Mating Cues and Declarative Memory: Signaling the Presence of Desirable Mental Skills

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MATING CUES AND DECLARATIVE MEMORY: SIGNALING THE PRESENCE OF DESIRABLE MENTAL SKILLS

By

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ABSTRACT

Theories of sexual selection suggest that people often engage in motivated social signaling (i.e., strategically signaling desired characteristics to others). For example, those who are motivated to find a mate are likely to display characteristics that are desired by potential mates. Results from two preliminary studies provide evidence that mating motives lead people to display enhanced memory retrieval – a skill that could be used to broadcast the presence of desirable mental traits. In an attempt to replicate those findings, a new experiment was conducted in which mating-related concepts were primed and subsequent performance on declarative memory for images (basic recognition) and the locations in which they were displayed (associative memory) was measured. A second phase of testing measured the amount of effort exerted by participants when completing the initial memory test. Results revealed an effect in the opposite direction of that seen in the preliminary studies, such that participants who were exposed to a semantic mating prime displayed decreased memory for neutral images seen earlier in the experiment. Possible explanations for this reversal are discussed, focusing on the cognitively depleting nature of the manipulation used in the current study. Proposed future directions center on ways to design a critical test to determine the circumstances under which mating primes can improve or hurt memory performance.
CHAPTER 1
INTRODUCTION

Why do people present themselves in a certain way during social interactions? Important insight into this admittedly broad question can be gained by examining the goals of the presenter. One of the primary functions of self-presentation is to strategically convey information about oneself to others (Leary, 1995). Aside from wanting to be seen as a likeable person, people may want to signal more specific characteristics about themselves. For example, if people want to signal that they are deserving of a position of high status, they should signal that they are intelligent, competent and hard-working. When one wants to signal that they would be a good friend, one might emphasize one’s openness and willingness to reciprocate favors.

When presenting themselves as a desirable mate, people may act differently depending on their sex and whether they are pursuing long or short-term mating goals, but they can generally be expected to display traits that they believe will make themselves appear more attractive as a romantic partner. In addition to presenting physical traits others consider to be attractive, mental traits such as sense of humor, intelligence, creativity, and one’s attitudes or interests are very important to potential mates (Buss, 1989; Marlowe, 2004; Li, Bailey, Kenrick, & Linsenmeier, 2002). These mental qualities are especially important to people who are seeking long-term partners (Miller, 2000; Buss, 1989).

Previous investigations into the signaling of mental traits in a mating context have revealed that exposure to mating cues can activate mating goals, which can in turn lead to displays of enhanced creativity (Griskevicius, Cialdini, & Kenrick, 2006). This provocative finding suggests that displays of cognitive abilities can vary depending on one’s fundamental social goals and it raises the intriguing question of whether other cognitive abilities (in addition to creativity) might be enhanced by exposure to mating cues. The current work will attempt to further develop this line of inquiry by examining the impact of active mating goals on memory performance.
1.1 Sexual Selection and the Signaling of Desirable Mental Traits

The notion that people and other animals display desirable traits in order to attract mates is derived directly from Darwin’s theory of sexual selection (Darwin 1859, 1871). This idea has since been refined as the “good-genes” theory of sexual selection, which suggests that the phenotypic characteristics for which mates are selected are often the external indicators of adaptations that have occurred at the genetic level (Fisher, 1915). Several variations of good-genes sexual selection theory have been proposed, each focusing on different ways in which mates are selected based on desirable characteristics (Greiling & Buss, 2000).

Many versions of sexual selection theory emphasize a central role of female choice in driving the process of evolution by sexual selection (Darwin, 1871; Weismann, 1904; Fisher, 1930, Williams, 1966). These theories suggest that, among species in which females have high levels of initial obligatory parental investment, females control access to sex and therefore their choice of a mate strongly influences which heritable characteristics will be passed on to the next generation. A classic example of the influence of female choice can be seen in species of birds that mate using a practice referred to by ethologists as “lekking” (Balmford, 1991). In these species, males will compete vigorously with one another to produce a display that is more attractive to females than the displays produced by the other males. There is typically a strong consensus among the females regarding which male produced a superior display and these females will grant sexual access to the superior male while excluding the remainder of the males. The current work is most directly influenced by Miller (2000), whose formulation of good-genes sexual selection suggests that while female choice may be the driving force behind sexual selection in some species, this is not necessarily the case in humans. People of both sexes are generally quite selective regarding the mental characteristics of their mates, particularly when selecting a long term mate.

Furthermore, Miller suggests that due to the relatively concealed period of ovulation in humans (compared to other primates), long-term mating has driven much of recent human evolution. The logic behind this speculation is that because both partners in a sexual relationship tend to be relatively uncertain of the brief period during which the woman is fertile, repeated copulations over a period of weeks or months would have been necessary in order to ensure
conception. While some short-term mating does occur in humans, it is reasonable to conclude that long-term relationships have a greater probability of resulting in conception. Thus, long-term mating has most likely played a substantial role in shaping mate selection processes. Furthermore, because both men and women place a high value on mental capacities such as intelligence and creativity in long-term mates, it follows that people would display these abilities to potential partners.

The notion that humans signal the presence of desired mental abilities to potential mates represents a shift in focus from earlier versions of good-genes theory that emphasized the display of physical fitness indicators such as facial symmetry and waist-to-hip ratio (Thornhill & Gangestad, 1999; Singh, 1993). Unlike physically attractive traits, mental traits cannot be directly observed. It follows that people would have needed to rely on behavioral displays to signal the presence or absence of desirable mental traits. Based on previous evidence in support of signaling theory, I propose that activation of a mating goal will lead to enhanced displays of cognitive processes that could signal desirable traits to a prospective mating partner.

As mentioned previously, an excellent example of a desirable mental ability that can be signaled to potential mates through behavior is creativity. Recent empirical work tested the effects of mating motives on creative displays and found that activation of a mating goal increased creative displays (Griskevicius, Cialdini, & Kenrick, 2006). In their discussion of the potential mechanisms that might have produced displays of creativity, Griskevicius and colleagues speculated that the mating prime “enabled superior accessibility to relevant but remote informational links.” However, this hypothesis was not directly tested in their research. The current work, therefore, will test the hypothesis that exposure to mating cues enhances people’s ability to retrieve associated pieces of information from memory.

The notion that mating motives promote the use of memory as a signaling device is a novel contribution to the literature on mate preferences (Buss, 1989; Marlowe, 1997; Li, Bailey, Kenrick, and Linsenmeier, 2002). Indeed, “good memory” is not usually found in lists of valued mate characteristics, nor is it often listed as a “turn-on” in more popular accounts of desired traits. However, traits such as general intelligence and ability to obtain valuable resources are known to be important (particularly when selecting a long-term mate) and are directly related to memory ability. Indeed, there is empirical support for the notion that individual differences in
intelligence and resource acquisition are dependent on memory performance. For example, a meta-analysis of the cognitive abilities that influence general intelligence scores revealed that memory is a significant predictor (Grubb & McDaniel, 2000). Evidence also suggests that success at obtaining resources in the wild and achieving educational goals relevant to career success depend on memory skill (Sherry & Schacter, 1987; Reser, 2009; Fagan, Holland, & Wheeler, 2007).

Some prior investigations have begun to examine the link between mating motives and memory. For example, previous research has demonstrated superior memory for attractive female faces (compared with average-looking female faces and male faces) (Becker et al., 2005; Maner, et al., 2003). Although those studies suggested that the superior recognition memory for attractive women might be due to mating-related motives in the perceiver, mating motives were neither measured, nor manipulated, so there was no direct evidence for the role of mating motives. Moreover, the relationship between mating motives and memory in those previous studies reflects a different mechanism than the one proposed in the current investigation. Those previous studies suggested that if people are interested in finding a mate, they might display strong memory for prospective mating partners. As such, those studies said little about signaling – the extent to which memory might help signal desirable qualities to potential mates. The current work, in contrast, focuses more directly on the possibility that memory might serve as a signaling device.

Although the theoretical background and empirical work I have presented thus far support a potential enhancement of cognitive abilities upon exposure to attractive potential mates, it is worthwhile to consider research suggesting an opposite prediction. Recently published empirical work suggests that when men interact with attractive women, this social interaction can be detrimental to cognitive performance (Karremans, et al., 2009). In one study, participants completed a working memory task before and after interacting with an opposite sex confederate. Performance was found to decline following the interaction and was found to be negatively correlated with the perceived attractiveness of the confederate. In another study, participants completed a cognitively demanding task prior to and following an interaction with another participant who was of the same or opposite sex. This task displayed words to participants in different colors and required that, depending on the color of the word, they either
judged the word to be positively or negatively valenced or to ignore the content of the word and simply state the color in which the word was displayed. The main finding of these studies was that performance on this task was reduced following an interaction with an attractive opposite-sex participant.

It is important to note that the dependent variable in both of Karremans’ studies was not actually a measure of performance accuracy (as the current experiment will use), but rather a measure of response time. The authors suggested that “slower response times on correct trials indicate worsened cognitive functioning.” Although it is objectively true that participants in the mating condition responded more slowly, it is reasonable to speculate that this delay in response time might have reflected an increase in effort, rather than simply a decrease in performance. The possibility that mating motives increase effort in this way will be assessed in the current study.

Although the aforementioned findings by Karremans and colleagues might be seen as providing support for the hypothesis that mating motives produce cognitive impairments rather than enhancements, it is also possible that their manipulation, which required participants to interact with an unfamiliar attractive member of the opposite sex, resulted in the experience of anxiety among participants. This could have led them to be distracted and/or depleted when completing the memory measure. If this were the case, the decreased cognitive performance observed in these studies may not have resulted specifically from mating motives, as any anxiety-provoking interaction (e.g., a job interview, a public speech) would be expected to produce similar effects.

The literature on human memory outlines several distinct types of memory (Radvansky, 2005). The current study will focus on declarative memory, which is concerned with facts and events of the physical world (Tulving & Markowitsch, 1998). The reason for this focus is that my hypothesis suggests that memory performance is a mental ability that can be displayed or signaled to potential mates. Declarative memory involves the ability to declare or discuss information with other people. By comparison, other types of memory (e.g., implicit memory) involve an individual’s private experience. The public nature of declarative memory makes it particularly useful for testing the proposed model of memory performance as a signaling tool.
Declarative memory is further divided into semantic and episodic memory. Semantic memory deals with abstract knowledge (e.g., knowing that wheels are round). Episodic memory deals with specific factual knowledge (e.g., knowing that someone’s favorite fruit is an apple). My experiment will examine episodic memory performance. Though semantic memory could conceivably be used to signal the presence of intelligence and memory skill, examining the ability to retrieve previously viewed images and their locations from memory is particularly well-suited to a controlled experimental context. This type of task would require participants to use their memory in a manner similar to that in which memory is thought to have been used in the tasks of hunting and gathering, tasks that were important in the daily lives of humans throughout most of the history of our species (Marlowe, 2005).

It is reasonable to predict that activation of a mating goal will enhance memory ability in both sexes. As Griskevicius and colleagues (2006) showed, mating cues enhance displays of creativity in both men and women. However, this effect was found in women only when cues activated motives to attract a long-term high-quality mate. By comparison, the same effect was found in male subjects regardless of the properties of the mating cue; they occurred when either short-term or long-term mating was primed. This is consistent with previous studies suggesting that men are relatively more interested in short-term mating relationships than women are (e.g., Buss & Schmitt, 1993). Because examination of sex differences was not the goal of the current study, I used primes that contained cues associated with both long-term and short-term mating goals.

Although men and women are both expected to be responsive to the mating goal prime, there is some reason to expect that effects of primed mating motives on memory might be somewhat more pronounced among men than among women. A review of the literature on the human sex drive reveals strong evidence that men experience stronger baseline levels of mating motivation than women (Baumeister, Catanese, & Vohs, 2001). If enhanced performance results from greater levels of motivation and effort, it is reasonable to suspect that effects might be relatively greater in male participants than in female participants. This prediction is also consistent with research suggesting that in the vast majority of species, especially mammals, males are more likely than women to display sexually selected traits during courtship (Cronin, 1993). Because the theoretical support for the prediction of a sex difference in the current work
is mixed, this will be treated as a supplemental prediction rather than a central component of my main hypothesis.

In summary, this research extends to the domain of human memory previous work suggesting that mating cues trigger displays of enhanced cognitive performance. Specifically, it will test the prediction that activation of a mating motive will cause participants to display an increased ability to retrieve from memory previously viewed images and the locations of these images. I will test this prediction by systematically exposing participants to a series of images in various locations on a screen, followed by a mating prime or a control prime. Participants will then be asked whether they recognize the previously viewed images when presented among novel images, as well as whether they recognize which of the previously seen images are in the same location as when they were originally viewed and which are in different locations.
CHAPTER 2

PRELIMINARY DATA

Two experiments testing for the effect of active mating motives on memory performance were conducted prior to the design and execution of the current study, which was an attempt to build upon these findings.

2.1 Preliminary Study 1

Fifty-eight participants (30 women and 28 men) viewed ten opposite-sex faces that were pre-rated as highly attractive or as average in attractiveness. Several previous studies have shown that exposure to highly attractive faces can prime mating related motives (e.g., Baker & Maner, 2008; Wilson & Daly, 2004). While viewing the faces, participants listened via headphones to a spoken account of two men who spend a day completing various errands and engaging in social interactions. Participants were instructed to pay attention to both the story and the faces and were told that they would be asked to remember this information later in the session. Finally, participants answered several questions designed to test their memory for the details of the story.

A 2 (attractive vs. average faces) x 2 (participant sex) analysis of variance revealed a significant sex by condition interaction ($F(1, 54) = 4.60, \ p < .05, \ \eta^2 = .08$). Subsequent within-sex analyses revealed that although the memory performance of female participants did not vary by condition ($F(1, 28) = .41, \ p = .53, \ \eta^2 = .01$), men who viewed attractive female faces while listening to the story remembered more details than men who viewed average faces ($F(1, 26) = 5.75, \ p < .05, \ \eta^2 = .18$). That is, mean retrieval did not differ as much by condition for women ($M_{\text{attr}} = 2.44, M_{\text{avg}} = 2.79$) as it did for men ($M_{\text{attr}} = 2.81, M_{\text{avg}} = 1.50$).

Although this provides preliminary evidence in support of my hypothesis that exposure to mating cues enhances memory performance, important questions remained unanswered. It seemed possible that this memory enhancement could have occurred for multiple reasons. The explanation most consistent with my hypothesis is that participants experienced enhanced mating motives in response to the attractive opposite faces, which led them to display desirable mental
abilities. This would suggest that mating motives enhance memory retrieval. An alternative possibility is that presenting information (the story) simultaneously with arousing stimuli enhanced participants’ tendency to encode the information. Because the attractive faces were presented simultaneously with the story, I was unable to determine whether the observed effect was attributable to changes in performance during encoding, retrieval, or at both stages. Preliminary Study 2 was designed to overcome this limitation.

2.2 Preliminary Study 2

Two hundred twenty-eight participants (123 women and 105 men) viewed the same faces and listened to the same story as in preliminary Study 1. However, the order of presentation was altered in an attempt to rule out the possibility that effects in Study 1 were driven by an enhancement in encoding rather than an enhancement in retrieval. Participants were exposed to the stimuli in one of three orders. In the “encoding enhancement” condition, participants viewed attractive opposite sex faces, followed by an audio presentation of the story, then viewed opposite sex faces of average attractiveness, and finally completed a test of their memory for the details of the story. Thus, in the “encoding enhancement” condition, the mating cues (attractive faces) were perceived immediately prior to encoding. In the “retrieval enhancement” condition, participants viewed average-looking opposite sex faces, listened to the story, then viewed attractive opposite sex faces, and finally completed a test of their memory for the details of the story. Thus, in the “retrieval enhancement” condition, the mating cues (attractive faces) were perceived immediately prior to retrieval. Participants in a control condition viewed average-looking opposite sex faces prior to both the story and the memory test, and thus involved no exposure to a mating prime.

A 3 (“encoding enhancement” vs. “retrieval enhancement” vs. control) x 2 (participant sex) ANOVA did not reveal any significant main effects of condition ($F(2, 222) = 1.99, p = 0.14, \eta^2 = .02$) or interactions between condition and participant sex ($F(2, 222) = 0.28, p = 0.76, \eta^2 = .002$). However, a planned comparison (retrieval enhancement vs. other conditions) revealed that participants (both men and women) who viewed attractive faces prior to retrieval remembered significantly more details ($M = 4.01$) than participants in the other two conditions ($M = 3.60$) ($F(1, 226) = 3.91, p < 0.5, \eta^2 = .02$).
This effect did not interact significantly with the gender of the participant. Based on the findings from Study 1, however, we were curious as to whether the size of the effect might be relatively greater in men as compared with women. Indeed, subsequent within-gender analyses revealed that this effect was somewhat stronger in men \( (F(1, 103) = 2.97, \ p = .09, \ eta^2 = .03) \), compared to women \( (F(1, 121) = 1.13, \ p = .29, \ eta^2 = .01) \). Nevertheless, I am cautious to interpret this as a reliable sex difference, given the lack of statistical interaction.

These results suggest that exposure to mating cues (attractive opposite-sex faces) produced an enhancement in retrieval ability and that this effect was perhaps a bit more prominent in men than in women (though, again, the interaction with sex was not statistically significant). The current study was designed to replicate this finding using different methods and to further investigate the nature of the mechanism responsible for these effects.
CHAPTER 3
THE CURRENT STUDY

3.1 Methods

3.1.1 Participants

A total of 228 Florida State University undergraduate psychology students (68.4% female) participated in exchange for credit toward the completion of a course requirement. The average age of these participants was 19.4 years.

3.1.2 Design and Methods

I employed a 2 (participant gender) x 2 (mating prime vs. control) between-subjects design. Participants were randomly assigned to either a mating or control condition upon arrival. After providing informed consent, participants were provided with a brief introduction to the experiment. Because of the relatively complex design of this experiment, a diagram outlining the methods has been included for the sake of clarity (see Figure 1).

The initial stage was designed to expose participants in both conditions to a set of neutral visual stimuli that they would later be asked to remember. They viewed 24 images on a 19” LCD computer monitor for 8 seconds each. These images and the images that were used later in the experiment were all selected from the International Affective Picture System (IAPS; Lang, Bradley, & Cuthbert, 1997) and were selected for their emotionally neutral ratings. The images depicted inanimate objects (e.g., clock, chair, food) and animals (e.g., horse, deer). No images of people were included among the stimuli (see Appendix A for representative images). The mean arousal rating of the stimulus images was 3.45 ($SD = 2.09$) on a 9-point scale ranging from low (1) to high (9) arousal. The mean valence rating of the images was 5.82 ($SD = 1.41$) on a 9-point scale ranging from very unpleasant (1) to very pleasant (9). The location in which each image was presented was manipulated; each image was presented in one of the four screen quadrants (upper right, lower right, upper left, or lower left).
Immediately following the initial presentation of the stimuli, participants underwent the manipulation. Half completed a mating prime and the other half completed a control prime that was matched to the mating prime in valence and level of arousal (See Appendix B). The manipulation consisted of a semantic priming task in which participants attempted to unscramble words in order to form a coherent sentence. In the mating condition, one word in each scrambled sentence pertained to mating (e.g., erotic) whereas in the control condition, this word was
replaced with a similar yet non-sexual word (e.g., exciting). Research on semantic priming suggests that viewing words related to a construct can automatically activate relevant concepts and motivations (Bargh, et al., 1992; Neely, 1977). Similar techniques have been used successfully in previous research in order to activate mental states related to mating (Mussweiler & Förster, 2000; Bargh, et. al., 1995), and mating motivation, in particular (Maner, Gailliot, Rouby, & Miller, 2007).

After completing this task, all participants completed the Brief Mood Introspection Scale (BMIS; Mayer & Gaschke, 1988). The BMIS is a self-report measure designed to assess both affective valence and level of arousal. Using a five point scale ranging from (1) very slightly or not at all to (5) extremely, participants respond to a series of questions about how they were currently feeling (e.g., “Right now I feel… peppy/calm/active/tired”). Reliability for the 12-item arousal-calm subscale of the BMIS was $\alpha = .53$, which suggests a somewhat poor yet acceptable level of reliability (George & Mallery, 2003). The amount of time (3-5 minutes) and level of cognitive effort required for the completion of the priming task and the BMIS should have been sufficient to clear the images from participants’ short-term memory.

After completing the BMIS, participants were presented with 48 IAPS images and were asked to identify whether each image was seen during the initial portion of the experiment and if so, whether it was in the same location on the screen as it was when it was previously seen. Twelve of these were the same images that were viewed in the initial portion of the experiment and they were presented in the same location. Another 12 images were also seen previously, but they were presented in different locations. The final 24 images had not been presented in the experiment in any form (“foils”). Memory for the images should reflect basic recognition performance. In contrast, memory for the location of the image should reflect associative memory performance because it requires participants to access an association between an image and its prior location. By testing memory for both the locations of the images as well as the images themselves, I was able to test hypotheses about both associative memory and basic recognition memory. Response options for recognition of each image were provided on a six point Likert-type scale ranging from 1 (“definitely did not see”) to 6 (“definitely did see”). This measure was dichotomized such that responses of 1, 2, or 3 were categorized as “did not see” and responses of 4, 5, and 6 were categorized as “did see.” This allowed me to use $d'$, which is calculated using the number of correct identifications and false alarms on a memory test. A
complete description of d' is provided at the outset of the Results section below. Response options for image location were dichotomous, allowing participants to indicate that the image was in the same location as before, or in a different location from before. An additional response option was included on the image location items allowing participants to indicate that they had not seen a given image previously and therefore could not comment on its prior location.

Next, participants completed the first part of a measure designed to test for individual differences in both associative and recognition memory ability. In the primary stage, they viewed 50 neutral word pairs for 8 seconds each. This stage allowed participants to encode the word pairs and their memory for the pairs would be tested later in the procedure.

After completing the encoding portion of the measure of individual differences in memory, participants were asked to review another set of 48 IAPS images and identify whether the images had been seen in the prior memory test or whether they were completely novel. Twenty-four of these images had served as the novel images or “foils” in the earlier memory test and the other 24 were completely novel. As in the previous memory test, response options for recognition of each image were provided on a six point Likert-type scale ranging from 1 (“definitely did not see”) to 6 (“definitely did see”). The purpose of this test was twofold. The primary function was to gauge the depth with which participants processed the novel images in the first memory test (Jacoby, Shimizu, Daniels, & Rhodes, 2005). Additionally, the time it took participants to read the instructions and complete this task should have been sufficient to clear the word pairs that were viewed for the test of individual differences in memory from participants’ short-term memory.

Next, participants completed the second portion of the measure of individual differences in memory. They viewed 100 pairs of words of which 50 pairs were completely novel, 25 pairs were identical to those seen in the initial part of this task, and 25 consisted of the same words that were seen in the initial part of the task, but in different pairings. This allowed me to assess individual differences in both recognition and associative memory performance.

In the final portion of the procedure, participants were asked to provide additional information via self-report measures that was considered to be of potential relevance to my hypothesis. Demographic information regarding sex and age was provided. Next, participants
completed a set of questions that determined their relationship status (married, single but in a committed relationship, single and casually dating, or single and not currently dating anyone). If they were currently in a romantic relationship, participants indicated the duration of that relationship in months and used a 9-point Likert-type scale (1 = not at all, 9 = very much) to rate how permanent, serious, stable, committed, and secure their relationship was. Finally, participants completed a measure of multidimensional sociosexuality that assesses the degree to which they are oriented toward long-term and short-term relationships (Jackson & Kirkpatrick, 2007). This instrument provides participants with the opportunity to express agreement or disagreement with statements such as “Sex without love is OK” and “I hope to have a romantic relationship that lasts the rest of my life” using a 7-point Likert-type scale (1 = strongly disagree, 7 = strongly agree) in addition to assessing personal sexual history (e.g., “During your entire life, with how many partners of the opposite sex have you had sexual intercourse?”) (see Appendix C).

3.2 Results

3.2.1 Dependent Measures

Dependent measures of recognition for both the images and their locations were assessed using d', which is a discrimination index that incorporates the number of correct responses (hits) as well as the number of false alarms, thus providing a measure of a subject's ability to discriminate between old and new items (Snodgrass & Corwin, 1988; Macmillan & Creelman, 1991). d' is calculated as the z score of the false alarm rate minus the z score of the hit rate. The quantity of stimuli affects the magnitude of d' since fewer stimuli typically produce a low number of hits and false alarms. Based on the relatively small set of pictures used in the current study (24 as initial stimuli, 24 as foils), d' can be expected to be on the order of 2 to 3. Given the number of stimuli in the current study, a d' of 4.11 reflects a perfect score (24 hits, 0 false alarms). Further examples of the meaning of various scores include a d' of 3.11 (23 hits and 1 false alarm), a d' of 2.00 (21 hits and 4 false alarms), and a d' of 1.05 (17 hits and 7 false alarms). Although means and standard deviations for all dependent measures will be noted along with the relevant analyses below, they can also be found in Table 1.
Table 1: Means and standard deviations for all dependent measures across conditions

### Control Condition

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### Mating Condition

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<td>42</td>
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<td></td>
<td>Standard Deviation</td>
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</tbody>
</table>

3.2.2 Recognition Memory

A test of the hypothesis that exposure to mating cues would enhance basic retrieval
performance (as opposed to memory for item location) was performed using a 2 x 2 Analysis of Covariance (ANCOVA) test (condition x participant sex with general arousal and individual differences in recognition performance and associative memory performance included as covariates). This test revealed that there was no interaction between sex and condition ($F(1,221)=0.019, p=0.892, \eta^2<0.001$) but it also revealed a marginally significant main effect of condition ($F(1,221)=3.644, p=0.058, \eta^2=0.016$). An examination of the means for the mating and control groups across sexes reveals that this effect went in the opposite direction than was predicted, as participants in the control condition ($M = 3.85, SD = 0.576$) outperformed participants in the mating condition ($M = 3.68, SD = 0.678$).

General arousal did not affect performance ($F(1,221)=0.639, p=0.425, \eta^2=0.003$), thus ruling out the alternative possibility that general arousal, rather than thoughts and feelings specific to the mating prime, was responsible for the effects of priming. Also of note is the fact that the main effect was observed over and above the variance associated with individual differences in basic recognition ability, which accounted for a significant proportion of the variance in the image recognition performance ($F(1,221)=4.838, p<0.05, \eta^2=.021$).

3.2.3 Location Memory

A similar analytic strategy was used to test the hypothesis that exposure to mating cues would produce enhanced memory for the locations in which the items were displayed during the initial presentation of the stimuli. Again, $d'$ was used as the dependent measure. If participants correctly indicated that the image was in the same location as before, or in a different location from before, this was coded as a correct identification or “hit.” Three types of incorrect responses were possible when completing this measure: responses indicating that an image had moved from its original position when, in fact, it had not; that an image had not moved when, in fact it had; and responses indicating that an image had never been seen before when, in fact it had. All three types of incorrect responses were coded as false alarms when calculating $d'$ because they all represent failures to form an association between a stimulus and its location on the screen. A 2 x 2 ANCOVA (condition x participant sex with general arousal and individual differences in recognition performance and associative memory performance included as covariates) revealed a marginally significant sex by condition interaction ($F(1,221)=2.832, p=0.094, \eta^2=0.013$). This interaction appears to be driven by men in the mating condition ($M =$
2.11, \(SD = 0.587\) who performed somewhat worse than men in the control condition (\(M = 2.39, SD = 0.590\)) and worse than women in both the mating (\(M = 2.49, SD = 0.605\)) and control conditions (\(M = 2.46, SD = 0.675\)). This effect was not attributable to general arousal, which was unrelated to location memory performance (\(F(1,221)=0.423, p=0.516, \eta^2 =0.002\)). Similar to the previous analysis, individual differences in associative memory ability accounted for a significant amount of variance in location memory (\(F(1,221)=6.472, p<0.05, \eta^2 =0.028\)).

### 3.2.4 Memory for Foils

Next, I tested the hypothesis that participants in the mating condition had exerted more effort during the memory test (i.e., the test that produced the dependent measures used in the previous analyses). In this analysis, memory for the novel images (i.e., the foils) from the initial memory test served as the dependent measure. This technique has been used to measure of depth of processing, which is conceptually similar to effortful processing (Jacoby, Shimizu, Daniels, & Rhodes, 2005). A 2 x 2 ANCOVA similar in design to those used in the previous analyses (condition x participant sex with general arousal and individual differences in recognition performance and associative memory performance included as covariates) revealed neither a sex by condition interaction (\(F(1,221)=2.555, p=0.111, \eta^2 =0.011\)), nor a significant main effect of condition (\(F(1,221)=0.278, p=0.599, \eta^2 =0.001\)). As in the previous analysis, there was no evidence that general arousal affected effortful processing (\(F(1,221)=0.055, p=0.815, \eta^2 <0.001\)). Individual differences in basic recognition ability accounted for a significant proportion of the variance in effortful processing (\(F(1,221)=5.082, p<0.05, \eta^2 <0.022\)) whereas individual differences in associative memory ability accounted for a marginally significant proportion of the variance (\(F(1,221)=3.166, p=0.077, \eta^2 <0.014\)).

### 3.2.5 Ancillary Analyses

Ancillary analyses focused on the potential role of individual differences in mating orientation as potential moderators of the effect of the mating prime. The first potential moderators tested were long-term and short-term mating orientation, as measured by the multi-dimensional sociosexual orientation inventory (MSOI; Jackson & Kirkpatrick, 2007). These analyses indicated that MSOI did not moderate the effects of the manipulation on any of the three dependent measures. However, an examination of the bivariate correlations between the
MSOI subscales of long-term and short-term mating orientation revealed small but significant relationships, independent of experimental condition. Long-term mating orientation was positively correlated with image recognition ($r(217)=0.182$, $p<0.01$) and location recognition ($r(217)=0.191$, $p<0.01$). Conversely, short-term mating orientation was negatively correlated with image recognition ($r(217)=-0.170$, $p<0.05$) and location recognition ($r(217)=-0.154$, $p<0.05$).

Although the long- and short-term mating orientation subscales are conceptually independent, they are negatively correlated ($r(217)=-0.302$, $p<0.001$). Therefore, regression analyses were conducted to further explore the unique relationships between mating orientation and memory performance. First, image recognition scores were regressed simultaneously onto long- and short-term mating orientation. These two predictors accounted for five percent of the variance in image recognition scores ($R^2 = .05$), which was significant ($F(2,214) = 5.37$, $p < .01$). Long-term mating orientation demonstrated a significant relationship with recognition performance ($\beta = .14$, $p < .05$) while short-term mating orientation demonstrated a marginally significant relationship in the opposite direction ($\beta = -.13$, $p = .07$). Thus, both long- and short-term mating orientations were uniquely associated with memory performance.

Next, scores from the test of memory for location were regressed onto long- and short-term mating orientation. Similar to the results of the previous regression analysis, the predictors accounted for five percent of the variance in image recognition scores ($R^2 = .05$), which was significant ($F(2,214) = 5.23$, $p < .01$). Again, long-term mating orientation demonstrated a significant relationship with associative memory performance ($\beta = .16$, $p < .05$). Short-term mating orientation was not significantly related to associative memory performance, though it appeared to be trending in the direction opposite from that of long-term mating ($\beta = -.11$, $p = .14$). A final regression analysis revealed that mating orientation was not a significant predictor of effortful processing ($F(2,214) = 1.27$, $p = .28$).

### 3.3 Discussion

Contrary to my initial prediction, exposure to mating cues caused a decrease in retrieval performance. This prediction was derived from an interpretation of good-genes sexual selection theory which suggests that, when in a mating context, people will display desirable mate
characteristics. Although two studies provided preliminary support for this prediction, the current study revealed that mating cues can have the opposite effect, at least under certain conditions. This discussion will address possible explanations for the observed pattern of findings.

The first factor that could have resulted in a difference between the preliminary studies and the current study is a difference in the nature of the manipulations used in these investigations. The preliminary studies both used an explicit priming technique in which participants viewed photographs of attractive opposite-sex individuals in the mating condition and photos of opposite-sex individuals of average attractiveness in the control condition. The current study used a more implicit semantic priming technique in which participants unscrambled sentences that contained mating-related words in the mating condition and non-sexual positive high-arousal words in the control condition.

I chose to use an implicit priming manipulation in the current study in the interest of replicating the memory enhancement effect with a very different type of mating cue, thus providing convergent evidence of this effect. In addition, the semantic priming procedure used in the current study is particularly useful for directly activating social goals, without reliance on intervening conscious processes. However, one possibility is that processing the photographic primes in the preliminary studies actually required less cognitive effort than the sentence unscrambling prime. Previous studies have shown that exerting oneself on one task results in a decrease in performance on subsequent tasks (Baumeister, Bratslavsky, Muraven, & Tice, 1998). Although the sentence unscrambling tasks in both the mating and control conditions probably required similar levels of cognitive effort, participants in the mating condition may have found the task to be particularly distracting. Upon debriefing at the conclusion of each session, participants were asked if they noticed anything unusual about the sentence unscrambling task. Those participants who had been randomly assigned to the mating condition commonly noted the presence of a lot of sexual words whereas participants in the control condition noted that there was nothing unusual about the task. These responses suggest that the mating-related words seemed noteworthy and they may have distracted participants. Thus, although my intention was to use a more direct manipulation, an unintended consequence may have been that participants were distracted by the manipulation, which reduced subsequent memory performance.

The dependent variable in the current study was also very different from that used in the
preliminary studies. Again, this difference was purposefully introduced in the interest of showing convergent replication across diverse sets of stimuli. In the preliminary studies, participants first listened to a story about a day in the life of two individuals as they travelled to various locations completing a diverse set of goals and interacting with others. Participants then answered questions about some of the details of the events that occurred in story. In the current study, participants viewed a series of neutral images and were later asked to identify which images they had seen earlier and which images were in the same or a different location as when they had been viewed previously. This measure was positively correlated with a measure of individual differences in memory performance, suggesting that it is a valid measure of memory. One possible explanation for the different pattern of findings observed in the current study, however, is that the stimuli to be remembered in the preliminary studies were social in nature whereas the stimuli in the current studies were not. It is possible that mating-related improvements in memory are relatively specific to social stimuli.

Although the current work failed to replicate my own previous findings, it is consistent with research suggesting that interactions with attractive members of the opposite sex can be detrimental to cognitive performance (Karremans, et al., 2009). The current study and Karremans’ social interaction studies involve manipulations that are somewhat depleting. Experiences such as unscrambling sentences containing distracting sexual words and carrying on a conversation with an attractive member of the opposite sex require a fair amount of concentration and self-monitoring respectively, and appear to result in decreased cognitive performance. Much like the stimuli used in these laboratory studies, mating primes that people encounter in their daily lives may or may not be cognitively demanding. Meeting an attractive member of the opposite sex for the first time (the paradigm used by Karremans, et al.) presumably requires a great deal of self-regulation. In contrast, an interaction with an attractive individual with whom one is somewhat familiar and comfortable would conceivably require less cognitive effort for the purposes of self-regulation and self-monitoring. This notion suggests that displays of desirable mental traits will be more successful for some types of romantic encounters than for others. Blind dates would be more likely to be associated with feelings of social awkwardness and unsuccessful attempts to impress a potential partner whereas dates between individuals who possess a pre-existing casual familiarity would be perceived as more comfortable and enjoyable. In turn, the latter situation might be more likely than the former to
produce successful attempts at positive self-presentational displays.

3.3.1 Individual Differences

Multidimensional sociosexual orientation (long- vs. short-term mating orientation) and memory ability (both recognition and association) were measured in the interest of testing for potential moderators or explaining additional variance in memory performance, respectively. Although sociosexual orientation did not moderate the effects of mating motives on memory performance, my ancillary analyses revealed a noteworthy relationship between long- and short-term mating orientation and memory performance. Participants who were more oriented toward long-term romantic relationships tended to display better memory performance whereas those who were oriented toward short-term relationships tended toward inferior displays. Because these individual differences were associated with memory performance independently of the manipulation, it is only possible to speculate about potential causal influences. One possible explanation for this relationship is that people who are more oriented toward long-term relationships tended to be more conscientious. This speculation is supported by several studies that suggest an inverse relationship between orientation toward short-term relationships and the Big Five factor of conscientiousness (Schmitt & Shackelford, 2008; Barta & Kiene, 2005; Buss & Shackelford, 1997). Participants who were more conscientious would be expected to pay closer attention to instructions, pay more attention when viewing the stimuli during the initial portion of the procedure, and to generally take the experimental procedure more seriously, resulting in enhanced performance on the dependent measures of memory.

Individual differences in recognition ability and associative memory ability explained significant proportions of the variance in the dependent measures of memory. Interestingly, dependent measures that involved recognition of images were significantly related to recognition skill but not associative memory skill whereas the dependent measure that involved retrieval of an association between an image and its location was significantly related to associative memory skill, thus providing evidence for the predictive specificity of the measures. A closer examination of the directionality of these relationships revealed that all were positive, which suggests that participants with greater memory ability generally displayed superior performance on the dependent measures. Although this finding is not of great theoretical interest, it indicates that the dependent measures used in the current study were, in fact, valid measures of recognition and
associative memory performance.

3.3.2 Limitations and Future Directions

One limitation of the current study is that it relied upon a sample of undergraduate students. Because individuals in this population may tend to be more active in their pursuit of romantic interests than those of older or younger age groups, there is reason to believe that observed effects are an exaggeration of what might be seen in populations of other ages. Future research would benefit from examining mating effects on cognition in more demographically varied samples.

A second limitation is that I used artificial laboratory tasks both to manipulate mating motives and to measure memory. Although these procedures allowed for rigorous and controlled tests of my hypothesis, they also lacked ecological validity. The phenomenon under investigation in this study is likely to unfold in a more dynamic and complex way in actual social settings. Future research should explore the links between motivation and memory in the context of real social interaction (e.g., Karremans et al., 2009). As previously suggested, romantic interactions between individuals who are socially unfamiliar may be quite different from interactions between people who have a pre-existing social relationship. An important direction for future research will be to examine how cognitive performance differs across different types of social relationships and contexts. This could potentially be tested in a laboratory setting by randomly assigning heterosexual participants to discuss romantic thoughts and feelings with an opposite-sex partner who is either a current non-romantic friend or another participant with whom they have no prior relationship.

A third limitation is that the current study did not differentiate between long- and short-term mating motives. Future research should make more of an effort to clarify any differences between the impact of long-term and short-term mate cues on the display of particular traits. Although there is some overlap between what traits might be signaled (e.g. people prefer to have physically attractive individuals as partners in both long- and short-term relationships), there is also ample evidence that the emphasis that is placed on certain preferred characteristics shifts along with one’s goals (e.g., traits like kindness tend to be valued more in the context of long-term relationships than short-term relationships; Li, Bailey, Kenrick, & Linsenmeier, 2002; Buss,
The stimuli used as primes in the current studies possessed a combination of features that were relevant to both long- and short-term mating goals so it was not possible to draw a clear distinction.

The overarching contribution of this study was also limited by the fact that the observed result was in the opposite direction of what was initially predicted. This led me to formulate post-hoc explanations for the observed effect on memory. Nevertheless, it is clear that exposure to mating cues can produce a variety of effects on cognitive performance. Future research should set out to identify the specific conditions under which mating cues can bolster or undermine these types of performances. In the current paper I proposed that one important factor may be whether the mating cue itself is cognitively demanding. Viewing images of attractive members of the opposite sex on a computer monitor is presumably less demanding than a face-to-face interaction or a task that requires one to unscramble a sentence containing mating-related words. A critical test that would clarify the impact of different types of mating cues in cognitive performance would be a valuable addition to the literature. Such a test would require an experimental design that exposes participants in one condition to mating cues that are easily processed and participants in another condition to mating cues that require more cognitive effort to process but are similar in other regards. This study could also attempt to address the hypothesized difference between the influences of long- and short-term mating cues by adding two conditions in which participants process these different types of cues. This 2x2x2 design (participant sex by processing difficulty by long/short-term cues) would address the main questions raised by the results of the current study.

3.4 Conclusion

Self-presentation has historically been thought of as behaviors that involve the communication of information about oneself to others (Baumeister, 1982; Goffman, 1959). This perspective has emphasized that one of the primary motives of self-presentational behavior is to please one’s audience (Leary, 1995). Although this statement is accurate in a general sense, it lacks precision. The current work attempted to demonstrate the utility of incorporating a focus on particular social motives into one’s predictions about the self-presentational functions of specific behaviors that one might not typically think of as relating to impression management. People
want others to view them in specific ways depending on their proximate and ultimate goals as well as the nature of their audience.

The data regarding the impact of mating cues on memory performance are mixed. As is often the case with psychological phenomena, the relationship between these variables may be moderated by other factors. Whereas mating cues that require a great deal of concentration and self-control seem to be detrimental to cognitive performance, cues that can be easily processed may produce the opposite effect. In other words, people may attempt to display desirable mental abilities following exposure to mating cues but their ability to do so will be limited by proximate factors such as availability of cognitive resources. A better understanding of the influence that these types of proximate psychological factors have on goal-driven thought is necessary in order to further clarify the impact that particular goals have on a range of motivated cognitive processes.
APPENDIX A

NEUTRAL IAPS IMAGE EXEMPLARS
APPENDIX B

SEMANTIC PRIMING TASKS

Mating Condition

For this activity, we are interested in people’s ability to organize verbal information. Below are 15 sets of words. Four of the five words in each set can be used to make a meaningful sentence, but the fifth word won’t fit anywhere in the sentence. Please unscramble the words and write down the 4 word sentence you believe to be grammatically correct next to each set.

1. cotton soft kiss white is ________________________________
2. flirt hair women their brush ________________________________
3. dogs about dream donate I ________________________________
4. aroused I sell very feel ________________________________
5. ocean enjoy honeymoon they cruises ________________________________
6. I other garden people attract ________________________________
7. calendar the was date fun ________________________________
8. body my nude exercise needs ________________________________
9. black they made coffee love ________________________________
10. shower with filled I’m desire ________________________________
11. tea you drink sex hot ________________________________
12. sustain eye need you glasses ________________________________
13. develop exposed won’t erotic film ________________________________
14. the charge romantic was evening ________________________________
15. motivated I’m very lust feeling ________________________________
Control Condition

For this activity, we are interested in people’s ability to organize verbal information. Below are 15 sets of words. Four of the five words in each set can be used to make a meaningful sentence, but the fifth word won’t fit anywhere in the sentence. Please unscramble the words and write down the 4 word sentence you believe to be grammatically correct next to each set.

1. cotton soft surprise white is

2. fulfill hair women their brush

3. dogs about dream donate I

4. agreeable I sell very feel

5. ocean enjoy homecoming they cruises

6. I other garden people assist

7. calendar the was trip fun

8. body my nice exercise needs

9. black they made coffee laugh

10. shower with filled I’m delight

11. tea you drink smile hot

12. sustain eye need you glasses

13. develop exposed won’t exciting film

14. the charge inspiring was evening

15. motivated I’m very lead feeling
APPENDIX C

MULTIDIMENSIONAL SOCIOSEXUAL ORIENTATION INVENTORY (MSOI)

Please answer the following questions honestly. Remember, your answers are totally confidential and there are no right or wrong answers.

1. I can easily imagine myself being comfortable and enjoying "casual" sex with different partners.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

2. I can imagine myself enjoying a brief sexual encounter with someone I find very attractive.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

3. I could easily imagine myself enjoying one night of sex with someone I would never see again.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

4. Sex without love is OK.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

5. I could enjoy sex with someone I find highly desirable even if that person does not have long-term potential.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>
6. I would consider having sex with a stranger if I could be assured that it was safe and he/she was attractive to me.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
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<tbody>
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<td>1</td>
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<td>3</td>
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<td>5</td>
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<td>7</td>
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</table>

7. I would never consider having a brief sexual relationship with someone.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>5</td>
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</table>

8. Sometimes I would rather have sex with someone I did not care about.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>5</td>
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</table>

9. I believe in taking sexual opportunities when I find them.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<tr>
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</tbody>
</table>

10. I would have to be closely attached to someone (both emotionally and psychologically) before I could feel comfortable and fully enjoy having sex with him or her.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
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<tbody>
<tr>
<td>1</td>
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<tr>
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</table>

11. I am interested in maintaining a long-term romantic relationship with someone special.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<tr>
<td>7</td>
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</tbody>
</table>
12. I hope to have a romantic relationship that lasts the rest of my life.

Strongly Disagree
1 2 3 4 5 6

Strongly Agree
7

13. I would like to have a romantic relationship that lasts forever.

Strongly Disagree
1 2 3 4 5 6

Strongly Agree
7

14. Long-term romantic relationships are not for me.

Strongly Disagree
1 2 3 4 5 6

Strongly Agree
7

15. Finding a long-term romantic partner is not important to me.

Strongly Disagree
1 2 3 4 5 6

Strongly Agree
7

16. I can easily see myself engaging in a long-term romantic relationship with someone special.

Strongly Disagree
1 2 3 4 5 6

Strongly Agree
7

17. I cannot imagine spending the rest of my life with one sex partner.

Strongly Disagree
1 2 3 4 5 6

Strongly Agree
7

18. I can see myself settling down romantically with one special person.

Strongly Disagree
1 2 3 4 5 6

Strongly Agree
7
19. If I never settled down with one romantic partner, that would be OK.

   Strongly            Strongly
   Disagree           Agree
   1                  7
   2                  6
   3                  5
   4                  4
   5                  3
   6                  2
   7                  1

20. I would like to have at least one long-term committed relationship during my lifetime.

   Strongly            Strongly
   Disagree           Agree
   1                  7
   2                  6
   3                  5
   4                  4
   5                  3
   6                  2
   7                  1

21. How often do you fantasize about having sex with someone other than your current dating partner?

   Never            At least once a day
   1                  7
   2                  6
   3                  5
   4                  4
   5                  3
   6                  2

22. During your entire life, with how many partners of the opposite sex have you had sexual intercourse? ______

23. With how many partners of the opposite sex have you had sexual intercourse within the past year? ______

24. With how many partners of the opposite sex have you had sex on one and only one occasion? ______

25. With how many partners of the opposite sex do you foresee having sexual intercourse during the next 5 years? ______
REFERENCES


BIOGRAPHICAL SKETCH

Michael D. Baker, Jr.

In the Fall of 1998, Michael D. Baker, Jr. enrolled at Sam Houston State University in Huntsville, TX. He was later accepted into the university’s honors program and took a science seminar that sparked his interest in the theory of evolution by natural selection. Upon realizing that this could be combined with his interest in human psychology via the budding field of evolutionary psychology, he worked with Dr. Rowland Miller to complete an undergraduate honors thesis titled “Human Mate Preferences for Self and Child”. After receiving his Bachelor degree in Psychology at SHSU in the fall of 2002, Michael enrolled in the Social Psychology doctoral program at the Florida State University in the summer of 2004.

Throughout his graduate education, Michael worked with Dr. Jon Maner, a graduate of Arizona State University and a former pupil of Dr. Douglas Kenrick. Dr. Maner helped to guide Michael’s research interests from psychology, broadly, to human social cognition, specifically. Michael completed his Master’s thesis, “Risk-taking as a Mating Strategy: The Roles of Sexual Arousal, Motivation, and Situational Context in Risky Behavior” in the fall of 2007. This work was published in the journal Evolution and Human Behavior in 2008 and the Journal of Experimental Social Psychology in 2009.

During the later years of his graduate career, Michael refined his ideas about the functions of self-presentation to reflect the notion that a wide range of human social behaviors might serve to send specific signals, which, in turn, would facilitate their progress toward fundamental social goals such as finding a mate, forming alliances, or gaining and maintaining status in a social hierarchy. His dissertation, “Mating Cues and Declarative Memory: Signaling the Presence of Desirable Mental Skills” explored the impact that these processes might have on basic cognitive processes.

Upon defending his dissertation and receiving his Doctoral degree in the Summer of 2010, Michael was hired as a Teaching Assistant Professor in the Department of Psychology at East Carolina University in Greenville, NC, where he will continue his career starting in the Fall of 2010.