# *In the eye of the beholder: Attachment style differences in emotion perception*

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## *Abstract*

Attachment theory refers to the relationships individuals develop with caregivers or significant others in their lives. Specifically, adult attachment is concerned with the bond that develops between romantic partners, as categorized by four different adult attachment styles: Secure, Preoccupied, Dismissing, and Fearful. This study seeks to examine the role that adult attachment style might play in the perception of emotion in others, and whether there are individual differences in emotion perception accuracy among the different attachment styles in a sample of undergraduate college students. Based on previous research, the hypothesis was that Preoccupied individuals would show increased accuracy at perceiving emotions in others, while Dismissing individuals would show decreased accuracy at perceiving emotions in others. Attachment styles were determined through the use of the Experiences in Close Relationships-Revised inventory (ECR-R), and emotion perception accuracy was assessed using the Reading the Mind in the Eyes Task (RMET). Results indicated that while Preoccupied individuals did have increased accuracy and Dismissing individuals had decreased accuracy at perceiving emotions, this finding was confined to negative emotions. One proposed explanation for this finding is that a bias exists for Preoccupied and Dismissing individuals, and future research is suggested.

## Introduction

"Beauty is in the eye of the beholder", as the saying goes. While this does have a more romanticized meaning, this saying is also a case-in-point for one of the fundamental aspects of the field of psychology: individual differences. "Individual differences" refer to the disparity that exists between the minds of human beings. For example, individual differences explain why certain individuals are more intelligent than others, or why two individuals might disagree about what's attractive (thus, "beauty" is not a definitive term, but is instead open to interpretation). Individual differences are not always understood, however, and researchers are constantly trying to explain the vast amount of differences that exist (Tyler, 1965). This study is also concerned with individual differences, and seeks to explore the individual differences that exist in the perception of emotion in others.

Emotion researchers have noted marked differences in how accurate individuals are at decoding the emotional states of others, especially across cultures and in disordered individuals (Borod, Martin, Alpert, Brozgold, & Welkowitz, 1993; Ekman, Sorenson, & Friesen, 1969; Ekman & Oster, 1979; Gessler, Cutting, Frith, & Weinman, 1989; Masuda et al., 2008; Matsumoto & Ekman, 1989; Meyer, Pilkonis, & Beevers, 2004; Wagner & Linehan, 1999). Paul Ekman and Wallace Friesen identified six universal emotions that most individuals are able to read easily and accurately: Happiness, Sadness, Surprise, Fear, Anger, and Disgust (Ekman & Friesen, 1969). However, there are many more emotional states in the spectrum of human emotion, and more complex emotions are not always readily identified. Often, there are clues as to the emotional state of others, such as facial expressions, body language, gestures, and even eye gaze (Adams & Kleck, 2003, 2005; Ganel et al., 2005; Graham & LaBar, 2007; Sander et al., 2007). It is these clues that allow us to make a judgment about the emotion that another person is currently feeling, and to then act accordingly. However, humans are not always correct in their judgments, and errors can be made. For example, an individual who is crying would typically be perceived as sad, though that individual could also be crying out of joy or even anger. In this instance, trying to cheer the individual up is not always the best course of action, even though it might be one's first instinct.

The Theory of Mind is one way to help explain these individual differences in emotion perception. Theory of Mind is defined as the ability to attribute thoughts and feelings to the self and others (Premack and Woodruff, 1978). Infants are capable of following eye-gaze direction in others at around 6 months (Baron-Cohen, 1995), and are able to recognize and attribute desires other than their own to others around age two (Baron-Cohen, 1993). Since this is an ability that has ample time to fully develop, it can become finely-tuned to subtle emotional cues. Based on this theory, it follows that if an individual differs in any way from what is considered "normal emotion", then their ability to accurately perceive emotions in others will also be abnormal. This theory has led researchers to explore the role that psychological disorders can play on emotion perception, as these disorders often result in difficulty managing one's own emotions, and many of these researchers have found that impaired social judgment is often a basic symptom of psychological disorders, such as autism, schizophrenia, or borderline personality disorder (Bateman & Fonagy, 2003; Bender & Skodol, 2007; Borod et al., 1993; Davies, Bishop, Manstead, & Tantam, 1994; Gross & Munoz, 1995; Hobson, 1986; Kerr & Neale, 1993; Levy, 2005; Levy et al., 2006; Mennin, Turk, Heimberg, & Carmin, 2003; Ozonoff, Pennington, & Rogers, 1990; Schultz, 2005; Westen, 1991). These findings suggest that abnormal development does indeed play a role in the accuracy of emotion perception, and has led researchers to explore other factors that might not be associated with a clinical disorder, such as attachment style.

Attachment Theory was developed by John Bowlby (Bowlby, 1969; Bowlby, 1973; Bowlby, 1980), a researcher who was interested in examining the distress infants and toddlers displayed when separated from their caregivers. His theory states that children develop bonds with their caregivers which cause the children to become "attached" to them. When a child is separated from its mother, the child exhibits certain attachment behaviors, such as crying, searching for the mother, or vocal signaling. He postulated that this served an adaptive purpose, as infants are unable to care for themselves, but are instead dependent on their parents, which leads them to develop an attachment bond with their parents to avoid separation (Bowlby, 1969; Bowlby, 1973; Bowlby, 1980). However, a student of Bowlby's, Mary Ainsworth, noticed that not all children behaved the same way after being separated from their caregivers. To try and

explain this individual difference, she designed an experiment known as the Strange Situation (Ainsworth et al., 1978; Ainsworth, 1985). During the Strange Situation, infants are separated from their mothers for a period of time, and are observed by researchers who note the child's reactions to their mother's departure. When the mother returns, the infants are again observed to see how they react to being reunited with their caregiver. Ainsworth noted that there were three distinct styles of attachment that the infants exhibited: Secure, Anxious-Resistant, and Avoidant (Ainsworth et al., 1978). Secure infants were distressed by their mother's departure, but were easily consoled upon her return. Anxious-Resistant infants are extremely distressed by their mother's departure, and are not easily consoled even when she returns. Avoidant children are not distressed by their mother's departure, and ignore their mothers when they return. In recent years, a fourth attachment style has also been proposed, known as Disorganized (Main & Solomon, 1990). Disorganized infants lack a coherent strategy for coping with separation from their mother, and seem confused.

Based on this attachment theory, researchers began to question whether or not these attachment styles remained throughout the course of an individual's life. In 1987, Cindy Hazan and Phil Shaver examined attachment between romantic partners (Hazan & Shaver, 1987). They found that like infant attachment, romantic partners exhibit many of the same attachment behaviors with each other. This has led to the development of the Adult Attachment Theory, which states that adults develop bonds with their romantic partners in much the same way as infants do with their caregivers.

Like infant attachment, adult attachment has been separated into four distinct categories: Secure, Preoccupied, Dismissing, and Fearful (Bartholomew & Horowitz, 1991). Secure adults are comfortable with intimacy and independence, and report greater relationship satisfaction than the insecure attachment styles. The Secure attachment style is considered the "healthiest" of the four adult attachment patterns. Preoccupied individuals have a strong desire for intimacy, and are distressed by independence. Preoccupied adults are often "clingy", mistrustful of others, and highly expressive of their own emotions. Dismissing individuals have a strong desire for independence at the expense of intimacy. Dismissing adults suppress their own emotions, and can consider relationships unimportant, since they often consider their romantic partners to be less important. Fearful individuals are uncomfortable being emotionally close in relationships, even though they desire intimacy. Fearful adults often have trouble initiating or maintaining relationships with others due to this mixed behavior.

Adult attachment was originally measured categorically, with measures asking subjects which of the four styles most closely matched their own personality (Hazan & Shaver, 1987). However, recent research has shown that adult attachment is better assessed dimensionally rather than categorically (Brennan, Clark, & Shaver, 1998; Fraley & Waller, 1998). In other words, modern measures of adult attachment attempt to measure subjects' scores along a scale, which can then be used to place subjects into individual attachment styles. Kelly Brennan, Catherine Clark, and Phil Shaver developed the Experiences in Close Relationships inventory, or ECR, which assesses subjects along two scales: anxiety and avoidance (ECR; Brennan, Clark, & Shaver, 1998). The ECR measures subjects' scores on both scales, which can then be used to assess attachment style based on a four-quadrant model of adult attachment (see Figure 1). Secure individuals have low anxiety and low avoidance, Preoccupied individuals have high anxiety and low avoidance, Dismissing individuals have low anxiety and high avoidance, and Fearful individuals have high anxiety and high avoidance.

The research that has been conducted on the role of attachment in emotion perception has been mixed, and a general consensus has yet to be reached (Fraley et al., 2006; Levinson & Fonagy, 2004; Meyer et al, 2004; Niedenthal et al., 2002). A possible explanation for this is that the measures of emotion perception vary widely. One of the most popular methods of assessing emotion perception is by using facial expression recognition. Facial expression recognition relies on the ability of individuals to decode the mental states of others based on facial cues, such as smiling, frowning, raising the eyebrows, exposing the teeth, etc., from photographs of different faces. While facial expression recognition tasks are reliable and valid measures of emotion perception, they tend to be rather easy for the majority of so-called normal individuals (Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001). This can create a ceiling effect, which can prevent researchers from obtaining a true measurement of ability. For example, if someone who has average emotion perception skills can still manage to get every item correct on a facial expression recognition task, then someone who has above-average emotion perception skills will not be able to be differentiated from those with average abilities.

In an attempt to overcome this problem, a new emotion perception task was developed, known as the Reading the Mind in the Eyes Task. The Reading the Mind in the Eyes Task, or RMET, was developed by Simon Baron-Cohen and colleagues in order to assess individuals' abilities to pick up on subtle emotional cues (Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001). The RMET is based on the premise of perceiving emotional states in others through the eyes, and evidence has shown that humans are capable of accurately decoding complex emotional states from the eyes of others (Baron-Cohen, Wheelwright, & Jolliffe, 1997), and not just the six basic and universal emotions (Ekman & Friesen, 1969). The RMET consists of a series of sectional photographs of human faces, specifically the eye region. The task asks participants to identify which emotion each photograph is displaying based on 4 emotional descriptors. Since the photographs display complex emotional states, as opposed to basic ones, it is dependent on participants' attention to subtle cues, which can make it a more difficult measure. This increase in difficulty will eliminate the ceiling effect experienced when using facial expression recognition tasks. Because of this, the RMET can be a more accurate measure of emotion perception than measures that incorporate the entire face.

The current study seeks to examine the role that attachment plays in emotion perception using the RMET. Based on previous research, it was hypothesized that security of attachment (Secure individuals) as compared to insecurity (Preoccupied, Dismissing, and Fearful individuals) would show greater overall accuracy at the RMET. It was also hypothesized that Dismissing individuals would show worse accuracy with negative emotion, while Preoccupied individuals would show greater accuracy with negative emotion. The logic for the first hypothesis relies on the fact that Secure individuals are considered the healthiest in terms of regulating their own internal emotions, which according to the Theory of Mind, would make them the healthiest in terms of perceiving emotions in others. The logic for the second and third hypotheses relies on the fact that Dismissing individuals would be less perceptive of negative emotion due to their tendency to brush off negativity in others, as a kind of defense mechanism (Levinson & Fonagy, 2004). Preoccupied individuals, on the other hand, would be more perceptive of negative emotion, due to their tendency to always be on the lookout for the worst in others.

Methods

*Participants*

        Participants were made up of a group of 232 students from a large northeastern university, and were selected through a psychology subject pool for an introductory psychology course. In exchange for participating, students received credit towards their research participation requirement for the course. Of the 232 participants, 66% were female, 82% were Caucasian, and all participants were between the ages of 18 and 39, with a mean age of 19. A total of 17 infrequency items were included with the measures, and some participants were excluded from analysis based on their responses to these infrequency items. The infrequency items included questions such as "I walk with a limp due to a skydiving accident" and "I have never combed my hair before going out in the morning". Participants were excluded if their responses to these infrequency items were outside the norm for more than three items. Eight participants were excluded based on this method, leaving the sample with 224 participants. Further justification for their exclusion was found by examining the self-report measures from these eight, which seemed to suggest carelessness or inattentiveness in answering (answering the same thing for every question, or answering inconsistently on similar questions).

*Measures*

        *ECR-R*. The Experiences in Close Relationships-Revised Adult Attachment Questionnaire is a 56-item measure of attachment related anxiety and attachment related avoidance (Fraley, Waller, & Brennan, 2000). Internal consistency reliability is about .90 for the ECR-R, making it a reliable and valid measure (Sibley & Liu, 2004; Lancee, Maunder, Fraley, & Tannenbaum, 2004). The ECR-R is designed to assess personal experiences in romantic relationships with regards to anxiety and avoidance. There are 28 items to assess anxiety, and 28 for avoidance. Sample items include "I rarely worry about being abandoned" and "I am afraid I will lose my partner's love". Each item was presented on a 7-point Likert scale, with a 1 being "Strongly Disagree" and a 7 being "Strongly Agree". Continuous scale scores were calculated for each of the two subscales from the averages of their corresponding items.

*Experimental Tasks*

        *Reading the Mind in the Eyes Task (RMET).* The RMET is a 36-item measure of emotional perception (Baron-Cohen et al., 2001). Subjects are presented with black-and-white stimuli (photographs) of the eye region of faces (i.e., from the nose to the brow). Stimuli were presented in the center of a computer screen, with a white background (see Figure 2). Stimuli were preceded by a fixation cross, and accompanied by four mental state descriptors (e.g., "Contemplative", "Suspicious", "Amused", "Annoyed"). Since there is only one target, the other three descriptors serve as distracters. All four descriptors were positioned in the four corners of the computer screen, and were equidistant from the center. Subjects are asked to select one of the four descriptors by pressing the corresponding number key (1, 2, 3, or 4), which records their responses and triggers the next photograph. All 36 photographs were randomly presented, and subjects' choices and response times (in milliseconds) were recorded by the computer program.

        *Classification of Stimuli.* A pilot study was conducted to determine emotional valence of the RMET stimuli. 40 undergraduate students rated each of the photographs on a 7-point scale, with 1 being very negative and 7 being very positive. This data was used to classify all of the 36

RMET stimuli as positive, negative, or neutral.  This was then used to examine the accuracy of the participants in the current study, who were also asked to rate the photographs by emotional valence.

Each of the 36 stimuli were presented one at a time in the center of the computer screen with a white background, in random order.  Stimuli with mean ratings significantly below neutral were classified as negative; stimuli with mean ratings significantly above neutral were classified as positive; stimuli with mean ratings that did not differ from neutral were classified as neutral (Harkness et al., 2005).  The result was 10 negative stimuli, 17 neutral stimuli, and 9 positive stimuli.  RMET accuracy scores were calculated as the percentage of items in a particular valence where subjects chose the correct descriptor.  RMET response times were calculated as the average response time in each valence category.

*Procedure*

Subjects were asked to come in to the laboratory in groups of one to four people for the administration of the experiment.  Subjects were briefed on the purpose and content of the study, and asked to provide written informed consent.  They were then seated at separate desks and asked to fill out the ECR-R.  After completing the questionnaire, subjects were provided with separate computers for the RMET.  Once the RMET was finished, subjects were thanked, debriefed, and dismissed.

Results

Analyses were conducted using SPSS 17.0 (SPSS Inc., Chicago, IL). Using multiple regression analyses, attachment anxiety and avoidance were examined as predictors of interpersonal accuracy in facial emotion recognition.  Avoidance and anxiety were independent variables, while accuracy was the dependent variable.  Four types of emotion recognition variables were examined: overall accuracy (which included composite positive, negative, and neutral valence scores), positive accuracy, negative accuracy, and neutral accuracy.

For overall accuracy, variables were entered simultaneously, and findings indicated that neither attachment anxiety nor attachment avoidance predicted accuracy on the RMET.  In other words, anxiety was unrelated to overall accuracy ($\beta = .002$, $p = .715$), as was avoidance ($\beta = .001$, $p = .896$).  These results suggest that overall, there is no relationship between attachment style and accuracy in emotion perception.

For negative emotions, variables were entered simultaneously, and findings indicated that attachment anxiety positively predicted enhanced emotion recognition in negative emotion conditions, which was significant at .1 level ($\beta = .015$, $p = .099$).  Avoidance was negatively related to recognition of negative emotion states, such that the more avoidant the participant was, the worse their accuracy score was for detecting negative emotions.  This relationship was also significant at a .1 level ($\beta = -.018$, $p = .087$).  Results for emotional valences other than negative failed to show any significant results.

From these results, it follows that highly Preoccupied participants are more accurate on the RMET than highly dismissing participants.  Fearful and Secure participants do not differ significantly, and fall somewhere between Preoccupied and dismissing participants with respect to RMET accuracy.  This effect is thus driven by both the anxiety and avoidance dimensions.  This pattern can be referred to as "hyperactivating vs. deactivating", as Preoccupied participants hyperactivate and dismissing participants deactivate with regards to emotion perception.

Discussion

The results partially supported my hypotheses.  While there was no difference in emotion perception accuracy between the attachment styles with regards to overall accuracy, insecurely attached Preoccupied individuals had better accuracy on the RMET than the other three groups with regards to negative emotion, and insecurely attached Dismissing individuals had worse accuracy on the RMET than the other three groups with regards to negative emotion.  However, there were no significant differences between the four groups' accuracy for neutral or positive stimuli.  In other words, the more anxious and less avoidant individuals are with respect to attachment, the higher their accuracy will be at perceiving negative emotions in others.

This finding is consistent with the "Hyperactivating vs. Deactivating" theory, in that the hyperactivating Preoccupied individuals are going to be more aware of the emotional states of others, while the deactivating Dismissing individuals are going to be more likely to ignore the emotional cues from others.  However, since this seems to only be the case for negative stimuli, it is likely that there is another factor at work.  This could be due in part to a general tendency by Preoccupied individuals to distrust the intentions of others, which would lead them to choose more negative emotion words on the RMET as a rule.  Naturally, if Preoccupied individuals have a tendency to choose negative responses, they are going to be much more accurate on the negative stimuli than others.  Likewise, Dismissing individuals are highly independent and more aloof than the other attachment styles, a characteristic that in relationships helps them cope with rejection or negative emotions in a neutral and uncaring fashion, as a kind of defense mechanism.  For example, if a Dismissing individual was involved in a fight with a significant other, he/she would ignore the negative emotions that the significant other would be exhibiting out of the Dismissing tendency to remain relatively detached from the emotional closeness that would lead the Dismissing individual to feel hurt by the negativity from his/her significant other.  This tendency would mean that Dismissing individuals would ignore the negative cues from the RMET, and tend to pick more neutral responses instead.  This is further supported by the fact that the results show a slight tendency, albeit not a significant one, for Dismissing individuals to perform better on neutral stimuli, and Preoccupied individuals to perform worse on neutral stimuli.  Once again, this could be due to the Dismissing tendency to choose more neutral responses because Dismissing individuals would ignore negative cues, and Preoccupied individuals would perform worse on neutral stimuli out of the Preoccupied tendency to distrust the intentions of others, resulting in a sense that neutral faces harbor an ulterior motive.

The study was not without limitations, however, due to the nature of the methodology.  The participants were all college students recruited through a university subject pool, and students were receiving course credit for participation.  Credit was awarded for each student based on whether or not the student was present during the administration of the study, not on whether they read all the measures carefully and responded accurately.  Because of this, it is possible that not all the students who participated in the study responded honestly or performed to the best of their ability.  The infrequency items were also only included in the measures for roughly half of the participants (the later half) in an attempt to provide a method of checking for reliability, and the first half of participants run through the study were without these items.  It should also be noted that the use of infrequency items to exclude participants from analysis is not a flawless system.

The implications of this study are important for relationship research.  Preoccupied individuals, who are hyper-vigilant of negative emotions in others, will likely experience

difficulties in romantic relationships, as they will be more acutely aware of their partner's negative emotions than positive or neutral ones. This could potentially lead to a more chaotic and contentious relationship, marked by frequent fights. Likewise, Dismissing individuals could experience problems in their relationships due to their tendency to ignore negative cues, which could create communication problems with their partners. For example, a Dismissing individual might ignore his/her partner's cues about a negative emotion the partner might be feeling, which could cause the partner to think that the Dismissing individual is ignoring them altogether.

       Further research is suggested, and indeed required, in order to determine the true nature of this relationship between attachment and emotion perception. In order to determine if the theory that the differences in accuracy for negative stimuli is accounted for by a bias instead of an actual advantage, it is necessary to continue this research by considering the error choices of each participant to determine whether such a bias exists. For example, if a participant identified as having a Preoccupied attachment style consistently chooses more negative choices for all the RMET stimuli, and not just for the negative ones, then it is likely that the increased accuracy on negative stimuli is due to a negativity bias. The same is true for Dismissing individuals, who would tend to choose more positive error choices for all stimuli. It is also worth considering the role of Borderline Personality Disorder (BPD) in this relationship, as BPD and insecure attachment are closely linked (Fonagy et al., 1996; Meyer, Pilkonis, Proietti, Heape, & Egan, 2001; Patrick, Hobson, Castle, Howard, & Maugham, 1994; Rosenstein & Horowitz, 1996; Stalker & Davies, 1995). In particular, most borderline individuals fall into the Preoccupied attachment category, and past research has shown that borderline individuals do indeed appear to have a negativity bias (Nigg, Lhor, Westen, Gold, & Silk, 1992; Arntz & Veen, 2001; Domes et al., 2008; Meyer et al., 2004; Wagner & Linehan, 1999).

       While not perfect, this study has shown that there does appear to be a relationship between attachment style and emotion perception in others. With further investigation, it is possible to shed even more light on the nature of this relationship, which could help shape both attachment theory and relationship research in the future. The results are intriguing, and it would be very interesting to see if the relationship could attain greater significance with more power. With more research, I believe that it will be possible to predict accuracy in emotion perception using only an individual's attachment style, a theory which without a doubt warrants further exploration. Though the saying is that "beauty is in the eye of the beholder", there is something to be said about emotion being in the eye of the beholder, as well.

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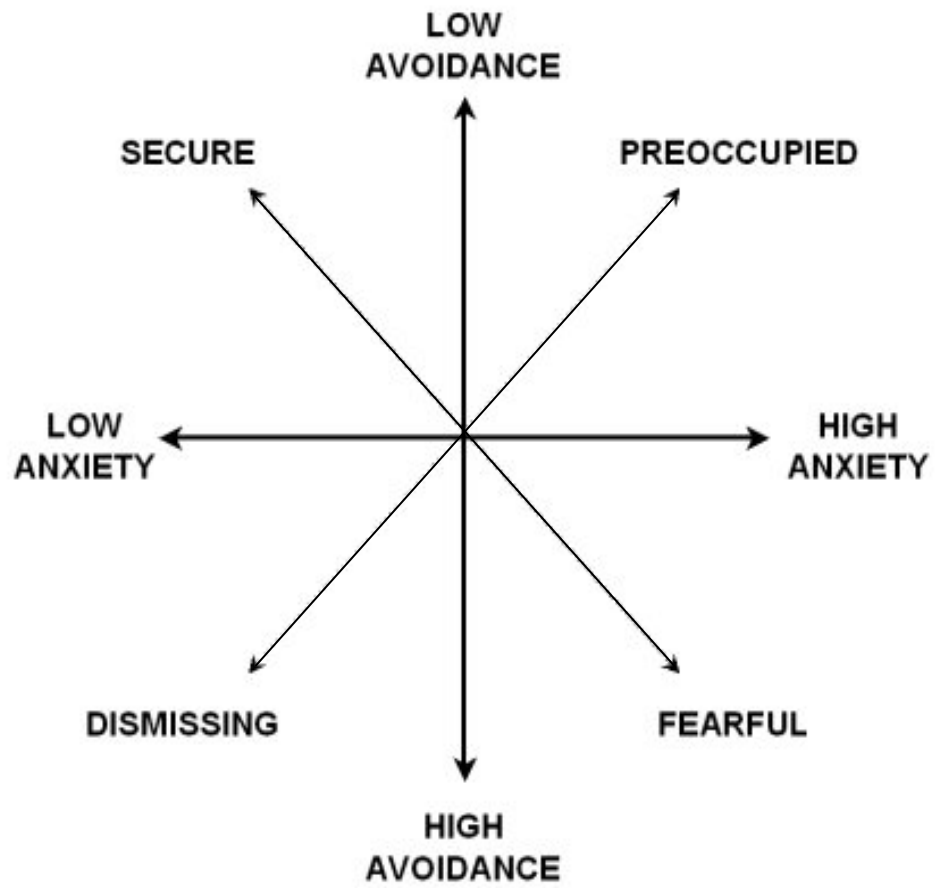*Figure 1.* ECR anxiety-attachment scale four-quadrant model.

*Figure 2.* Sample item from the RMET (*playful* is the target response).