutes. At the conclusion of their speech, you will respond as though you were a therapist responding to a client in a therapy session. To make the process as natural as possible, we would like you to speak your response aloud, and it will be video recorded. After each clip, you will fill out a short

questionnaire describing your observations and subjective experience of watching the clip.

Therapies vary on many dimensions. One of the dimensions involves taking different perspectives. In this study, while the clients are speaking, try to visualize being in the situation they are describing and experiencing what they have experienced. Place yourself in the situation and imagine that it was happening to you. Think of what the client saw, heard, and so forth in effort to understand as much as possible what the client was experiencing when the event happened to the client. At the conclusion of the clip, provide your response.

Condition D: Control

The study that you are about to participate in involves taking the role of a therapist. You are going to view three different clips of individuals and treat them as though they were clients from a therapy session. Each clip involves the client speaking between one and two minutes. At the conclusion of their speech, you will respond as though you were a therapist responding to a client in a therapy session. To make the process as natural as possible, we would like you to speak your response aloud, and it will be video recorded. After each clip, you will fill out a short questionnaire describing your observations and subjective experience of watching the clip.

Appendix B

Sample Dialogue

My dog ran away today and I looked all over the neighborhood to find him. We've only had him for two weeks, and I'm worried that he won't be able to make it home. Mom says I may have to get a new dog, but I don't want a new dog: I want Goldie back.

Appendix C

*Questionnaires*First Video Clip:

1) How much happiness did you experience while watching the first Video Clip?

0 1 2 3 4 5 6

None at all

A great deal

2) How much sadness did you experience while watching Video Clip 1?

0 1 2 3 4 5 6

None at all

A great deal

3) How much happiness do you think the client in the first Video Clip experienced?

0 1 2 3 4 5 6

None at all

A great deal

4) How much sadness do you think the client in the first Video Clip experienced?

0 1 2 3 4 5 6

None at all

A great deal

Second Video Clip:

5) How much happiness did you experience while watching the second Video Clip?

0 1 2 3 4 5 6

None at all

A great deal

6) How much sadness did you experience while watching the second Video Clip?

0 1 2 3 4 5 6

None at all

A great deal

7) How much happiness do you think the client in the second Video Clip experienced?

0 1 2 3 4 5 6

None at all

A great deal

8) How much sadness do you think the client in the second Video Clip experienced?

0 1 2 3 4 5 6

None at all

A great deal

Third Video Clip:

9) How much happiness did you experience while watching the third Video Clip?

0 1 2 3 4 5 6

None at all

A great deal

10) How much sadness did you experience while watching the third Video Clip?

0 1 2 3 4 5 6

None at all

A great deal

11) How much happiness do you think the client in the third Video Clip experienced?

0 1 2 3 4 5 6

None at all

A great deal

12) How much sadness do you think the client in the third Video Clip experienced?

0 1 2 3 4 5 6

None at all

A great deal

Appendix D

Fluency Test.

Semantic Fluency Instructions (Fama et al., 2000):

- 1) Using the piece of lined paper in front of you, make a list of all the animals that you can think of. You have one minute.
- 2) Using the piece of lined paper in front of you, make a list of all the inanimate objects you can think of. You have one minute.

Phonological Fluency Instructions (Borkowski, Benton, & Spreen, 1967):

- 1) Using the piece of lined paper in front of you, make a list of all the words you can think of starting with *F*, not counting proper nouns or the same word repeated with different suffixes. You have one minute.
- 2) Using the piece of lined paper in front of you, make a list of all the words you can think of starting with *A*, not counting proper nouns or the same word repeated with different suffixes. You have one minute.
- 3) Using the piece of lined paper in front of you, make a list of all the words you can think of starting with *S*, not counting proper nouns or the same word repeated with different suffixes. You have one minute.

Appendix E***Facial Affect Rating.***

1) How much happiness do you think the client in the video clip experienced?

0 1 2 3 4 5 6

None at all

A great deal

2) How much sadness do you think the client in the video clip experienced?

0 1 2 3 4 5 6

None at all

A great deal

Appendix F***Response Rating***

1) How empathic was the speaker's response?

1	2	3	4	5
Not at all				Very
Empathic				Empathic

2) How genuine was the speaker's response?

1	2	3	4	5
Not at all				Very
Genuine				Genuine

3) How much positive regard did the speaker show in the response?

1	2	3	4	5
Not Positive				A great deal of
Regard				Positive Regard

Appendix G

Emotional Contagion Scale.

This is a scale that measures a variety of feelings and behaviors in various situations. There are no right or wrong answers, so try very hard to be completely honest in your answers. Results are *completely confidential*. Read each question and indicate the answer which best applies to you. Please answer each question very carefully. Thank you.

Use the following key:

5 = Always true of me

4 = Often true of me

3 = Usually true of me

2 = Rarely true of me

1 = Never true of me

- _____ 1) If someone I'm talking with begins to cry, I get teary-eyed.
- _____ 2) Being with a happy person picks me up when I'm feeling down.
- _____ 3) When someone smiles warmly at me, I smile back and feel warm inside.
- _____ 4) I get filled with sorrow when people talk about the death of their loved ones.
- _____ 5) I clench my jaws and my shoulders get tight when I see the angry faces on the news.
- _____ 6) When I look into the eyes of the one I love, my mind is filled with thoughts of romance.
- _____ 7) It irritates me to be around angry people.
- _____ 8) Watching the fearful faces of victims on the news makes me try to imagine how they might be feeling.
- _____ 9) I melt when the one I love holds me close.

- _____ 10) I tense when overhearing an angry argument.
- _____ 11) Being around happy people fills my mind with happy thoughts.
- _____ 12) I sense my body responding when the one I love touches me.
- _____ 13) I notice myself getting tense when I'm around people who are stressed out.
- _____ 14) I cry at sad movies.
- _____ 15) Listening to the shrill screams of a terrified child in a dentist's waiting room makes me feel nervous.

Appendix H

Memory Test Questions for Happy Condition.

Clip 6:

- 1) The man in Clip 6 described a woman that he was attracted to. What color hair did she have?
- 2) During what class did the man in Clip 6 sit next to the woman to whom he was attracted?
- 3) How long did the man in Clip 6 say that he had been in a relationship with the woman he was describing?
- 4) What color hair did the man in Clip 6 have?

Clip 8:

- 5) What type of construction was the person in Clip 8 doing?
- 6) What phrase did the man in Clip 8 use when describing the environment in the construction world?
- 7) What occupation did the man in Clip 8 plan to go into after leaving construction?
- 8) The man in Clip 8 had writing on his shirt. What did it say?

Clip 22:

- 9) What color shirt was the woman in Clip 22 wearing?
- 10) At the time of the taping, how old was the baby of the woman in Clip 22?
- 11) When the baby was born, what reason did the woman in Clip 22 give for sending her family members home for the day?
- 12) What was one of the terms that the woman in Clip 22 used when describing her baby?

Memory Test Questions for Sad Condition

Clip 2:

- 1) What was the relationship of the person who died to the woman who was speaking in Clip 2?
- 2) What was the woman in Clip 2 doing when she heard about the death?

- 3) Complete the following statement of the woman in Clip 2: "In probably never had a moment in my life where I truly believed in _____ until that day."
- 4) What color shirt was the woman in Clip 2 wearing?

Clip 17:

- 5) How old was the grandmother of the woman in Clip 17 when she died?
- 6) Where did the grandmother of the woman in Clip 17 die?
- 7) Identify one of the terms or phrases that the woman in Clip 17 used to describe her grandmother's mental state.
- 8) What was the woman in Clip 17 wearing?

Clip 18:

- 9) The speaker in Clip 18 had writing on his shirt. What did it say?
- 10) How did the friend of the man in Clip 18 die?
- 11) When did the friend of the man in Clip 18 die?
- 12) What activities did the man in Clip 18 say that he and his friend liked to engage in?

Appendix I

Additional Analyses

Alternative Dependent Variables. The first set of additional analyses conducted split up the Self-Report and Facial Affect contagion variables into Happiness and Sadness variables. Four ANOVAs were conducted, one on the Self-Report Happiness variable, one on the Self-Report Sadness variables, one on the Facial Affect Happiness Variable, and one on the Facial Affect Sadness variable. All of them used the four-level Instruction variable and the two-level Mood variable as predictors and the scores on the Emotional Contagion Scale as a covariate.

For the Self-Report Happiness variable, there was no effect for instruction. There was a significant effect for Mood ($F(1, 96) = 306.26, p < .01, r = .87$) such that participants in the Happy condition ($M = 4.45, SD = 1.09$) had higher scores for happiness than those in the Sad condition ($M = 1.00, SD = .92$). There was also a significant effect of Emotional Contagion Scale scores ($F(1, 96) = 5.89, p < .05, r = .24$). There were no interaction effects.

For the Self-Report Sadness variable, there was no effect for instruction. There was a significant effect for Mood ($F(1, 96) = 716.91, p < .01, r = .94$) such that participants in the Sad condition ($M = 4.80, SD = .77$) had higher scores for happiness than those in the Happy condition ($M = .69, SD = .84$). There was also a significant effect of Emotional Contagion Scale scores ($F(1, 96) = 4.82, p < .05, r = .22$). There were no interaction effects.

For the Facial Affect Happiness variable, there was no effect for instruction. There was a significant effect for Mood ($F(1, 94) = 56.53, p < .01, r = .61$) such that

participants in the Happy condition ($M = 1.94$, $SD = 1.25$) had higher scores for happiness than those in the Sad condition ($M = .56$, $SD = .46$). There was no effect for scores on the Emotional Contagion Scale, nor were there any interaction effects.

For the Facial Affect Sadness variable, there was no effect for instruction. There was a significant effect for Mood ($F(1, 94) = 10.00$, $p < .01$, $r = .31$) such that participants in the Sad condition ($M = 1.50$, $SD = .81$) had higher scores for happiness than those in the Happy condition ($M = 1.00$, $SD = .77$). There was no effect for scores on the Emotional Contagion Scale, nor were there any interaction effects.

Full Sample. MANOVAs were conducted using the entire 162 participant sample. As with the original pair of MANOVAs, one involved a four-level Instruction, while the other involved a two-level Instruction condition, comprised of sets of instruction that were supposed to decrease contagion (i.e., Dissociation and Empathic Reflection) and those that were not supposed to decrease contagion (i.e., Empathic Imagery and the Control). In both cases, Mood was the other factor and scores on the Emotional Contagion Scale was the covariate. Dependent variables were the Self-Report Contagion variable and the Facial Affect Contagion variable.

For the MANOVA that utilized the four-level Instruction variable, there was a significant effect for Emotional Contagion Scale scores ($\Lambda = .80$, $F = 18.77$, $df = 2$, 148 , $p < .01$, $r = .45$) and Mood ($\Lambda = .94$, $F = 4.49$, $df = 2$, 148 , $p < .05$, $r = .24$). Instruction did not provide a significant effect ($p = .25$), nor were there any significant interaction effects.

When examining the Between-Subjects Effects, Instructions still had no effect on either dependent variable. Otherwise, significance and directionality of effects

were identical to the truncated, 106-participant sample. Scores on the Emotional Contagion Scale were significant predictors of both Self-Report Contagion ($F(1, 149) = 31.17, p < .01, r = .42$) and Facial Affect Contagion ($F(1, 149) = 8.29, p < .01, r = .23$). Also, there was still a significant effect for Mood on Self-Report Contagion ($F(1, 149) = 3.85, p = .05, r = .16$) and Facial Affect Contagion ($F(1, 149) = 4.69, p < .05, r = .17$).

As for the MANOVA with the two-level Instruction Condition, For the MANOVA that utilized the four-level Instruction variable, there was a significant effect for Emotional Contagion Scale scores ($\lambda = .80, F = 19.02, df = 2, 152, p < .01, r = .45$) and Mood ($\lambda = .95, F = 4.25, df = 2, 152, p < .05, r = .23$). Instruction did not provide a significant effect ($p = .21$), nor were there any significant interaction effects.

When examining the Between-Subjects Effects, Instructions still had a marginally significant effect on Self-Reported Contagion ($F(1, 153) = 3.06, p < .10, r = .14$). Otherwise, significance and directionality of effects were identical to the truncated, 106-participant sample. Scores on the Emotional Contagion Scale were significant predictors of both Self-Report Contagion ($F(1, 153) = 32.82, p < .01, r = .42$) and Facial Affect Contagion ($F(1, 153) = 7.10, p < .01, r = .21$). Also, there was a marginally significant effect for Mood on Self-Report Contagion ($F(1, 153) = 3.71, p < .10, r = .15$) and a significant effect on Facial Affect Contagion ($F(1, 153) = 4.37, p < .05, r = .17$).

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