

MISPERCEPTION OF ROMANTIC AND SEXUAL INTERESTS

---

A Thesis

Presented to

The Faculty of the Department of Psychology

The College of William and Mary in Virginia

In Partial Fulfillment

Of the Requirements for the Degree of

Master of Arts

---

by

Bryan Lee Koenig

2005

APPROVAL SHEET

This thesis is submitted in partial fulfillment of  
the requirements for the degree of

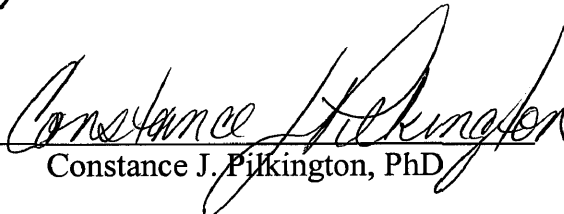
Master of Arts

  
Bryan Lee Koenig

Approved by the Committee, July 2005

  
Lee A. Kirkpatrick, PhD

  
Timothy Ketelaar, PhD

  
Constance J. Pilkington, PhD

## TABLE OF CONTENTS

	Page
Acknowledgements	iv
List of Tables	v
Abstract	vi
Introduction	2
Study 1	32
Study 2	48
General Discussion	70
Appendices	102
References	111
Vita	119

## ACKNOWLEDGEMENTS

I express my appreciation to Dr. Lee Kirkpatrick, who served as my advisor during my second year at William and Mary. His guidance during the preparation of this manuscript and over the past year has been invaluable, and has made me a better researcher and writer. I also thank Dr. Tim Ketelaar and Dr. Connie Pilkington, the other members of my thesis defense committee, for their careful reading and criticism of an earlier draft of this manuscript.

I also express my gratitude to Dr. John Nezelek, who served as my advisor during my first year at William and Mary. This thesis is the culmination of a project that began with Dr. Nezelek, whose excellent guidance has continued through both of my years here.

## LIST OF TABLES

Table	Page
1. Romantic Interest, Sexual Interest, Perception of Romantic Interest, and Perception of Sexual Interest, by Sex and Dyad Type (Study 1)	93
2. Misperception of Romantic Interest and Sexual Interest by Dyad Type and Perceiver Sex (Study 1)	94
3. Multiple Regression Analyses Predicting Perception of Other's Romantic and Sexual Interests in Self, Controlling for Other's Romantic and Sexual Interests in Self, for Male-student dyads (Study 1)	95
4. Multiple Regression Analyses Predicting Perception of Other's Romantic and Sexual Interests in Self, Controlling for Other's Romantic and Sexual Interests in Self, for Female-student Dyads (Study 1)	96
5. Differences and Correlations for Romantic and Sexual Interests Between Members of OSF Dyads (Studies 1 & 2)	97
6. Romantic Interest, Sexual Interests, Perception of Romantic Interest, and Perception of Sexual Interest, by Sex and Dyad Type (Study 2)	98
7. Misperception of Romantic Interest and Sexual Interest by Dyad Type and Perceiver Sex (Study 2)	99
8. Multiple Regression Analyses Predicting Perception of Other's Romantic and Sexual Interests in Self, Controlling for Other's Romantic and Sexual Interests in Self, for Male-student dyads (Study 2)	100
9. Multiple Regression Analyses Predicting Perception of Other's Romantic and Sexual Interests in Self, Controlling for Other's Romantic and Sexual Interests in Self, for Female-student Dyads (Study 2)	101

## ABSTRACT

Two studies evaluated predictors of misperception of romantic and sexual interests between members of opposite-sex friendships (OSFs). In both studies participants were students and the closest opposite-sex friend each recruited. Participants completed on-line questionnaires about their own romantic and sexual interests in their OSF, and their perceptions of their OSF's romantic and sexual interests in them. In Study 1, for OSF dyads of female students, females underperceived the sexual interest of males and males overperceived the sexual interest of females. No sex specific misperceptions were found for romantic interest in OSF dyads of female students, or for sexual interest or romantic interest in OSF dyads of male students. Results of multiple regression analyses indicated that participant sex did not predict misperception once participant self-reported interest was controlled for. Participant self-reported interest was a strong predictor of misperception. The methods of Study 2 replicated those Study 1, with the addition of OSF short-term and long-term mate value as predictors of misperception. The results of Study 2 replicated those of Study 1, with the addition that males overperceived female romantic interest, and females underperceived male romantic interest, but only in the OSF dyads of female students. In multiple regression analyses, mate value was not a significant predictor of misperception. As in Study 1, participant self-reported interest was a strong predictor of misperception. These results are discussed within the context of four questions left unanswered by previous research on the perception and misperception of sexual interest that are addressed in this project, and the two theories whose predictions are tested in these studies: the default model hypothesis (Shotland & Craig, 1988) and error management theory (Haselton & Buss, 2000).

## MISPERCEPTION OF ROMANTIC AND SEXUAL INTERESTS

## INTRODUCTION

The misperception of romantic and sexual interests may be an antecedent for problems between men and women. A recent model of factors leading to the perpetration of sexual assault found that misperception of sexual interest was the strongest predictor of number of sexual assaults, including rape (Abbey, McAuslan, & Ross, 1998). Misperception of sexual interest may also be a contributing factor for sexual harassment (Sigal, Gibbs, Adams, & Derfler, 1988; Johnson, Stockdale, & Saal, 1991). Additionally, clarification of and misunderstandings about sexual and romantic interest are two challenges faced by members of opposite-sex friendships (OSFs; O' Meara, 1989). Misperceptions of sexual interest as a predictor of sexual assault and as a challenge within OSFs may be related: Around 15% of sexual assaults occur within OSFs (Abbey et al., 1998). Clearly, misperception of sexual and romantic interest can profoundly affect people's lives, from sexual assault and sexual harassment to challenges within friendships. Therefore, greater understanding of misperception of romantic and sexual interests is a valuable topic for empirical research and theoretical understanding.

Research provides strong support for the conclusion that males perceive more sexual interest in others than do females. However, in this line of research there are some critical unanswered questions. Do only males misperceive sexual interest? Is misperception limited to sexual interest, or does it occur for closely related phenomena like romantic interest? Does such misperception occur only between strangers, or does it

occur in established, ongoing relationships? What theories can be applied to misperceptions of sexual and romantic interest to help understand and predict them? The current project addressed each of these questions by evaluating theoretical predictors of overperception and underperception of romantic and sexual interests in established OSFs.

#### *Previous Research on Sex Differences in the Perception of Sexual Interest*

Perception of another's interest, romantic, sexual, or otherwise, can be accurate or inaccurate. Inaccurate perception can be labeled *misperception*. Logically, misperception comes in two flavors: overperception and underperception. Overperception is when the perceiver believes that the target is more interested than the target actually is.

Underperception is when the perceiver underestimates the interest of the target.

Misperception can occur when the perceiver evaluates the target's interest in the perceiver or a third party.

As will be addressed below, previous research has mostly ignored the perception of romantic interest and focused on the perception, and misperception, of sexual interest. The research on the perception of sexual interest can be organized into four basic research strategies. In some studies a male and female actually met, talked briefly, and then evaluated the sexual intent of their interaction partner and themselves, usually with hidden observers making similar ratings (e.g., Abbey, 1982). In the most common design, male and female participants evaluated the sexual intentions of third party male and female targets presented in artificial stimuli, including videos, photos, and written vignettes (e.g., Shotland & Craig, 1988). In a closely related design, participants indicated what they thought the intent would be if they or someone else performed a specific action (e.g., Haselton & Buss, 2000). Finally, a few studies have used recall of

naturally-occurring misperceptions (e.g., Haselton, 2003). Sex differences in the perception of sexual interest are frequently found, with males perceiving more sexual interest in males and females than did females.

*Face-to-face Interactions.* The first study to evaluate misperception of sexual interest was performed by Abbey (1982). She had a male and a female (the *actors*) meet and talk for five minutes. They were told that the experiment was about how the topic of conversation affects the smoothness of initial interaction. An additional male and female participant (the *observers*) observed the actors from behind a hidden one-way mirror. All participants then rated how much they thought that each actor was trying to behave for these sexual-intent adjectives: *flirtatious*, *seductive*, and *promiscuous*. They were also asked if they themselves were sexually attracted to the opposite-sex actor. Observers indicated the extent to which they thought each actor was sexually attracted to the opposite-sex actor.

The results showed a general pattern: Males perceived more sexuality, in the male and female actor, than did females. Males rated the female actor higher than did females for two of the sexual-intent adjectives, seductive and promiscuous, although seductive was only marginally significant. Male actors rated themselves as significantly more flirtatious and seductive than the female actors rated them, and there was a trend in the same direction for promiscuous. Male actors and observers were more sexually attracted to the female actor than females were to the male actor. Male observers thought that the female actor was more sexually interested in the male actor than did female observers. Abbey concluded that, “men are more likely to perceive the world in sexual terms and to make sexual judgments than women are. The predicted effect that men misperceive

friendliness from women as seduction, appears to be one manifestation of this broader male sexual orientation” (pp. 836-837).

Abbey’s (1982) findings have been replicated using very similar methods. One study (Harnish, Abbey, & DeBono, 1990) was a replication with slight modifications: There were no observers, and an additional sexual adjective, *sexy*, was included with flirtatious, seductive, and promiscuous. Males gave higher ratings for seductive, sexy, and promiscuous to both female actors and themselves than did females. The males were also more sexually attracted to the females than the females were to the males. Additional studies using methodologies very similar to Abbey (1982) and Harnish et al. (1990) have further replicated the finding that, compared to females, males perceive greater interest, as indicated by these sexual-interest adjectives, in both males and females (Abbey, Zawacki, & McAuslan, 2000; Saal, Johnson, & Weber, 1989; Shea, 1993). Consistent evidence has been found, in face-to-face interactions, that males perceive both males and females to have greater sexual interest than do females; studies using other methods have also replicated this general trend.

*Artificial Stimuli.* Studies have evaluated sex differences in the perception of sexual interest using videos, written vignettes, and photos. In a study by Shotland and Craig (1988), videos were prepared of a male and a female eating together in a college cafeteria. Four versions of the video were produced, so that in one the male was acting friendly and the female sexually interested, in another the female was friendly and the male sexually interested, in the third both male and female were friendly, and in the other video both were sexually interested. Participants observed one of the films and rated each actor on both Abbey’s (1982) original sexual-interest adjectives and a sexual interest

scale (SIS), which included 12 items, e.g., “The man was sexually attracted to the woman.” For both the sexual-interest adjectives and the SIS, males participants, compared to females, rated the sexual intent higher for both male and female actors. In addition, both sexes appeared to be able to discriminate between friendly and sexually interested behavior.

In a study by Fisher and Walters (2003), participants were provided 17 scenarios, which varied in the degree to which a male did something that might indicate sexual interest. Seventeen parallel scenarios were provided in which the female engaged in the behavior. Some scenarios included little sexual interest, e.g., “A woman meets a man for coffee.” Others were clearly sexual, e.g., “A man takes condoms along with him on a date” (p. 159). Participants evaluated how much the behavior in a scenario indicated that the person was interested in sex. There was a sex difference for 14 of the 34 scenarios, including some with males as protagonists, and others with females. Sex differences occurred in the scenarios in which it was less obvious if the person had sexual interest. For all significant sex differences, males perceived higher interest than did females. These findings replicate those reported above for face-to-face and video studies; when there were sex differences, males perceived greater sexual interest in males and females than did females.

The various methods above demonstrate that the sex difference in perception of sexual interest is robust across different laboratory methods in which participants observe targets and estimate their sexual interest, but one study allowed direct comparison of how different methods affect perception of sexual interest. Edmondson and Conger (1995) had 32 male- and female-stranger dyads talk for five minutes. Hidden observers watched.

Video tapes, audio tapes, and photos were also generated from the interactions. For each of these five modes of presentation, (i.e., self, live, video, audio, and photo), two participants rated each actor on Abbey's (1982) sexual-interest adjectives (plus *sexy* and *attractive*), which were combined into a sexuality composite. Across all modes, males gave higher ratings than did females, and females were rated as more sexual than males. Males perceived both males and females as more sexually interested than did females. Generally, perceptions of sexual interest increased as modes of presentation provided less information. Thus, ratings were the lowest in self and video conditions, live and audio conditions produced medium level ratings, and photos had the highest ratings of sexual interest. The authors concluded that, for modes of presentation with little information, participants may be particularly liable to rely on sex stereotypes.

*As-if Studies.* In a few studies, participants were provided with behaviors and asked to indicate how much performing that action is an indicator of sexual interest. Two studies by Haselton and Buss (2000) are particularly relevant. Haselton and Buss (2000) proposed error management theory (EMT) and tested two of its predictions: Males will overperceive female sexual interest and females will underperceive male commitment intent (the logic behind these predictions is articulated in detail later in this paper). Participants rated how much they thought eight behaviors indicated sexual intent if performed by a man or by a woman. An example of a behavior is, “. . . on the first day of work, approaching a male [female] co-worker, smiling brightly, and striking up a friendly conversation” (p. 83). As in the studies reported above using different methods, males perceived males and females to have greater sexual interest than did females for these behaviors. Participants also rated male and female tendency to avoid commitment based

on three statements. One was, “As long as a man [woman] can have lots of sex without commitment, he [she] will avoid getting committed to one woman [man]” (p. 83).

Females rated men as more likely to avoid commitment than did men, whereas the sexes did not differ on their ratings for females. Thus, their predictions were supported.

In a second study, Haselton and Buss (2000) tested an additional prediction based on EMT. Because it is not adaptive for a male to be sexually interested in his sister, males should correct their sexual overperception bias when evaluating the sexual interest of their sister towards a third party. Haselton and Buss also hoped to tell if females indeed underperceived male sexual interest by adding an additional criterion measure: perceptions of the sexual interest of someone of the same sex. Thus, participants indicated their perceptions of the sexual intent, for a series of behaviors, for themselves, someone of the opposite sex, someone of the same sex, and their opposite-sex sibling.

Haselton and Buss found evidence that females may not underperceive the sexual interest of males. As males may underreport their own sexual interest (as a socially desirable response), but overestimate the sexual interest of other males (so as to damage the reputation of their competitor), the actual level of male interest should fall between these two estimates. The rating given by females fell between these two estimates of male sexual interest, which therefore might indicate that female perceptions were accurate. Using similar logic, because females rated male commitment intent lower than males rated it for themselves or other males, females probably underperceived male commitment. In addition, as predicted, male participants estimated the sexual interests of their sisters lower than of other women, and at a level between that which women reported for themselves and for other women, suggesting that men may have corrected

their sexual overperception bias when considering their sister. These studies were particularly valuable because they introduced EMT and initiated the theoretical and empirical investigation of misperceptions of components of romance.

*Recall of Naturally Occurring Experiences.* All of the methods so far described share an important limitation: They are laboratory studies. Thus, they are unable to demonstrate the ecological validity of misperception. Three studies have addressed this issue, each using the same method: recall of naturally occurring misperceptions.

In the most relevant study, Haselton (2003) not only collected information about recollections of experiences of being misperceived, she also used these data to test predictions based on EMT. She predicted that males would systematically overperceive female sexual intent, that participants who are more oriented towards short-term mating (i.e., have higher sociosexuality; Simpson & Gangestad, 1991) would report a greater frequency of being misperceived, and that participants with higher mate value would report a greater frequency of having their sexual interest overperceived. The results supported each of these predictions. Females reported a greater frequency of their sexual interest being overperceived than underperceived, whereas men reported an equal frequency of both kinds of misperceptions. Furthermore, it is worth noting that most participants, about 70%, reported at least one experience of their interest being misperceived, which suggests that misperception is a fairly common real world phenomenon.

In two studies, Abbey (1987) evaluated experiences of having one's friendly interest misperceived as sexual interest within different relationships and in different locations. In Study 1, more women (72%) than men (60%) reported that their friendliness

was misperceived as sexual interest. In Study 2, for which it was advertised that the study was about misperception of sexual interest, almost all participants of both sexes reported being misperceived. Collapsed across studies, half of all misperceptions occurred within a friendship, with acquaintances and strangers accounting for almost all other misperception experiences. For location, 53% of misperceptions were reported to have occurred at a party; the next two most frequent locations were school and the misperceiver's home, accounting for 13% and 7% of reports, respectively. These findings suggest that misperceptions occur in real life and that they do not occur only between strangers. They also imply that misperceptions may be more likely to occur, or at least be identified, in some contexts more than in others.

Not all studies, however, have supported the general trend that, compared to females, males perceive males and females to have more sexual interest. In some studies, males perceived more sexual interest in female targets than did females, but the sexes did not differ on their perceptions of male target sexual interest (Abbey & Melby, 1986; Abbey, Cozzarelli, McLaughlin, & Harnish, 1987; Johnson et al, 1991). Sigal et al. (1988) reported a study in which there were no sex differences in perceptions of either sex, but this finding was not replicated in the second study in which males perceived more sexual interest in female targets than did females.

Overall, these results strongly suggest that many factors influence perception, and therefore misperception, of sexual interest. Most consistently demonstrated is that males perceive more sexual interest in female targets than do females, and that males usually perceive more sexual interest in male targets as well. There are, however, at least four questions left unanswered by this line of research. First, researchers have focused

primarily on male overperception of female sexual interest. They have either ignored female misperception of male sexual interest, or, if it was found, mentioned it only briefly. That is, misperception is seen primarily as something males do. Second, only perceptions of sexual interest were evaluated. Perception, and misperception, of romantic interest has yet to be explored. Third, only in three studies were misperceptions evaluated between people who actually know each other, and all three used the same method: recall of experienced misperceptions. All other studies have used strangers, real or fabricated, as targets. Recall can be biased (e.g., Tversky & Marsh, 2000; Beyer, 1998); therefore it is important to replicate the finding of real-world misperception of sexual interest using another method, which would add convergent evidence for the ecological validity of laboratory findings of misperception of sexual interest. Last, research on the perception, and misperception, of sexual interest has rarely been guided by theory. As the current project addresses these questions, each is discussed in turn.

*Question 1: Is Sexual Misperception Limited to Male Overperception?*

The majority of sexual interest perception studies have used a design in which male and female participants are shown a few prepared stimuli that present unknown male and female targets, the targets know each other little to none, and they interact in a variety of ways. Participants then estimate the sexual interest of the targets in one another and rate targets on these sexual-interest adjectives: *flirtatious*, *seductive*, *promiscuous*, and, sometimes, *sexy* (see, for example, Abbey & Melby, 1986). The advantage of this research design is that it allows the experimenter to control specific aspects of the stimuli in order to test predictions about what affects perception of sexual interest. It cannot, however, directly measure *misperception* of sexual interest.

Researchers conducting these experiments have consistently concluded that because males perceived more sexual interest in *female targets* than did females, males overperceived female sexual interest. Logically, however, this conclusion is not justified. The targets were not real people, and therefore they did not actually have sexual interest to be misperceived. Instead, these results show only that males reliably perceive more sexual interest in third party targets than do females. The sex difference in perceived sexual interest could just as well be explained by female underperception of target interest. Because the targets were not real people, however, the data do not allow differentiation between the two interpretations of this sex difference. In almost every study reported, nonetheless, the researchers interpreted the results strictly as a male overperception. Female misperception was rarely addressed, perhaps even ignored.

Do females underperceive male sexual interest? Researchers appear to be using a double standard when evaluating sex differences in the misperception of sexual interest. When males perceive more sexual interest than females in *female targets*, males are described as overperceiving their sexual interest. However, when females perceive less sexual interest than do male in *male targets*, males overperceive their interest as well. By the same logic, however, it would seem that females underperceive male sexual interest.

Findings in which females perceive less sexual interest in males than do males suggest that females may underperceive the sexual interest of males; however another interpretation of these results is that males perceive more sexual interest in everyone, male and female. That is, it may be that “men are more likely to perceive the world in sexual terms and to make sexual judgments than women are” (Abbey, 1982, p. 836). This interpretation suggests that males overperceive everyone’s sexual interest, and that

females' perceptions are spot-on. This, in fact, seems to be the standard interpretation of this kind of result (see, for example, Abbey & Harnish, 1995; Johnson et al., 1991; but see, Abbey et al., 2000; Shea, 1993; Shotland & Craig, 1988; Haselton & Buss, 2000, for exceptions). Nevertheless, male overperception was usually explicitly recognized, even though studies in which participants rate the sexual interest of third parties do not allow a direct comparison between the target's interest and the observer's perception of that interest, as mentioned above. Other methods do allow such discrimination. Studies in which participants interacted with an actual person of the opposite sex, or in which they recalled experiencing a misperception, allow us to evaluate if indeed females underperceive male sexual interest and/or if males actually overperceive female sexual interest.

It is surprising that researchers have consistently interpreted females perceiving less sexual interest in males than do males as male misperception; the first study to systematically evaluate misperception of sexual interest found evidence for both female underperception of male sexual interest and male overperception of female sexual interest (Abbey, 1982). In that study, described in the literature review section above, a male and female who did not know each other talked for five minutes. A male and female observer watched and listened from behind a one-way mirror. Afterwards, each actor (i.e., the males and females who participated in the conversation) rated their own sexual interest and the interest they perceived that the other actor had, using sexual-interest adjectives, e.g., seductive. Observers made similar ratings. Male actors and observers rated both the male actor and female actor as *more* sexually interested in their interaction partner compared to the ratings provided by female actors and observers. The finding that male

ratings of the female actor's sexual interest were *higher* than those *self-reported* by the female actors supports an interpretation of male overperception of female sexual interest. Likewise, females rated male sexual interest *lower* than male actors *self-reported*, suggesting that females underperceived the sexual interest of the male actors. These results have been found in all five replications of Abbey's (1982) study (Abbey et al., 2000; Shea, 1993; Edmondson & Conger, 1995; Harnish et al., 1990; Saal et al., 1989). Abbey (1982) interpreted these findings as *male misperception*, a term she used in the title of her article. The tendency to attribute misperception to males, but not females, has plagued sexual interest misperception research ever since. The consistent replication of both sexes misperceiving sexual interest, using a standard of the other person's self-reported sexual interest, strongly suggests that males overperceive female sexual interest *and* that females underperceive male sexual interest.

This conclusion is also supported by a study using self-report recall of naturally occurring misperceptions. Unfortunately, in only one study using this method were both overperception and underperception of sexual interest evaluated (Haselton, 2003); all others evaluated only male overperception of female sexual interest. In Haselton's study, overperception was evaluated by answering "yes" or "no" to a prompt which asked participants if, in the past, their friendliness had been misperceived as a sexual come-on and if someone to whom they were trying to be nice had assumed they were sexually interested in them. Underperception was evaluated with these questions reversed, e.g., if their sexual come-on had been misperceived as friendliness. Both sexes experienced overperception and underperception, although not equally. Females reported more overperceptions than underperceptions, suggesting that males may tend to overperceive

female sexual interest. Males reported an equal number of each misperception, suggesting that females are equally likely to make each kind of error. Nevertheless, both sexes experienced overperception and underperception of their sexual interest. These findings provide convergent evidence that misperception of sexual interest is not only a male phenomenon.

This brief literature review demonstrates that researchers of the misperception of sexual interest may themselves underperceive female underperception of male sexual interest. All studies directly evaluating the misperception of sexual interest by both sexes found evidence for male overperception of female sexual interest *and* female underperception of male sexual interest. In addition, most studies that evaluated sex differences in the perception of sexual interest of third parties found results consistent with misperception by both sexes. Because female underperception of male sexual interest is not clearly and explicitly recognized by researchers, research designs which are able to evaluate both male and female misperception of sexual interest, not just sex differences, are critical for empirical clarity and theoretical understanding of sex differences in misperceptions of sexual interest.

*Question 2: Is Misperception Limited to Sexual Interest?*

Not only have sexual interest perception researchers focused almost exclusively on male underperception of female sexual interest, they have also focused almost exclusively on the perception of sexual interest. Both of these trends may be a result of the high salience of male overperception of female sexual interest in daily life (see, for example, Abbey's anecdote in her seminal 1982 article). Similarly, to the degree that male overperception of female sexual interest is a causal factor in rape and sexual

harassment, it is both salient and of great consequence. This focus on lust, however, ignores at least one important aspect of human mating, love.

According to sexual strategies theory (Buss & Schmitt, 1993), human mating can be conceptualized as being on a temporal continuum, anchored at *short-term mating* and *long-term mating*. From an evolutionary perspective, different costs and benefits are associated with both short-term mating and long-term mating. Also, the costs and benefits of each of these mating strategies differ for males and females. These specific costs and benefits define problems that have shaped adaptations, i.e., psychological mechanisms, which underlie the proximal execution of these strategies. A few critical examples of these problems and their solutions are provided.

Sex differences in the costs and benefits have led to primarily contrasting short-term strategies between the sexes. “Men historically have been constrained in their reproductive success primarily by the number of fertile women they can inseminate” (p. 206). For men, the costs of short-term mating are low and the benefits are high. This has led men to have greater desire for many partners than women have and to have lower standards for short-term mates than long-term mates (Buss & Schmitt, 1993; Kenrick, Sadalla, Groth, & Trost, 1990).

For females, the costs of short-term mating are greater than they are for males. Females must avoid the costs of a reputation of promiscuity, which will reduce their desirability as a long-term mate (Schmitt & Buss, 1996). For females, short-term mating can be considered a back-up strategy in which they attempt (a) to increase the genetic quality of their offspring by mating with a male of higher genetic quality than they could access as a long-term mate, (b) to extract immediate resources from their short-term mate,

(c) to keep potential long-mates on reserve, and / or (d) to explore the long-term potential of short-term mates. In support of these arguments, females were found to place greater emphasis on immediate investment in a short-term mating context, and found it less desirable than did males for a short-term mate to already be in a romantic relationship (Buss & Schmitt, 1993).

In long-term mating such as marriage, on the other hand, costs and benefits are more symmetrical between the sexes. Both males and females face the problems of finding a partner with good parenting skills and high genetic quality, and finding a partner who will commit to them and maintaining that commitment until offspring are independent.

There are important sex differences in long-term mating that must be considered as well. The main problem unique to men in long-term mating is to avoid being cuckolded. The difficulty of paternity certainty is the result of two things: fertilization occurring internally within females and concealed ovulation. Males, therefore, should be highly sensitive to the likelihood of sexual fidelity in a potential or on-going long-term mate. Indeed, males identified *faithful* as the most desirable trait in a long-term mate (Buss & Schmitt, 1993).

For a female using a long-term strategy, on the other hand, her primary concerns are obtaining ongoing access to her mate's resources and parental investment. For women, identifying a male who can, and will, invest in her and her offspring is crucial when using a long-term mating strategy. Therefore, women should prefer long-term mates with cues that indicate likelihood of investment, such as ambition, income, status, and generosity.

The prediction that females will be more concerned about these traits in a long-term mate than will men has been confirmed cross-culturally (Buss, 1989).

Sexual strategies theory, and the empirical findings that support it, strongly suggest that long-term mating is important to humans. “All known societies have formal marriage alliances between men and women” (Buss & Schmitt, 1993, p. 204). Therefore, misperception of long-term interest is a valuable topic to explore.

One research project to date has evaluated the misperception of a construct related to long-term mating. Haselton and Buss (2000) predicted that females would underperceive male interest to commit to a romantic relationship. They reasoned that overperceiving commitment would result in costly abandonment, whereas underperceiving commitment would result in increased commitment displays. Therefore females should underperceive the commitment intent of potential long-term mates. As reported above, the results of two studies supported these predictions. Haselton and Buss (2000) have provided the only studies to evaluate misperceptions of romantic interest; therefore replication would be valuable.

### *Question 3: Does Misperception Occur Only Between Strangers?*

One of Abbey’s goals in her research of sexual misperception has been the prevention of rape (Abbey, 1991). However, just like the early conception of rape as something that occurs between strangers (Rozee & Koss, 2001), research on the perception of sexual interest has focused on the perceptions of strangers interacting with people whom they did not know. The recognition that rape occurs among people who know one another suggests the importance of a parallel shift in sexual misperception research. If rape occurs between people who know each other, sexual misperception

probably also occurs between people who know each other, and understanding misperception between people familiar with one another may provide additional insight into the precursors of rape.

As mentioned above, a single study has evaluated the relationships in which naturally-occurring misperceptions occurred (Abbey, 1987). Half of all self-reported experiences of being misperceived occurred within a friendship. Abbey also suggested that OSFs might be an important relationship in which to evaluate misperceptions and that in such relationships misperceptions may be more likely to involve a series of escalations. A brief review of the OSF literature provides evidence that sexual and romantic interest occur in OSFs and therefore that misperception of these interests may occur as well.

Sexual attraction was indicated as an important component for the formation of OSFs by 30% of participants (Rose, 1985). Within ongoing OSFs, 48% of males reported moderate sexual attraction compared to 22% of females; whereas 54% of females reported no sexual attraction, compared to 27% of males (Kaplan & Keys, 1997). In another study, 77% of participants indicated some physical/sexual attraction to their OSF (Reeder, 2000). In addition, 41% of participants reported having had sexual intercourse with at least one OSF (Afifi & Faulkner, 2000). According to these findings, sexual attraction is frequently experienced in OSFs.

Romantic interest has also been reported in OSFs. In one study, 53% of males and 31% of females indicated that they had started their closest OSF hoping it would develop into a romantic relationship (Kaplan & Keys, 1997). At least some romantic attraction was reported by 52% of participants in another study (Reeder, 2000). Participants

reported that about 70% of their romantic relationships started from a relationship that had previously been a friendship, with 38% of females and 46% of males reporting that all of their romantic relationships started from a friendship (Koenig & Nezlek, 2005).

Thus, romantic attraction seems to be fairly common in OSFs.

The prevalence of sexual and romantic interests in OSFs provides ample opportunity for them to be misperceived. These findings demonstrate the existence of sexual and romantic interests in OSFs, and the finding that half of all misperceptions of sexual interest occurred in an OSF (Abbey, 1987) suggests that OSFs may be a useful subject of study, as an alternative to real or fabricated strangers, in which to probe for misperception of sexual and romantic interest.

#### *Question 4: What Theories Can Explain and Predict Misperception of Sexual Interest?*

Regrettably, research on sexual interest perception has infrequently been guided by theory (Shotland & Craig, 1988). Theoretical explanations often look like recapitulations of the results. For example, “The results support the theoretical argument that sexual behavior is more salient to men than to women and men are more likely to perceive people’s actions as having sexual meaning” (Abbey et al., 2000, p. 695). This “theoretical argument” describes the cumulative empirical findings, but it does little to explain it.

For the current project, the predictions of two theories were tested. Each theory was selected because recent findings suggest it may have potential to explain and predict perceptions, and misperceptions, of romantic and sexual interests. One theory is the default model hypothesis (Shotland & Craig, 1988), which posits that people use their own level of interest to gauge the interest of another. The second theory, error

management theory (EMT, Haselton & Buss, 2000), is a recently proposed evolutionary theory of cognitive biases. In combination with other evolutionary theories which identify differentials in costs and benefits for misperceptions, EMT has the potential to explain and predict a wide variety of these misperceptions. Each of these theories, as well as empirical evidence supporting them, is presented here.

### *The Default Model Hypothesis*

The first theoretical approach for explaining the sex difference in perception, and misperception, of sexual interest that will be addressed was labeled “the default model” by Haselton and Buss (2000). It was initially presented by Shotland and Craig (1988). Recall that, in the study by Shotland and Craig, participants watched videos of a male and female interacting, in which either or both of the actors attempted to appear as if they were sexually interested in the other person or were being friendly towards the other person. Both sexes were able to discriminate friendly from sexually interested behavior, but nonetheless male observers perceived both male and female interactants as more sexually interested than did female observers. These were common findings in the literature on the perception of sexual interest.

What Shotland and Craig (1988) did that was uncommon, however, was provide a testable and viable theoretical explanation for why this sex difference occurs. They proposed that “Men may be more sexually interested than women, and have, on average, a higher base level of sexual arousal.” Furthermore, “Men simply may assume an equality of sexual interest by women; they may assume that men and women are alike and have the same sexual appetites, and then may use their own appetite as the model” (p. 72). Thus, the default model hypothesis is, essentially, the projection of one’s own level

of sexual interest onto others. When there is a difference in levels of sexual interest, then misperception occurs. Accurate perception occurs only when both individuals are equally interested.

The default model hypothesis is consistent with a number of findings. Sexual arousal increases the perception of another's sexual receptivity and attractiveness (Stephan, Berscheid, & Walster, 1971), unless the other is of low attractiveness (Istvan, Griffitt, & Weidner, 1983). Misperception researchers have occasionally measured participant's sexual attraction to the opposite-sex target whose sexual interests they are estimating. In all of these studies, perception of the target's sexual interest was paralleled by the self-reported sexual attraction of the participant. That is, males were more sexually attracted to female targets than females were to male targets, and males also attributed females with greater sexual interest (Abbey, 1982; Abbey & Melby, 1986; Harnish et al., 1990). Abbey et al. (1987) reported not only this sex difference in participant sexual attraction to target and sex difference in participant attribution of sexual interest to target, but also that participant sexual attraction was correlated with perceptions of target sexual interest for both sexes. Thus, sexual arousal and attraction appear to be important factors in the perception of sexual interest.

Interestingly, in an exploration of naturally occurring misperceptions, participants provided introspective explanations for misperception consistent with the default model hypothesis (Abbey, 1987). For example, one participant said, "She liked me to begin with and jumped to a conclusion" (p. 188). Another asserted that, "Sometimes when I'm interested in someone I obviously get the wrong idea due to my wishful thinking," and another that, "Since I liked him I took everything he did as a hint" (p. 190). Obviously,

introspective explanations are not strong scientific evidence, but they nonetheless provide convergent evidence for the default model hypothesis.

*Predictions of the Default Model Hypothesis.* The default model hypothesis makes two predictions. First, one's own level of sexual interest should be a significant predictor of misperception of sexual interest, that is, of one's perception of another's sexual interest in oneself, after controlling for that person's self-reported sexual interest. This prediction holds as well for romantic interest. Second, when males, as a group, have greater sexual interest than do females, males are expected to overperceive the sexual interest of those females, whereas females are expected to underperceive the sexual interest of those males. Conversely, if males and females do not differ from one another on mean levels of sexual interest, then they should not differ on mean levels of perceived interest. This prediction holds as well for romantic interest.

#### *Error Management Theory*

The default model hypothesis can explain social perception wherein the perceiver projects his or her own intentions or feelings onto another. The perceiver's intentions and emotions do not always parallel those whom they are observing, however, so this theory is not sufficient to explain all interpersonal perception. For example, functional projection, an evolutionary theory, proposes that "arousal of specific motivational states leads people to perceive emotions in others that are not necessarily identical to their own (in fact, they often may be quite different) but that are nonetheless functionally related to their own motivational states" (Maner et al., 2005, p. 63).

In order to test this proposed organization of interpersonal perception, Maner et al. (2005) performed experiments in which they manipulated the motivational state of

participants. Male participants who were shown a movie clip depicting a romantic first date indicated perceiving greater levels of sexual interest in attractive females they saw in photographs. Thus, these males projected their sexual interest onto attractive female targets. This effect was not significant for female participants. When participants viewed a clip from a horror movie, inducing fear, instead of perceiving either fear, or sexual interest, in targets, they saw an increased amount of anger, at least for out-group members, and especially out-group males. The authors reasoned that, “self-protection goals might lead people to selectively process signals of potential threat” (p. 64). These tests of functional projection strongly suggest that the default model hypothesis is insufficient as a comprehensive theory of interpersonal perception.

When making their prediction that inducing a mate-search goal, Maner et al (2005) used a general, evolutionary theory of cognitive biases, EMT (Haselton and Buss, 2000). EMT suggests that cognitive biases evolved in order to make errors that were less costly, or more beneficial, over evolutionary time (Haselton & Buss, 2000). That is, in situations with some uncertainty, animals were selected to make misperceptions that were better for their fitness. For example, a prey animal is better off overperceiving the presence of predators most of the time; therefore EMT would expect prey animals to overperceive the presence of predators. EMT is a general purpose theory for explaining a variety of cognitive biases. Consideration of two additional evolutionary theories about mating strategies allows EMT to make predictions about misperceptions of sexual and romantic interest. The first of these theories is parental investment theory (Trivers, 1972); the second is sexual strategies theory (Buss & Schmitt, 1993). Both of these theories, and

their implications for predicting misperceptions of romantic and sexual interest, will be discussed in turn.

According to parental investment theory (Trivers, 1972), in any animal species, the sex which invests more in offspring should be more choosy about with whom they mate. In most species, including humans, females are more choosy because they have a higher obligatory investment in offspring than do males. Female mammals have larger gametes than males, gestation occurs in their wombs, and in evolutionary history female humans nursed offspring after birth (Lee, 1996; Prentice & Whitehead, 1987). Due to greater obligatory investment by females, they are predicted to be choosier than males, who instead compete with other males for sexual access to the more discriminating females.

Application of parental investment to human mating requires the consideration of sexual strategies theory (Buss and Schmitt, 1993). As previously mentioned, this theory suggests that humans have a continuum of mating strategies, anchored at short-term mating and long-term mating. In short-term mating, e.g., casual sex, the male is not expected to provide resources, including parental effort, for offspring. The male's investment need not exceed his mating effort. From the female perspective, however, short-term mating may provide an opportunity to access a mate with better genes, but she must raise her offspring without the help of its father. Thus, for short-term mating, there is a dramatic gap between the sexes in the amount of parental investment each provides. Therefore, females should be extremely choosy, whereas males should be fairly indiscriminant. These considerations led Haselton and Buss (2000) to predict that males

would overperceive the sexual interest of females so that they would not miss opportunities for “low cost” offspring.

As was mentioned earlier, Haselton and Buss (2000) tested these predictions by gathering information about perceptions of sexual intent for oneself, a same-sex person, and an opposite-sex person. They found, as predicted, that males perceived more sexual interest in females than females did in either themselves or another female target, suggesting males overperceived female sexual interest. Females, on the other hand, estimated male sexual interest in between male self-ratings and male ratings of other males, suggesting females may have been accurate in their perceptions. They also found that males perceived less sexual intent when they imagined the sexual intent of their sisters, suggesting that males may be correcting their overperception bias for females who are not viable mates.

Haselton (2003) did another study to test for a male overperception bias of female sexual intent. She had participants report naturally occurring experiences in which members of the opposite sex erroneously inferred their sexual interest. Females reported more experiences in which a male had overperceived her interest, compared to underperceiving her interest. This finding was consistent with the hypothesis that males overperceive female sexual interest. Males did not report a greater number of experiences of being overperceived or underperceived, suggesting that females are not systematically biased in their perceptions of male sexual interest.

On the other hand, in long-term mating, e.g., marriage, the male continues after courtship to invest his time and energy in his mate and her offspring. This strategy is usually more expensive for males than is short-term mating, but only males with high

genetic quality are chosen as short-term mates by choosy females. Females using a long-term mating strategy are concerned somewhat less about their mate's genetic quality and much more about his ability and intent to invest resources in her and her offspring (Buss & Schmitt, 1993). If she is abandoned after conception, she is stuck not only with an offspring with lower genetic quality than she could have acquired by using a short-term mating strategy, but she also does not receive the investment of resources from her mate. Because abandonment entails heavy cost, Haselton and Buss (2000) hypothesized that females will have a commitment skepticism bias. That is, they will underperceive male commitment intent.

In the same study in which they tested for male sexual overperception, Haselton and Buss (2000) also tested the commitment skepticism hypothesis. They found that, as expected, female ratings of male commitment intent were lower than were male ratings of their own, or another male's, commitment intent. This suggests that females underperceive male commitment. On the other hand, males perceived female commitment to be in-between female ratings for self, and for another female, suggesting that males accurately perceived female commitment intent.

In the present research, intent to commit to a long-term romantic relationship may have been an inappropriate because the participants were OSFs. A more appropriate facet of long-term mating to measure among OSFs may be romantic interest, which was operationalized in the current project as interest in *a long-term, committed romantic relationship*. This definition of romantic interest adjusts the focus from commitment intent to a more general interest in a romantic relationship, while maintaining an explicit emphasis on commitment. Thus, the prediction of Haselton and Buss (2000) that women

should underestimate the commitment intent of men may hold as well for romantic interest, as defined in this project.

Thus, EMT has been used to predict and find male overperception of female sexual interest, as well as female underperception of male commitment intent. Haselton (2003) also reasoned that humans should have a bias of overperceiving the sexual interest of those with high mate value, (i.e., how desirable one is as a mate,) because missing their interest was more costly than was overestimating it. She found that mate value was a positive predictor of the rate of overperception, i.e., the ratio between overperceptions to total number of misperceptions. Thus, individuals with higher mate value reported that a higher proportion of the times they had been misperceived were overperceptions of their interest.

*Predictions of EMT.* The studies by Haselton and Buss (2000) and Haselton (2003) identified three predictions of EMT. First, males will overperceive female sexual interest. Second, females will underperceive male romantic interest. Third, the sexual, and perhaps romantic, interests of targets with high mate value are more likely to be overperceived.

#### *The Current Project*

A review of the research on misperception has consistently demonstrated that males perceive more sexual interest in female and male targets than do females. Four unanswered questions in this research were identified. The current project addressed each of these questions.

First, the consistent sex difference in perception of sexual interest has been interpreted primarily as male overperception. Scrutiny of the results in the literature,

however, suggests that females may underperceive the sexual interest of male targets as well. Females perceived less sexual interest in male targets than did males, which is consistent with both of these interpretations: (a) Males overperceive male and female sexual interest, and (b) females underperceive male sexual interest. More informative is the finding that females also perceive less sexual interest in males than males themselves report. This strongly suggests that females underperceive male sexual interest. The design of this project is sensitive to both male and female overperception and underperception. This is achieved by having participants indicate their own sexual interest in another and estimate that other's sexual interest in them, and collecting symmetrical information from the other person.

Second, almost all research that has evaluated misperceptions of mating interest has focused on sexual interest. Sexual strategies theory, however, argues that human mating extends from short-term mating to long-term mating. Thus, romantic interest, in addition to sexual interest, has potential to be misperceived across the sexes. One study to date has evaluated, and found, misperception of one aspect of romantic interest, commitment intent. Replication of this finding would be valuable. Therefore, in the current study romantic interest is measured in addition to sexual interest.

Third, almost all relevant studies have used targets who were strangers to one another and to the participants. Frequently these targets were actors in videos or photos, but sometimes they weren't people at all. Instead, written scenarios or behaviors were presented. Participants rated sexual intent based on this limited information. A few studies have evaluated real-life experiences of misperception of sexual interest, although all have used the same method: recall of being misperceived. Therefore, the current study

was designed to replicate the findings of misperception sexual interest and to extend them to romantic interest, in an ecologically valid scenario. Towards this end, members of OSFs were chosen as the unit of study.

Last, few studies on misperception have been guided by theory. The research design of this project tested the predictive power of two theories, the default model hypothesis (Shotland and Craig, 1988) and EMT (Haselton & Buss, 2000). The default model hypothesis suggests that people use their own interest to gauge the interest of others; that is, they assume that others have the same level of interest. It predicts that perceptions of romantic and sexual interests will be predicted by one's own interest in the other. From an evolutionary perspective, EMT predicts that, (a) because it was more costly for males to underperceive sexual interest of a potential mate than to overperceive it, males will overperceive female sexual interest, (b) because it was more costly for females to overperceive than to underperceive romantic interest in a potential long-term mate, females will underperceive male romantic interest, and (c) for both sexes it was more costly to underperceive than to overperceive the sexual interest of others with high mate value, and therefore both males and females will overperceive the romantic and sexual interests of those with high mate value.

These hypotheses were tested in two studies. In both, OSFs answered questions about their own romantic and sexual interests in their OSF. They also estimated the romantic and sexual interests of their OSF in them. Study 2 served as a replication of Study 1. In addition, Study 2 included mate-value measures in order to test the prediction of EMT that the sexual and romantic interests of those with high mate value will be

overperceived. In Study 2 a number of methodological improvements were also implemented.

## STUDY 1

The present study was designed to evaluate misperceptions of romantic and sexual interests in OSFs, as well as to test two alternative theoretical explanations for misperceptions of these interests. Therefore, participants answered questionnaires that measured their romantic and sexual interests in their OSF, as well as their perceptions of their OSF's romantic and sexual interests in them. OSFs completed a symmetrical questionnaire to get the same information from their perspective.

In this study, the following predictions were tested. The default model hypothesis predicts that participant romantic interest would predict misperception of OSF romantic interest, and that participant sexual interest would predict misperception of OSF sexual interest. It also predicts that systematic sex differences in the level of romantic and sexual interest should result in systematic sex differences in misperception, whereas misperception should not be systematic by sex if the sexes have similar levels of interests. EMT, on the other hand, predicts that females would underperceive their OSF's romantic interest, whereas males would overperceive their OSF's sexual interest.

### Method

#### *Participants*

Participants were students from the Introduction to Psychology research pool and their closest OSF, whom each recruited. For each sex, an equal number of slots were made available for students in a relationship and those who were single. The final sample in which both the student and their OSF completed their survey consisted of 71 female

and 58 male students, each with an OSF, for a total of 258 participants. The average age of students was 18.79 years ( $SD = 1.25$ ). OSFs were not asked their age.

Thirty-three students cancelled after signing up for the study. This high rate of cancellation suggests that there may have been self-selection in this sample. Participants for this study also provided information about sociosexuality and attachment for another researcher after completing the questionnaires for this study. It is unclear, however, if cancellations were due to the study on sociosexuality and attachment or this study, both of which asked very personal questions.

The term *opposite-sex friend (OSF)* has two distinct referents in this study. First, it refers to the participants who were recruited by the students to participate in this study. Second, from the perspective of either member of the OSF dyad, the term refers to the other member. For clarity of expression, whenever OSF is used in the first meaning, it includes a clarifier and is expressed as “the students’ OSF.” When used with the second meaning, it will be expressed without a clarifier, e.g., the participants’ romantic interest in their OSF. The term *participant* shall refer to both students from the research pool and the OSFs which they recruited, since both were participants in the study.

### *Procedure*

All questionnaires were completed on the Internet. On-line data collection has been shown to have reduced impression management, although a meta-analysis found this effect to be small (Dwight & Feigelson, 2000; Hodges, 2005). Nonetheless, reducing socially desirable responding was valuable in this study because it included questions which asked very personal questions. As a second precaution against socially desirable responding, participants were requested to complete the questionnaire alone. As was

made clear in the instructions on the study homepage, students provided informed consent by registering for the study. Students' OSFs provided informed consent by beginning the OSF Questionnaire (See Appendix A for details). Students were instructed to complete their survey first, then to let their OSF know to complete the on-line OSF Questionnaire.

### *Questionnaires*

In previous studies of the perception of sexual interest between members of opposite-sex dyads, measures of sexual interest did not explicitly differentiate between romantic and sexual interest. Therefore, questions in this study were designed to clearly differentiate between romantic and sexual interest.

In addition, special consideration of question wording was required because the name of the participant's OSF was embedded in the questions. On the web page preliminary to beginning the questionnaires, students provided their own first name and that of their OSF. These names were then embedded into statements and questions on subsequent webpages, including those on the OSF Questionnaire. This helped to avoid potential confusion and wordiness in questions, as well as make them more personal. For example, the question "If you and your opposite-sex friend were both single, how likely is it that *you* would have **casual sex** with your opposite-sex friend if your opposite-sex friend asked?" would instead be presented, for a participant whose OSF's name is "Bryan," as, "If you and Bryan were both single, how likely is it that *you* would have **casual sex** with Bryan if Bryan asked?"

Participants answered questions about their romantic and sexual interests in their OSF, and their perceptions of their OSF's romantic and sexual interests in them, for four

scales: romantic interest in OSF, sexual interest in OSF, perception of OSF romantic interest in self, and perception of OSF sexual interest in self. All questions about romantic and sexual interests, and participant perception of their OSF's interests, were based on the same framework, with changes only of key terms.

To increase reliability, each scale included three questions, each designed to measure a conceptually different component of romantic and sexual interests: behavioral, cognitive, and affective (see Appendix B). An example of a behavioral question measuring romantic interest, using "Bryan" as the name of the participant's OSF, follows, "If you and Bryan were both single, how likely is it that *you* would join a **long-term, committed romantic relationship** with Bryan if Bryan asked?" The cognitive measure of romantic interest would be, "How frequently do *you* think about a **long-term, committed romantic relationship** with Bryan?" The corresponding affective measure of romantic interest would be, "How much do *you* desire a **long-term, committed romantic relationship** with Bryan?" For sexual interest, "long-term, committed romantic relationship" was replaced with "casual sex."

All questions were followed by a seven-point response scale. Anchors were appropriate to the question: For behavioral questions, anchors were *Very Unlikely* and *Very Likely*; for cognitive questions, anchors were *None* and *Very Much*; and for affective questions, anchors were *Never* and *Very Often*.

In order to evaluate perceptions of OSF interest, the name of the OSF and the term "you" were reversed. Necessary adjustments were also made to make the questions intelligible. Thus, for example, the question probing perception of OSF sexual interest was, "If you and Bryan were both single, how likely is it that *Bryan* would have **casual**

sex with you if you asked?” The cognitive question for perception of sexual interest was, “How much do you believe *Bryan* desires to have **casual sex** with you?” Last, the affective component of the perception of sexual interest was probed with this question, “How frequently do you believe that *Bryan* thinks about having **casual sex** with you?” Response scale anchors were the same for each component of perceived interest as they were for probes of romantic and sexual interest, as described in the previous paragraph.

All questions were presented in this order to all participants: perception of OSF romantic interest in self, perception of OSF sexual interest in self, romantic interest in OSF, and sexual interest in OSF. Reliabilities for all scales were satisfactory: for perceived romantic interest,  $\alpha = .94$ ; and for perceived sexual interest,  $\alpha = .94$ ; for self-report romantic interest,  $\alpha = .93$ ; for self-report sexual interest,  $\alpha = .92$ .

Additional information potentially relevant to perceptions of sexual and romantic interest was collected from both students and their OSF about the history of their friendship. Questions asked each participant (i.e., both students and the students’ OSFs) how long they had been friends, how close each was to their OSF, whether or not the friends had seriously discussed beginning a romantic relationship, whether or not the friends had been in a romantic relationship with one another in the past, and how many times they had had sex. Information was also collected from all participants about their current relationship status. (See Appendix B).

## Results and Discussion

### *Preliminary Analyses*

*Relationship History.* Descriptive statistics are presented here for relationship history questions. Because the distributions were highly skewed for relationship length

and number of times OSFs had had sex, these data were transformed to a log base 10 for analysis. Descriptive statistics for these variables are shown in their original scale.

As will be addressed in the next section, the OSF dyads of male research pool participants and their female OSFs often produced different results than the OSF dyads of female research pool participants and their male OSFs. Therefore, the OSF dyads of male research pool participants will be referred to as *male-student dyads*. OSF dyads of female research pool participants will be referred to as *female-student dyads*. When referencing to grouping by these dyads, the term *dyad type* will be used.

A series of 2 X 2 (Sex X Dyad Type) factorial ANOVAs indicated that, for continuous relationship history variables, no relationship history measure was related significantly to these grouping variables. Therefore, means are presented that include both sexes and both dyad types. Participants reported the following: length of friendship in months ( $M = 31.16$ ,  $SD = 33.92$ ), closeness ( $M = 5.67$ ,  $SD = 1.09$ ), and number of times having had sex ( $M = 5.61$ ,  $SD = 20.27$ ).

For each categorical relationship-history variable, chi-square analyses evaluated main effects of sex and dyad type. Chi-square analyses were also done separately by sex for each dyad type in order to explore for interactions between sex and dyad type. There was a significant interaction between sex and dyad type for current romantic status, for female-student dyads,  $\chi^2 (n = 139) = 5.50$ ,  $p = .021$ ; for male-student dyads,  $\chi^2 (n = 108) = 4.13$ ,  $p = .047$ . For female-student dyads, 42.3% of females were in a relationship, compared to 23.5% of their male OSFs. For male-student dyads, 44.8% of males were in a relationship, compared to 26.0% of their female OSFs. About half of the students were in a romantic relationship, reflecting student eligibility requirements mentioned above. In

addition, about a quarter of the students' OSFs were in a romantic relationship. No other chi-square analyses were significant. Percentages for the other dichotomous relationship history variables follow. A small percent (10.1%) of participants indicated that they had been in a romantic relationship with their OSF in the past. A greater percentage (27.5%) indicated that they had explicitly discussed a long-term relationship with their OSF. The addition of relationship history variables to the tests of theoretical predictions did not affect the interpretation of those theoretical tests; therefore they are not discussed further.

*Differences Between the Sexes and Dyad Types.* An exploratory analysis was done in order to evaluate main effects for, and the interaction between, participant sex and dyad type. Four 2 X 2 (Sex X Dyad) factorial ANOVAs were conducted for the following dependent variables: romantic interest, sexual interests, perceived romantic interest, and perceived sexual interest. Means and standard deviations are presented in Table 1.

Main effects of sex were significant for two of the four dependent variables. There was a main effect of sex for sexual interest,  $F(1, 244) = 30.08, p < .001$ , with males ( $M = 3.58, SD = 2.01$ ) reporting more sexual interest than did females ( $M = 2.23, SD = 1.58$ ), and for perceptions of sexual interest,  $F(1, 245) = 7.17, p = .008$ , with females ( $M = 3.18, SD = 2.04$ ) reporting greater perceptions of sexual interest than did males ( $M = 2.56, SD = 1.71$ ). No sex differences were found for romantic interest or perceived romantic interest.

One main effect was found for dyad type, with analyses for two other dependent variables approaching significance. Male-student dyads ( $M = 3.56, SD = 1.71$ ) reported more perceived romantic interest than did female-student dyads ( $M = 2.95, SD = 1.76$ ). The dyad types did not differ for perceived sexual interest. Male-student dyads ( $M = 3.40,$

$SD = 1.80$ ) reported marginally more romantic interest than did female-student dyads ( $M = 2.96$ ,  $SD = 1.99$ ),  $F(1, 244) = 3.15$ ,  $p = .077$ . Male-student dyads ( $M = 3.17$ ,  $SD = 1.88$ ) also reported marginally more sexual interest than did female-student dyads ( $M = 2.71$ ,  $SD = 1.95$ ),  $F(1, 244) = 3.32$ ,  $p = .070$ . Notice that for all three main effects that were significant or approaching significance, male-student dyads had higher means than did dyads of female students (see Table 1). No interactions were significant, all  $p$ 's  $> .10$ . These analyses indicate that male-student dyads had more romantic interest, perceived romantic interest, and sexual interests than did female-student dyads. Because the male and female student OSF dyads were different, analyses will be reported separately for each dyad group.

Why did male-student dyads have more romantic and sexual interest than did female-student dyads? As can be seen above, it is not the result of relationship history variables; the dyad types did not differ on these. This suggests that romance or sexuality may be more important as a criterion of closeness within OSFs for males than for females. Thus, males may identify as their closest OSF females with whom their relationship has some romantic or sexual element. Females, on the other hand, may not be as likely to use romance and sexuality as a criterion when identifying their closest OSF. Although this topic is not directly addressed in the literature, some findings do support the assertion that males place greater emphasis on romance and sex in OSFs, compared to females.

Mahoney and Heretick (1979) most closely addressed the issue. They found that males perceived female friends in terms of "sociosexual companionship" (p. 219) and fun-loving companionship, whereas females perceived male friends in terms of potential for leadership and achievement skills. Males were also found to be more likely than

females to define intimacy, a concept closely related to closeness, in OSFs as involving sexual contact (Monsour, 1992). Thus, when males and females consider who is their closest OSF, males may be more likely to think of a relationship in which there are stronger sexual or romantic elements than would females.

Research on sex differences in motivation for initiating and ending OSFs supports this sex difference on the importance of romantic and sexual elements in OSFs. Males are more motivated to initiate an OSF because of sexual attraction than are females (Bleske-Rechek & Buss, 2001; Rose, 1985). Males also indicated a preference for sexual attractiveness when selecting OSFs, and lack of sexual activity was a more important reason for ending an OSF for men than women. For males, romantic interest was also a more important reason for initiating an OSF than it was for females (Bleske-Rechek & Buss, 2001). If the criteria males and females use to initiate and dissolve OSFs are indicators of what criteria they use to evaluate closeness within OSFs, then male students probably recruited OSFs with more romantic and sexual interest than did females.

#### *Sex Differences in Misperception within OSFs*

EMT predicted that females would underperceive OSF romantic interest, and that males would overperceive OSF sexual interest. In order to test these predictions, paired-sample *t*-tests were done separately for males and females within each dyad type. The variables used were (a) perception of other's (O's) romantic interest, and (b) O's romantic interest in self (S). Parallel analyses were done with sexual interest variables.

In Table 2, mean difference scores represent misperception. The difference scores were calculated by subtracting (O's interest in S) from (perception of O's interest in S). Thus, a positive value represents an overperception and a negative value an

underperception. Only in female-student dyads was there evidence of misperception. In these dyads, males overperceived female sexual interest,  $t(69) = 3.00, p = .004$ , as predicted by EMT. These males did not misperceive female romantic interest,  $t(69) = 1.22, p = .227$ . Females *underperceived* male sexual interest,  $t(69) = -2.55, p = .013$ , a significant effect not predicted by EMT, although it does replicate the findings of others (e.g., Abbey, 1982). Females did not underperceive male romantic interest,  $t(68) = -1.39, p = .168$ . For male-student dyads, all  $p$ 's  $< .10$ , indicating that no evidence of misperception was found. Thus, the findings that supported EMT in the female-student dyads were not replicated in the male-student dyads. Overall, these results provided mixed support for EMT.

Misperceptions occurred systematically by sex only in female-student dyads, and only for sexual interest. This finding cannot be explained by misperception occurring only in female-student dyads. As can be seen in Table 2, the standard deviations for both dyad types were similar, and misperception did not occur only when there was a high standard deviation. This suggests that systematic sex differences in misperception may be limited to groups of dyads with specific characteristics, here represented by female-student dyads. The limitation of misperceptions to female-student dyads will be addressed at the end of the following section.

#### *Predictors of Misperception within OSFs*

*Analysis Strategy.* The goal of the next set of analyses was to evaluate predictors of misperception theoretically derived from the default model hypothesis and EMT. Multiple regression analyses were used with perception of O's romantic interest as the dependent variable. O's romantic interest in S was controlled as a covariate. This allowed

additional variables to predict *misperception*, i.e., perception of O's romantic interest above or below O's romantic interest.

For these analyses, the additional predictors were participant sex and romantic interest. Separate analyses were run for male- and female-student dyads. Supplementary analyses were run separately for each sex, within both male- and female-student dyads. (In these supplementary analyses, participant sex was not used as a predictor.) Parallel analyses were run using sexual interest variables.

EMT predicted that, for romantic and sexual interests, sex would be a significant predictor of misperception, with males perceiving more interest. Alternatively, EMT would be supported if the interaction between sex and romantic interest, or sexual interest, were significant, with males overperceiving sexual interest and females underperceiving romantic interest. The default model hypothesis predicted that romantic interest, and sexual interest, in their respective regression equations, would be a significant predictor. Thus, the multiple regression analyses allow a concurrent test of the predictions of both EMT and the default model hypothesis. Both, neither, or only one theory could be supported by the results of these regression equations. The results of these multiple regressions are presented in Table 3 for male-student dyads and Table 4 for female-student dyads.

*Accuracy of Perceptions: The Covariate.* As can be seen in both tables, the controlled variable, O's interest in S, in most cases was a strong and significant predictor of perception of O's interest in S. This held for perceptions of both romantic and sexual interest, across male- and female-student dyads, and for both sexes within both dyad types. This reflects the degree to which S accurately perceived O's interests. This finding

was not predicted by either the default model hypothesis or EMT. It suggests that perceptions of O's interests in S are not limited to S's interest in O, or S's sex. Instead, additional information is included in these perceptions. This information may arise from communications, expressions of interest, shared activities, sexual intercourse, or other cues. Mechanisms for accurately perceiving the romantic and sexual interests of others should be explored in future research.

*Participant Sex.* Sex differences in misperceptions by dyad type were presented above using paired-sample *t*-tests. Those analyses allowed precise tests of the predictions of EMT that males would overperceive female sexual interest and females would underperceive male romantic interest. Multiple regression analyses allow an additional test of these predictions, but controlling for participant's own interests. This is important because EMT and the default model hypothesis have been characterized as competing theories (Haselton & Buss, 2000).

In the multiple regression analyses, EMT predicts that sex would be a significant predictor of misperception, and that males would perceive more sexual interest than would females. EMT would also be supported if the interaction between sex and romantic (or sexual) interest were significant so that males overperceived sexual interest and females underperceived romantic interest.

The results of the multiple regression analyses did not support the predictions of EMT. The interaction terms between sex and interest in O were not significant predictors ( $p$ 's > .10) in either male- or female-student dyads, for romantic or sexual interest. Because they were not significant predictors, the interaction terms were removed from the final regression equations. In the regression equations without interaction terms,

participant sex was not a significant predictor ( $p$ 's > .10) in either male- or female-student dyads, for romantic or sexual interest (see Tables 3 and 4). This suggests that the systematic sex difference in the misperception of sexual interest in the female-student dyads, which provided some support for EMT, may have been mediated by the mechanisms of the default model hypothesis.

*Participant Romantic Interest and Sexual Interest.* The default model hypothesis predicted that romantic interest, and sexual interest, would be positive predictors of misperception in their respective regression equations. Indeed, romantic interest was a significant and positive predictor. This held for both male and female-student dyads, and for both sexes within each type of dyad. Furthermore, sexual interest was a significant and positive predictor in each regression equation in which it was included. The one exception was a non-significant finding for sexual interest for males in the male-student dyads. This beta value, however, approached significance in the direction predicted by the default model hypothesis. In addition, of all regression equations for Study 1, this beta value was accompanied by the largest beta value for O's interest in S, suggesting there was a high degree of perceptual accuracy in these males. Overall, these results provided strong support for the default model hypothesis.

These findings indicate that participants' perceptions of their OSF interest in them were highly influenced by their own interest in their OSF. Also, as reported above, participants perceptions reflected their OSF's interest. Thus, these findings indicate that two important contributors to the perception that one's OSF is interested in oneself are (a) their actual interest, and (b) being interested in them. This suggests that such perceptions of interest have two "sources" of information. The first source is *external* and is a

reflection of the actual interest of one's OSF. The second is *internal* and is a reflection of one's own interest in one's OSF. Further research that explored more specific mechanisms by which this external and internal information influences perception would be valuable.

*Sex Differences in Misperception Within OSFs - Revisited.* We now return to the apparent finding that misperceptions of sexual interest, evaluated by paired-samples *t*-tests, occurred only within female-student dyads. The multiple regression analyses demonstrated that misperceptions occurred not only in female-student dyads, but in male-student dyads as well. Indeed, romantic interest in the female-student dyads and romantic interest in the male-student dyads each were about as strong of predictors of misperception as was sexual interest in female-student dyads. This suggests that the direction of misperception may not have been as systematic in the male-student dyads as it was in the female-student dyads, or for romantic interest in the female-student dyads. That is, only in female-student dyads did males systematically overperceived female sexual interest and females systematically underperceived male sexual interest, but in both dyad types and for both kinds of interest misperception appeared to be equally prevalent.

For romantic interest in female-student dyads, and for romantic and sexual interests in male-student dyads, overperception and underperception were not systematically related to sex. Instead, the results of the regression equations indicate that misperception varied systematically with the participant's own interest in their OSF. That is, participants projected their level of romantic and sexual interests onto their OSF, as

predicted by the default model hypothesis. The regression results indicate that this projection also occurred for sexual interest in female-student dyads.

The default model hypothesis predicts that, if participants in the female-student dyads were projecting their interests onto their OSF, then the systematic misperception found in female-student dyads should reflect a systematic sex difference in level of sexual interest. That is, for males to systematically overperceive females sexual interest, males should be projecting their higher level of sexual interest onto females with a lower level of sexual interest. Conversely, female underperception of male sexual interest should reflect female projection of their lower level of sexual interest onto males with a higher level of interest. Thus, there should be a large disparity of sexual interest by sex in female-student dyads.

This is precisely what can be seen in Tables 1 and 5. As is shown in Table 1, for sexual interest, males ( $M = 3.51, SD = 2.10$ ) reported a higher interest than did females ( $M = 1.92, SD = 1.39$ ) in the female-student dyads. A paired-samples  $t$ -test indicates that males had more sexual interest than females in this dyad type,  $t(70) = -6.60, p < .001$ . Notice in Table 5 that the mean difference score for sexual interest in female-student dyads is almost twice as large as the next largest difference in interest, romantic or sexual, within OSFs in Study 1. The large disparity between male and female sexual interest in female-student dyads, in combination with a tendency for people to project their sexual interest onto others, provides a parsimonious explanation for the systematic sex difference in misperception of sexual interest in female-student dyads.

*Summary*

EMT was supported by one finding: In the female-student dyads, males overperceived female sexual interest. Surprisingly, females did not underperceive male romantic interest. In the regression equations, neither sex nor its interaction term with participant interest was a significant predictor of misperception of O's interest, as predicted by EMT. However, the multiple regression analyses provided consistent support for the default model hypothesis: Participant interest was a significant predictor of perception of O's interest in S after controlling for O's self-report interest. This held for both romantic and sexual interests, both dyad types, and both sexes within each type of dyad, with only a single exception.

The apparent inconsistency between the finding that (a) males overperceived female sexual interest and females underperceived male sexual interest in the female-student dyad, and (b) sex was not a significant predictor of misperception, even for sexual interest in the female-student dyads, was interpreted as indicating that the systematic misperception of sexual interest by sex in the female-student dyads was a result of males projecting their higher levels of sexual interest onto females with less interest, and females projecting their lower levels of sexual interest onto males with more interest, which is consistent with the predictions of the default model hypothesis. Evaluation of the sex difference in sexual interests supported this interpretation.

## STUDY 2

There were three goals for Study 2. The first was to replicate the findings of Study 1 using a different sample of participants. This includes the unexpected difference between male and female-student dyads, as well as the tests of theoretical predictions.

The second goal was to test an additional prediction based on EMT. In her study using self-reported recall of events when participant's sexual interest had been overperceived, Haselton (2003) found that those with higher mate value had more experiences of having their sexual interest overperceived. This suggests that people overperceive the sexual interest of others with high mate value. Haselton suggested an interpretation of this finding using EMT: "It is possible that men and women are biased toward overperceiving the sexual interest of high mate value individuals because missing their potential interest was more costly over selective history than was overestimating their interest" (p. 43).

The previous quotation refers to sexual interest and short-term mate value, but similar logic can be applied to romantic interest and long-term mate value. Missing the potential *romantic* interest of a high quality mate, and therefore overlooking a potential opportunity to form a long-term mateship with a high quality mate, may have been more costly than underestimating their interest. To test the predictions that O's short-term mate value would predict overperception of O's sexual interest, and that O's long-term mate value would predict overperception of O's romantic interest, measures of participant perceptions of the short-term mate value and long-term mate value of their OSF were

included. These values will then be included in the appropriate multiple regression equations predicting misperception of interests.

Third, a number of methodological improvements were implemented in Study 2. These include improved formatting and wording of the study homepage, the addition of a definition of acceptable OSFs, a means to reduce participant cancellation, a question about student sexual orientation, an adjustment to one relationship history variable, an opportunity for participants to provide open-ended information if they so chose, and a question that asked participants if their data should be included or not. Each improvement will be described in their respective locations in the Method section.

## Method

### *Participants*

As in Study 1, participants were students from the Introduction to Psychology research pool and their closest OSF, whom each student recruited. In Study 1 no definition was provided for an OSF. It is reasonable that someone's closest OSF could be a relative or a boyfriend or girlfriend (Hendrick & Hendrick, 1993). These relationships are not part of the traditional definition of OSF (see, e.g., Monsour, 2002) and, presumably, in them romantic and sexual expectations are relatively clear. Therefore, as part of the eligibility requirements for Study 2, the following statement was added, "This study requires that you have your CLOSEST opposite-sex friend (not a relative or [boyfriend, girlfriend]) fill out a short (less than 10 minutes), anonymous on-line survey." To reduce the number of cancellations due to non-compliance of OSFs, that statement was followed by, "You should confirm that your friend will participate BEFORE signing up for this study."

In contrast to Study 1, students were asked to indicate their sexual orientation in Study 2. At the end of the student and OSF questionnaires, participants were provided a textbox within which to provide open-ended information that they thought might be important for the researcher to know. Through these two sources of information, at least one member of a dyad was indicated to be homosexual in eight dyads. As an additional precaution, at the end of the student and OSF questionnaire participants were asked to indicate if their data should be excluded for any reason. Participants were informed that students would still get research credit and there would be no reprisal of any sort if they indicated their data should be excluded. Members of two dyads indicated their data should not be included. These ten dyads were excluded from analysis.

After these exclusions, the final sample in which both the student and their OSF completed their survey consisted of 52 female and 52 male students, each with an OSF, for a total of 208 participants. The average student age was 18.85 ( $SD = .71$ ). As in Study 1, OSFs were not asked their age.

Eighteen students cancelled in Study 2. Although more students cancelled in Study 1, the cancellation rate in Study 2 was still relatively high. Because the sociosexuality and attachment scales were not given in Study 2, and students were asked to confirm that their OSF would participate before signing up, the self-selection seems most likely to have resulted from student aversion to answering, or having their OSF answer, questions about their own and their OSF sexual and romantic interest in one another. This explanation is consistent with the finding that OSFs are more likely to avoid discussing the state of their relationship than other topics, presumably because “uncertainty may often be tolerated in cases where the expected information is

undesirable” (Afifi & Burgoon, 1998, p. 255). Thus, self-selection appears to have been reduced compared to Study 1. Nonetheless, any effects of self-selection that occurred in Study 1 may also have been present in Study 2.

### *Procedure*

As in Study 1, all questionnaires were completed on-line. Informed consent was provided in the same way as Study 1 (see Appendix C). Questionnaires were almost identical, except that questions were added to measure long-term mate value and short-term mate value, and some modifications were made to OSF history questions. These changes are addressed more specifically below.

### *Questionnaires*

Participants answered the same questions in the same order as in Study 1 about their perceptions of their OSF romantic and sexual interests in them, and their romantic and sexual interests in their OSF (see Appendix B). As in Study 1, these questions were populated with the first name of each participant’s OSF. Reliabilities for all scales were satisfactory: for romantic interest,  $\alpha = .93$ ; for sexual interest,  $\alpha = .95$ ; for perceived romantic interest,  $\alpha = .93$ ; and for perceived sexual interest,  $\alpha = .93$ .

Additional questions were asked to assess perceptions of the long-term mate value and short-term mate value of OSFs. These questions were taken from Haselton (2003), with the modification of embedding the OSF’s first name into the question. Long-term mate value was assessed with this question, “Compared with others you know who are the same sex as you and about your age, how desirable do members of the opposite sex find [OSF’s first name] as a long-term mate or marriage partner?” Short-term mate value was assessed with this question, “Compared with others you know who are the same sex

as you and about your age, how desirable do members of the opposite sex find [OSF's first name] as a short-term mate or casual sex partner?" For both questions, a seven-point response scale was provided with the anchors, *Very Undesirable* and *Very Desirable*.

As in Study 1, additional information about the relationship history of the friendship that may potentially be relevant to perceptions of sexual and romantic interests was collected from students and their OSFs. Questions probed how long they had been close friends, how close each was to their OSF, how much they had discussed beginning a romantic relationship (in order to increase accuracy, the wording for this question was adjusted from Study 1, in which participants were asked only whether or not they had discussed a long-term relationship), whether or not they had been in a romantic relationship in the past, and how many times they had had sex (see Appendix C).

### Results and Discussion

Study 2 was designed to test the same hypotheses as Study 1 and two additional predictions of EMT. To reiterate, the default model hypothesis predicted that participant romantic interest in their OSF would be a positive predictor of their misperception of their OSF's romantic interest in them. The parallel prediction was made for sexual interest. In addition, systematic sex differences in misperception should be accompanied by systematic sex differences in level of interest. EMT predicted that females would underperceive their OSF's romantic interest, and that males would overperceive their OSF's sexual interest. Study 2 tested two additional predictions based on EMT. First, OSF's long-term mate value would be a positive predictor of misperception of OSF's romantic interest. Second, OSF's short-term mate value would be a positive predictor of misperception of OSF's sexual interest. These additional predictions were tested by

adding the mate-value measures to the appropriate regression analyses, as is described below.

### *Preliminary Analyses*

*Relationship History.* Descriptive statistics are presented for relationship history questions. Because the distributions were highly skewed for relationship length and the number of times OSFs had had sex, these data were transformed to a log base 10 for analysis. Descriptive statistics for these two variables are shown in their original scale.

A series of 2 X 2 (Sex X Dyad Type) factorial ANOVAs indicated no significant main effects or interactions for relationship length and closeness. Overall, participants reported the following: length of friendship in months ( $M = 28.81, SD = 27.71$ ) and closeness ( $M = 5.86, SD = .97$ ). For number of times the OSF's had sex, participants in male-student dyads ( $M = 18.36, SD = 77.13$ ) reported a higher count than did participants in female-student dyads ( $M = 2.98, SD = 15.04$ ),  $F(1, 182) = 6.04, p = .015$ . Participants in male-student dyads ( $M = 2.67, SD = 1.96$ ) also reported they had discussed a long-term relationship with their OSF more than participants in female-student dyads ( $M = 2.13, SD = 1.89$ ),  $F(1, 202) = 3.90, p = .050$ .

For each categorical relationship-history variable, chi-square analyses evaluated main effects of sex and dyad type. Chi-square analyses were also done separately by sex for each dyad type in order to explore for interactions between sex and dyad type. None of these analyses was significant ( $p$ 's > .10) for either current romantic status (29.0% of participants were in a romantic relationship) or romantic history (13.5% of participant reported they and their OSF had previously been in a romantic relationship). The addition

of relationship-history variables to the tests of theoretical predictions did not affect the interpretation of those theoretical tests; therefore they are not discussed further.

*Differences Between the Sexes and Dyad Types.* As in Study 1, an exploratory analysis was done in order to evaluate sex differences, differences between dyad types, and their interaction. In four 2 X 2 (Sex X Dyad Type) factorial ANOVAs the dependent variables were romantic interest, sexual interests, perceived romantic interest, and perceived sexual interest. See Table 6 for means and standard deviations.

A main effect of sex was found only for sexual interest,  $F(1, 198) = 20.66, p < .001$ , with males ( $M = 3.14, SD = 1.99$ ) reporting more sexual interest than did females ( $M = 1.99, SD = 1.57$ ). No sex differences were found ( $p$ 's  $> .10$ ) for romantic interest, perceived romantic interest, or perceived sexual interest.

In contrast to Study 1, in which the only main effect found for dyad type was perceived romantic interest, with both romantic interest and sexual interest approaching significance, in Study 2 the dyad types differed significantly for all four dependent variables. Male-student dyads ( $M = 3.49, SD = 1.84$ ) reported more romantic interest than did female-student dyads ( $M = 2.96, SD = 1.71$ ),  $F(1, 201) = 4.75, p = .031$ . Male-student dyads ( $M = 2.88, SD = 1.91$ ) also reported more sexual interest than did female-student dyads ( $M = 2.25, SD = 1.80$ ),  $F(1, 198) = 5.81, p = .017$ . Male-student dyads ( $M = 3.60, SD = 1.78$ ) reported perceiving more romantic interest than did female-student dyads ( $M = 3.02, SD = 1.66$ ),  $F(1, 200) = 5.90, p = .016$ . Male-student dyads ( $M = 2.76, SD = 1.89$ ) reported perceiving more sexual interest than did female-student dyads ( $M = 2.23, SD = 1.72$ ),  $F(1, 199) = 4.38, p = .022$ . Notice that, as in Study 1, when dyad-types differed on

level of interest or perceived interest, the means were greater for male-student dyads than for female-student dyads.

The only interaction that approached significance was for romantic interest,  $F(1, 201) = 3.11, p = .080$ . As can be seen in Table 6, comparison of the means suggests that the interaction was primarily due to females in female-student dyads reporting less romantic interest than did females in male-student dyads or males in either dyad type.

These preliminary analyses replicated the findings of Study 1 that male-student dyads had more romantic interest, sexual interest, and perception of romantic interest, compared to female-student dyads. Only in Study 2, however, was perception of sexual interest significantly greater in male-student dyads. These findings support the decision in Study 1 to analyze male and female-student dyads separately, which will be done for Study 2 as well.

In Study 1, the unexpected difference between dyad types was explained, tentatively, by supposing a sex difference in how students identified their closest OSF. It was conjectured that males used romantic or sexual interest as an indicator of closeness, whereas these interests were less important for females in identifying their closest OSF. In Study 1, studies from the literature were cited in support of this assertion. Results from the relationship-history analyses in Study 2 also provide evidence consistent with this conjecture. In Study 2, participants in male-student dyads reported more sexual activity and discussion of beginning a romantic relationship with their closest OSF, compared to female-student dyads. These differences in dyad type may not have been significant in Study 1 because a larger proportion of participants were in a romantic relationship in Study 1 than in Study 2. This may explain why participants in Study 1 reported less

sexual activity and discussion of starting a long-term relationship with their OSF, compared to participants in Study 2. Another important difference between the studies is that the participants in Study 1 were primarily first-semester freshman, whereas the participants in Study 2 were primarily second-semester freshman.

### *Sex Differences in Misperception within OSFs*

Recall that EMT predicted females would underperceive their OSF's romantic interest, and that males would overperceive their OSF's sexual interest. In order to test these predictions, paired-samples *t*-tests were run using (a) the perception of O's romantic interest in S, and b) O's romantic interest in S. Separate analyses were performed for each sex within each dyad type. Parallel analyses were also done for sexual interest variables. These *t*-tests produced difference scores that were calculated by subtracting *O's interest in S* from *perception of O's interest in S*. Thus, a positive value represents an overperception and a negative value an underperception. Means and standard deviations of the difference scores, which represent misperception, for Study 2 are presented in Table 7.

As in Study 1, evidence of misperception based on the paired-samples *t*-tests was found only among female-student dyads. Looking at this dyad type, as predicted by EMT, males overperceived female sexual interest,  $t(50) = 3.94, p < .001$ , which replicates the finding in Study 1. Not found in Study 1, but predicted by EMT, females underperceived male romantic interest,  $t(50) = -2.39, p = .021$ . In contrast to Study 1, and not predicted by EMT, males *overperceived* female romantic interest,  $t(49) = 3.73, p < .001$ . As found in Study 1, but not predicted by EMT, females *underperceived* male sexual interest,  $t(48) = -2.62, p = .012$ . This pattern of males overperceiving female sexual interest and females

underperceiving male sexual interest replicates previous findings (e.g., Abbey, 1982), and extends them to romantic interest. As in Study 1, no misperceptions were significant for male-student dyads; females underperceived male sexual interest, but not significantly,  $t(48) = -1.78, p = .082$ . For male-student dyads, all other  $p$ 's  $> .10$ , indicating that no evidence of misperception was found.

As in Study 1, misperceptions of sexual interest occurred systematically by sex only in female-student dyads. In this dyad type only, romantic interest was also systematically misperceived by sex, but only in Study 2. Overall, these analyses supported the predictions of EMT in the female-student dyads, but the predicted findings were not replicated in the male-student dyads. In the female-student dyads there was evidence of misperceptions that were not predicted by EMT. Thus, in sum, these analyses provided mixed support for the predictions of EMT. Notably, for systematic sex differences in misperception of romantic and sexual interests, without exception across Studies 1 and 2, males overperceived and females underperceived the interests of their OSF.

As was argued in Study 1, the limitation of systematic sex differences to female-student dyads cannot be explained by misperception occurring only in these dyads. As can be seen in Table 7, the difference scores were highly variable in both male and female-student dyads. Furthermore, mean difference scores do not appear to be related to the standard deviations of the difference scores. Alternatively, as suggested in Study 1, misperception may have been common in both dyad types, but varied systematically by sex only in the female-student dyads. A subsection devoted to this topic is presented below, as was done for Study 1.

*Predictors of Misperception Within OSFs*

*Analysis Strategy.* As in Study 1, multiple regression analyses were used to test predictions of both EMT and the default model hypothesis. The analysis strategy was the same as in Study 1, with the addition of mate-value measures. Thus, in the multiple regressions the dependent variable was perception of O's romantic interest in S. O's romantic interest in S was controlled as a covariate. Additional variables thus predicted *misperception* of romantic interest, i.e., perception of O's romantic interest in S above or below O's romantic interest in S.

For these analyses, the additional predictors were participant sex, romantic interest, and O's long-term mate value. Analyses were run separately for male and female-student dyads. Supplementary analyses were done separately for each sex within each dyad type. (Participant sex was not used in these supplementary analyses.) Parallel analyses were run using sexual interest variables, participant sex, and O's short-term mate value.

EMT predicted, for both romantic and sexual interest analyses, that (a) participant sex would be a significant predictor, with males perceiving more interest than females, or (b) the interaction term between participant sex and participant interest would be a significant predictor, with males overperceiving sexual interest and females underperceiving romantic interest, and (c) for their respective regression equations, long-term mate value and short-term mate value would be a positive predictor of misperception. The default model hypothesis, on the other hand, predicted that romantic interest would be a positive predictor of misperception for romantic interest, and sexual interests would be a positive predictor of misperception for sexual interest. The multiple

regression analyses therefore allowed concurrent tests of the predictions of EMT and the default model hypothesis. The results of these regression equations could support both, neither, or only one of these two theories. The results of these multiple regressions are presented in Table 8 for male-student dyads and Table 9 for female-student dyads.

*Accuracy of Perception: The Covariate.* The controlled variable, O's interest in S, was a significant predictor of perception of O's interest, usually with large beta values, for both romantic and sexual interests, in both dyad types, and for males and females in each dyad type. This finding, unexpected by both EMT and the default model hypothesis, replicates that of Study 1 and therefore provides further evidence that perceptions of O's romantic and sexual interests partially reflect that person's actual interests. As was suggested in Study 1, these large and consistent effects indicate that researching mechanisms by which accurate perception of romantic and sexual interest occurs may be fruitful.

*Participant Sex.* As in Study 1, precise tests of the predictions of EMT were done by using paired-sample *t*-tests in Study 2, which are reported above. Multiple regression analyses allow an additional test of these predictions, but controlling for participant's own interests. EMT predicted that sex would be a significant predictor, with males perceiving more interest than females, or that the interaction between sex and interest in O would be significant, with males overperceiving sexual interest and females underperceiving romantic interest. The default model hypothesis did not make predictions based on sex.

In the full regression equations, participant sex was a significant predictor in two of the four regression equations (other *p*'s > .10). First, in the regression equations

predicting misperception of romantic interest, participant sex was significant only in female-student dyads (See Tables 8 and 9). As predicted by EMT, males perceived more romantic interest than did females. However, participant sex was not a significant predictor of misperception of romantic interest in male-student dyads. Furthermore, recall that participant sex was not a significant predictor of misperception of romantic interest for either male or female-student dyads in Study 1. In the romantic interest regression equations from Study 1 the beta values for sex were close to zero and slightly negative. Overall for both studies, in only one of the four regression equations predicting the misperception of romantic interest was participant sex a significant predictor of misperception, providing limited support for EMT. This significant result suggests that there may be sex differences in perception that are explained by EMT above and beyond that which can be explained by the default model hypothesis or the other person's actual interest.

Participant sex was also a significant predictor of the misperception of sexual interest, but only in male-student dyads (see Tables 8 and 9). Surprisingly, and opposite than predicted by EMT and not predicted by the default model hypothesis, females perceived that their OSFs were more sexually interested than did males. Also, recall that participant sex did not predict misperception of sexual interest for either male or female-student dyads in Study 1. Initially, it appears that there may or may not be a relationship between participant sex and misperception of sexual interest. However, scrutiny of the results of these two studies suggests that it may be a real, but small, effect. When evaluating the results for the four regression equations predicting misperception of sexual interest from both studies, the beta value for participant sex was always negative and

about the same magnitude, i.e., from  $-.10$  to  $-.16$ . This suggests that the effect is consistent, but small. The direction of the beta values indicates that females perceive more sexual interest in their OSF than do males, when the sexual interest of both members of the dyad are controlled. Perhaps this unpredicted result reflects a common assumption among participants, and people more generally, that males have a higher sexual drive, or more sexual interest, than do females. Future research is needed to clarify the source of this relatively small effect.

Recall that the paired-samples *t*-tests indicated that, in female-student dyads, males overperceived female sexual interest and females underperceived male romantic interest, as predicted by EMT. For this dyad type, if neither sex nor the interaction between sex and interest in O are significant, but interest in O is significant, this would be consistent with the proposition that the findings of the paired-samples *t*-tests that provided support for EMT were mediated by the default model hypothesis. In female-student dyads, males did not perceive more sexual interest in their OSF than did females in the regression analyses, but they did in the paired-samples *t*-test reported above. As will be reported below, interest in O was a significant predictor in these analyses. Thus, in both studies, the systematic sex difference in misperception of sexual interest found using paired-samples *t*-tests were not found in the regression equations that included the participant's sexual interest in their OSF. This suggests that the systematic sex difference in misperceptions that supported the predictions of EMT may have been mediated by the sexual interest of the participants, i.e., the mechanism suggested by the default model hypothesis.

Hierarchical regression analyses were run in order to test the proposition that the systematic sex differences in the misperception of sexual interest in Studies 1 and 2 were mediated by the participant's own sexual interest in their OSF. For these analyses, only female-student dyads were used. The dependent variable was perception of O's sexual interest in S. Entered in the first step was O's sexual interest in S. In Step 2, participant sex was entered. This step provides a replication of the finding of a systematic sex difference in the misperception of sexual interest. For Study 2, O's short-term mate value was also added in Step 2. Finally, in order to test the hypothesis that the systematic sex difference in misperception was due to participant's sexual interest in their OSF, in Step 3 participant sexual interest was entered.

For Study 1, sex was not a significant predictor of misperception of sexual interest when it was entered in Step 2. It was, however, in the expected direction ( $\beta = .107, p = .174$ ). In Step 3 when participant's sexual interest was added, however, the beta for participant sex became negative, and it was not significant ( $\beta = -.122, p = .131$ ). Thus, for Study 1, the mediation hypothesis was not able to be addressed clearly, although all trends were in the predicted directions. In Study 2, the addition of participant sex in Step 2 produced a nearly significant beta for participant sex in the predicted direction ( $\beta = .178, p = .051$ ). When the participant's sexual interest was added in Step 3, the beta for participant sex became non-significant and even became negative ( $\beta = -.110, p = .227$ ). Thus, the results of the hierarchical regressions for Study 2 support the hypothesis that the systematic sex difference in misperception is due to participant sexual interest in their OSF. Overall, these two hierarchical regressions provide moderate support for the mediation hypothesis.

*Participant Romantic Interest and Sexual Interest.* The default model hypothesis predicted that romantic interest and sexual interest would be positive predictors of the misperception of romantic interest and sexual interest, respectively. The results supported these predictions. Participant romantic interest and sexual interest were significant and strong (beta values ranged from .29 to .69) predictors of misperception in both male- and female-student dyads, and for participants of each sex when considered separately for each dyad type (See Tables 8 and 9). These findings replicate those of Study 1. Overall, the consistent, replicated, and large effects, for both romantic and sexual interest, of Ss' interest in O on the misperception of O's interest in S provides robust support for the default model hypothesis.

Recall that the default model hypothesis argues that people use their own level of interest as a gauge when estimating another person's level of interest. These results are consistent with this mechanism, although it does not explain on a more specific level what the mechanism might be. As was suggested in Study 1, a comprehensive model of social perception would have to be able to account for information from both internal sources, e.g., emotions, as well as external sources, e.g., direct experiences or stereotypes. Understanding of social perception could be greatly enhanced by empirically supported models that utilize both internal and external inputs.

*Mate Value.* EMT predicted that mate value would be a positive predictor of the misperception of both sexual interest and romantic interest. Unexpectedly, mate value was not a significant predictor of misperception of romantic or sexual interest, for either male- or female-student dyads, or for participants of either sex when analyzed separately within each dyad type (see Tables 8 and 9).

This null finding is particularly striking because the zero-order correlation between short-term mate value and perception of sexual interest was significant and positive for both male- and female-student dyads. As can be seen in Tables 8 and 9, the supplementary analyses done separately for participants of each sex revealed an interaction between sex and dyad type. Significant zero-order correlations were limited to males in the male-student dyads and females in the female-student dyads. Why this interaction occurred is not clear.

That short-term mate value was significantly correlated with perception of sexual interest, but was not a significant predictor of misperception in the full regression equation, suggests that misperception of O's sexual interest in S may be mediated by the S's sexual interest in O, as would be suggested by the default model hypothesis. In order to test this proposition, hierarchical regression analyses were performed for the two groups with significant zero-order correlations: males in the male-student dyads and females in the female-student dyads. The dependent variable was perception of O's sexual interest in S. On the first step, O's sexual interest in S was entered. On the second, short-term mate value was entered. On the third, sexual interest in O was entered.

For the males, short-term mate value was significant when entered ( $\beta = .254, p = .022$ ), and became non-significant once sexual interest in O was entered ( $\beta = .092, p = .289$ ). Thus, for these males, the results of the hierarchical regressions support the interpretation given above: The finding that OSFs with higher mate value were perceived as more sexually interested was mediated by participants' own sexual interest in their OSF. For the females, when short-term mate value was entered, it was not significant, ( $\beta = .167, p = .206$ ), indicating that it did not predict misperception of sexual interest.

Therefore, these two hierarchical analyses provide limited support for the proposition that misperception of O's sexual interest in S may be mediated by the S's sexual interest in O.

As can be seen in Tables 8 and 9, mate value was not a significant predictor of misperception in any of the full regression equations. This could reflect an actual null effect for mate value. There are, however, at least two alternative explanations of why mate value was a poor predictor of misperception.

First, the questions may not have been measuring mate value. If the mate-value measures were measuring mate value, then reports of O's mate value would be expected to be positively correlated with Ss' interest in O. Evaluation of these correlations supports this proposition. Romantic interest was significantly, and positively, correlated with long-term mate value,  $r = .30, p < .001$ . Also, sexual interest was significantly, and positively correlated with short-term mate value,  $r = .28, p < .001$ . Thus, these measures appear to have successfully tapped their target constructs.

Second, the use of single-item measures may have resulted in unreliable data. The presumably low reliability of these scales probably reduced the predictive ability of mate value in these regression equations. It would be valuable to replicate this study using a validated and reliable multi-item mate-value measure that differentiates between long-term mate value and short-term mate value.

*Sex Differences in Misperception Within OSFs - Revisited.* Recall that, based on the paired-samples *t*-tests, misperception occurred systematically by sex only in female-student dyads. In Study 1, this occurred for only sexual interest. In Study 2, it occurred for romantic and sexual interest. In all cases, males overperceived the interest of females,

and females underperceived the interest of males. No misperceptions were found to occur systematically by sex in male-student dyads in either study.

In Study 1, this difference between dyad type was interpreted as being the result of the projection of systematic sex differences in levels of sexual interest. Recall that, in female-student dyads, the sex difference in sexual interest between males and females was almost twice as large as the next sex difference for any other interest. That is, in female-student dyads males had much more sexual interest than did females, and this disparity was greater than it was for romantic interest in these dyads or for either kind of interest in the male-student dyads (see Table 5).

The results of Study 2 are also consistent with this interpretation, but only for sexual interest. Again, there was a systematic sex difference for misperception of sexual interest in the female-student dyads only. Also, the disparity between the males and females on sexual interest was again much larger than was the disparity for romantic interest in this dyad or either interest in male-student dyads (see Table 5). Evidence from the variance of the difference scores from the paired-sample *t*-tests (see Table 7) and the results from the multiple regression analyses (see Tables 8 and 9) indicated that misperceptions occurred for both sexes in both types of dyads. Together, these results from Studies 1 and 2 are consistent with the interpretation that the systematic sex difference in the perception of sexual interest was due to sex differences in sexual interest.

Does this explanation apply to the systematic sex difference for romantic interest found in female-student dyads in Study 2? The answer to this question is not so clear. As was the case for sexual interest, the variance of the difference scores from the paired-sample *t*-tests (see Table 7) and the results from the multiple regression analyses (see

Tables 8 and 9) indicated that misperceptions occurred for both sexes in both types of dyads. However, the crucial evidence for this conclusion is lacking: a large sex difference in romantic interest to be projected. Unlike sexual interest, the sex difference in romantic interest is not exceptionally large in the female-student dyads (see Table 5). In fact, three other mean difference scores (i.e., sexual interest in male-student dyads in Study 1, romantic interest in female-student dyads in Study 1, and sexual interest in male-student dyads in Study 2) are larger, yet did not result in systematic misperception by sex as measured by mean difference scores. The explanation may be that, of all sex differences of romantic interest and sexual interest, the correlation between members of the dyad was lower for romantic interest in female-student dyads in Study 2 than were correlations for the other interests for which there was a sex difference in romantic or sexual interest within dyads (see Table 5). This combination of a moderate sex difference in romantic interest and a low correlation between the sexes in romantic interest may be a sufficient, albeit statistical, explanation for this apparently anomalous finding. A theoretical or practical explanation is unclear for why there was a systematic sex difference in the misperception of romantic interest, but not an exceptionally large sex difference in romantic interest, only for the female-student dyads in Study 2.

Perhaps more importantly, in the multiple regression equation predicting misperception of romantic interest for this dyad type, sex was a significant predictor above and beyond participant romantic interest in their OSF. This finding was addressed above in the section reporting the predictive abilities of sex in the regression equations in Study 2. Here it will be reiterated that this is the only finding in which participant interest did not account for a predicted systematic sex difference in misperception. That is, this is

the only finding that supported EMT that cannot be accounted for by the default model hypothesis.

### *Summary*

Two predictions based on EMT were supported: Females underperceived male romantic interest and males overperceived female sexual interest. These findings occurred in the female-student dyads, but were not replicated in the male-student dyads. Also, in the regression equations males perceived more romantic interest in their OSF than did females, as predicted by EMT, but only in female-student dyads. In the male-student dyads, females perceived more sexual interest in their OSF than did males, opposite than predicted by EMT and not predicted by the default model hypothesis. Sex was not a significant predictor for romantic interest in male-student dyads or for sexual interest in female-student dyads. The multiple regression analyses provided consistent support for the default model hypothesis: Participants' own interest in their OSF was a significant predictor of misperception. This was found for both romantic and sexual interests, in both dyad types, and for both sexes within each dyad type.

Recall the apparently inconsistent findings that (a) males overperceived female sexual interest and females underperceived male sexual interest in the female-student dyad, and (b) sex was not a significant predictor of misperception for sexual interest in the female-student dyads. It was proposed that this paradox may be because the results which supported EMT could perhaps be explained by the default model hypothesis. That is, the systematic misperception of sexual interest by sex in the female-student dyads (which was predicted by EMT) was a result of males projecting their higher levels of sexual interest onto females with less interest, and of females, in turn, projecting their

lower levels of sexual interest onto males with more interest (as explained by the default model hypothesis).

This proposition was evaluated in a number of different ways in both studies. Overall, the results for sexual interest consistently supported this interpretation. In both studies, males had a much higher degree of sexual interest in their OSF than did females, but only in the female-student dyads. Also, in the multiple regression equations, participant interest predicted misperception, whereas sex did not. Perhaps the most striking, for female-student dyads in Study 2, in a hierarchical regression, sex was a significant predictor of sexual misperception in the direction predicted by EMT, but after the sexual interest of participants was entered, the effect for sex actually reversed direction! These lines of evidence strongly suggest that the findings which supported EMT could be explained by the default model hypothesis.

For only one result, from both studies, was the default model hypothesis not able to account for a finding that was predicted by EMT. In Study 2, in female-student dyads only, there were systematic sex differences in misperception of romantic interest. This was not accompanied by a large sex difference in romantic interest. Also, in the regression equation predicting misperception of romantic interest for female-student dyads, sex was a significant predictor of misperception of romantic interest when the romantic interest of participants was accounted for.

## GENERAL DISCUSSION

The current project evaluated misperception of romantic and sexual interest in OSFs. In doing so, it addressed four unanswered questions identified in previous research on the perception, and misperception, of sexual interest. First, it provided evidence that misperception of sexual interest is something that *not* only males do. The results suggested that females are just as likely as males to misperceive sexual and romantic interests. Also, when systematic sex differences occurred in misperception, they replicated previous findings: males overperceived interests, females underperceived interest. Second, this study was one of few studies to evaluate, and to find evidence for, the misperception of romantic interest. Third, previous research has focused exclusively on perceptions of sexual interest between strangers. The current study extended these findings to an extant relationship, OSFs, for sexual interest and romantic interest. Last, the predictions of two theories were tested. The predictions of the default model were strongly supported, whereas the predictions of EMT received mixed support. The implications of the results for each of these questions are discussed in turn. Before addressing the implications of the findings of these studies, several limitations of the current studies should be addressed.

### *Limitations of the Current Project*

The current project has some important weaknesses that limit the implications of its findings. First, this study did not control for socially desirable responding. Data collection was done on-line, which has been shown to slightly reduce impression

management (Dwight & Feigelson, 2000). However, impression management may have occurred nonetheless. A second component of social desirable responding, self-deception, may also have been an issue in this study, as well as other studies that use a self-report method (Paulhus, 1984). Studies in the future in which social desirable responding is limited or controlled are important for establishing the validity of the findings for this study.

If impression management affected the results, it may have occurred as managing the impression of the OSF, not of the individuals. The presentation to social networks of OSFs as *friendships*, and not as mating relationships, was one of the four challenges to OSFs presented by O' Meara (1989). In one study, a third of all members of OSF dyads reported that they explained to everyone in their social network that their OSF was not romantic, and about 80% reported explaining this to at least one other person (Monsour, Harris, Kurzweil, & Beard, 1994). If this were the case, participants in these studies may have attributed to themselves and their OSF a low level of romantic and sexual interest.

Is socially desirable responding, or at least impression management, an alternative explanation for the findings of this project? Perhaps the strongest argument against this interpretation is provided by comparison of male- and female-student dyads. Females in the male-student dyads reported more romantic and sexual interest than the females in female-student dyads. Recall that this unexpected finding from Study 1 was replicated in Study 2. Similarly, as can be seen in Table 6, only in the male-student dyads did both males and females report, independently, that they were equally interested in each other. In the female-student dyads, on the other hand, males reported significantly more interest than did females. It is not clear why impression management concerns would be different

between dyad types. The systematic, replicated differences between male- and female-student dyads suggest that participant responses reflected more than impression management. Future research is required to clarify the roll that impression management, and socially desirable responding more generally, plays in research on perception of romantic and sexual interest.

A second potential problem in the current study is the possibility that participants cheated. Specifically, students may have completed their own questionnaire and then also completed the questionnaire that their friend was supposed to complete. The time when participants submitted their data on-line was automatically recorded. In Study 1, 17.8% of the OSF questionnaires were started within two minutes of the completion of the student questionnaire. In Study 2, the percentage was similar, 14.4%. It seems unlikely that this large of a percent of participants were able to communicate with their OSF, and for their OSF to be available and motivated to start the questionnaire, in this brief window of time.

An alternative explanation for why the time between students completing their questionnaire and their OSF beginning the OSF questionnaire is that the student's OSF may have been present when the student completed their questionnaire, and therefore have been available to start the OSF questionnaire immediately. If the student and their OSF were present when the other completed their survey, they may have felt pressure to provide socially desirable responses. Nevertheless, analyses that excluded these participants were not systematically different than the results reported here, suggesting that these issues may not have been a problem in this study. In the future, in addition to automatically recording the time of data submission, automatically recording the IP

address of the computer sending the data would be useful. For data with different IP addresses, indicating they were submitted from different computers, it would be very unlikely that both questionnaires were completed by the same individual or with the participants' OSF present.

Third, recall that there was a high rate of cancellation in both studies, suggesting that there may have been an unusually strong self-selection bias in the samples measured in these studies. As was mentioned earlier, members of OSF dyads tend to avoid discussions of their relationship status (Afifi & Burgoon, 1998). The current project required participants to directly consider their romantic and sexual interest in their OSF, and their OSF's romantic and sexual interest in them. Although participating did not require OSFs to discuss their answers, it is possible that those who wanted to avoid discussing these topics would have preferentially decided not to participate.

Thus, students who were interested in their OSF, but who thought their OSF may not reciprocate, may have selectively avoided participating in these studies. This suggests that the samples of participants may have been overrepresented by three types of students. First are those with little interest in their OSF, who therefore did not fear discussion of their relationship status. Second are those with high levels of interest who didn't feel the need to avoid the topics of romance and sexuality, regardless of their perception of their OSF's interest. Neither of these groups would have detrimental effects on the results of these studies. However, participants who had high levels of interest, and were confident that their friend reciprocated, may have biased the results towards the predictions of the default model hypothesis. It is unclear what implications self-selection would have on the predictions of EMT.

Finally, the questionnaires were presented in the same order to all participants, which may have resulted in an order-of-presentation effect. Perceived interests were reported before participants indicated their own interest. This is important because if the questions had been presented in the reverse order, i.e., participants first reporting their own interest and then estimating the interest of their OSF, then they may have used their own interests to estimate the interests of their friends simply because that level of interest was primed. Priming would thus have been an alternative explanation for the findings supported by the default model hypothesis.

The possibility exists that participants' estimates of their OSF interest in themselves artificially influenced their subsequent ratings of their own interest in their OSF. Presumably, compared to their knowledge of the interests of their OSF, participants should have had much more knowledge about their own interest in their OSF, making estimates of their own interests more resistant to the effects of priming. Thus, the order of presentation minimized both the potential for multiple interpretations of the findings and the corruption of a subsequent measure by a previous one. Nevertheless, in future studies presenting the questionnaires in random order would remove any problems due to order-of-question effects.

With these limitations in mind, we now address the implications of this project. The implications are organized so as to address the four unanswered questions identified in the research on the perception, and misperception, of sexual interest.

*Question 1: Do Only Males Misperceive the Interest of Others?*

The present project replicated the findings that males overperceive female sexual interest, and found that they also overperceived female romantic interest, but both of

these findings occurred only in female-student dyads (see Tables 2 and 6). For each group of OSF dyads in which there was male *over*perception, however, there was also female *under*perception. The pattern of male overperception and female underperception replicates the findings of previous research which compared self-reported interest with another person's perception of that interest (see, for example, Abbey, 1982).

Overall, the current study demonstrated that sex is sometimes related to misperception, for both males and females, but more importantly the results suggested a mediator through which misperception may be related, indirectly, to the perceiver's sex. As predicted by the default model hypothesis, multiple regression analysis indicated that most misperception of interest was due to participants projecting their level of interest onto their OSF. Also, when t-tests showed systematic sex differences in misperception of their OSF's interests, males overperceived and females underperceived. In these groups of dyads, there was a corresponding sex difference in levels of interest, e.g., males had more sexual interest than did females. Conversely, sex was not systematically related to misperception when the levels of interest of males and females in a dyad type were not very different. These results suggest that the relationship between sex and misperception appears to be indirect, dependent on sex difference in levels of interest, and mediated by the projection of one's own interest in another person onto that person, with misperception resulting when the perceiver and their target have different levels of interest.

When sex differences in the level of romantic or sexual interests did occur, males usually had higher levels of interests than do females (see, for example, Tables 2 and 6). Thus, when systematic sex differences in misperception of romantic or sexual interests

are found, it is expected that males will overperceive and females will underperceive. This is precisely the pattern that has been found in past research (see, e.g., Abbey, 1982 or Haselton & Buss, 2000)

An experiment could test the proposed dependency of the default model hypothesis on sex differences in the level of interest by inverting the normal sex differences in level of sexual interest, i.e., producing a situation in which males have less sexual interest than do females. Perhaps the manipulation could be achieved by providing false information as part of a bogus biography. Experimental conditions could include informing males that the female has vaginal warts, whereas females might be informed that the male recently earned his first million dollars. If misperception is the result of the projection of one's interest, with a successful manipulation, this experiment is predicted to result in *female overperception* and *male underperception* of sexual interest.

Future research should attempt to replicate the finding that females underperceive male romantic and sexual interest. One reason this may be important is that female underperception of male sexual interest could be a factor in sexual harassment or rape. For example, if a female grossly underestimates her date's sexual intentions, she may agree to activities that he may interpret as indicating that she is sexually interested, such as going up to his apartment (Abbey, 1987; Abbey, Ross, McDuffie, & McAuslan, 1996). Self-awareness of potentially underperceiving a male's interest could help a female to avoid situations in which sexual harassment or rape occurs.

#### *Question 2: Is Misperception Limited to Sexual Interest?*

Only one previous project has evaluated the misperception of romantic interest, or more specifically, commitment intent (Haselton & Buss, 2000). In that project, the

authors concluded that females underperceived the commitment intent of males, whereas males accurately perceived the commitment intent of females. The results of the current project, on the other hand, indicate that when there is a systematic sex difference in the misperception of romantic interest between OSFs, males tend to overperceive and females tending to underperceive (see Tables 2 and 6). These two projects differed in their conclusions about male misperception of female romantic interest. Three differences between the method of Haselton and Buss (2000) and the current project may help to clarify why different results were obtained.

First, in their study using ratings of one's own commitment intent, Haselton and Buss (2000) used a different criterion for establishing misperception. Because females may indicate that their own commitment intent is higher than it actually is (due to socially desirable responding), and that the commitment intent of other females is lower than it actually is (because females derogate competitors), the true level of female commitment intent should be somewhere between these two estimates. In their study, male perception of female commitment intent was deemed accurate because it was between the estimates that females provided for themselves and for other females. In the current study, conversely, underperception of romantic interest was defined to have occurred when a participant indicated that they thought their OSF had less romantic interest than their OSF reported.

Unfortunately, the different conclusions were not simply the result of the use of a different criterion for misperception. In Haselton and Buss (2000), males rated higher commitment intent for themselves than females estimated for males. Females likewise rated themselves as having greater commitment intent than males rated females (see their

Figure 1, p. 86). Using the standards employed in the current project, i.e., directly comparing self-reports with estimates provided by members of the opposite-sex, the results of Haselton and Buss (2000) lead to the conclusion that both females *and* males *underperceived* the commitment intent of members of the opposite sex, whereas in the current project males *overperceived* female romantic interest. The *results* were not even the same. Thus, the explanation for the disparity in conclusions must be sought elsewhere.

The second important difference between the two projects was the specific aspects of romantic interest that were measured. Haselton & Buss (2000) measured *commitment intent* as indicated by five statements about commitment and willingness to have sex. These items (paraphrased using a male target) were: (a) A man will avoid commitment if he can have sex without it, (b) males prefer many sexual partners to one, (c) a man needs to know he is loved before he will have sex, (d) a man needs to know a woman is committed before he will have sex, and (e) men avoid long-term commitments (p. 85). This five-item commitment-intent measure taps constructs, such as sexual exclusivity, desire for sexual variety, and dependence upon emotional commitment to have sexual intercourse, that are sometimes part of commitment, but need not be so. For example, sexual exclusivity is not synonymous with commitment in polygamous societies, which represent about 80% of the world's cultures (Ford & Beach, 1951, as cited in Buss & Schmitt, 1993). Perhaps this scale is better described as a measure of the tendency towards emotionally-committed sexual activity exclusively with one partner.

These five items clearly do not measure *romantic interest, per se*, which was the target construct in the current project. Recall that participants in these two studies answered three questions each about how much they were interested in, and how much

they perceived their OSF to be interested in, a *long-term, committed romantic relationship*. These questions clearly focused on intentions towards a committed romantic relationship. This is a much more focused measure than that used by Haselton and Buss (2000). The differences in results, and therefore conclusions, may therefore reflect the measurement of slightly different constructs.

A third critical difference between the method used in the current study and that of Haselton and Buss (2000) was the specificity of the target of perception. Two aspects of specificity deserve attention. First, participants in the Haselton and Buss (2000) study estimated the intentions of vague, abstract third-person targets, e.g., *men* or *a typical woman*, whereas participants in the current study estimated the interests of a specific, named individual with whom they were familiar, their closest OSF. Second, participants in the Haselton and Buss (2000) study estimated the intent of males or females in general, not their intent towards a specific person. Participants in the current study, on the other hand, estimated the interest of their OSF in a specific person, themselves. Because the psychological mechanisms that produce the perception of commitment intent and romantic interest are presumably designed to evaluate a specific individual's intent or interest in another specific individual, especially in oneself (or, when jealous, in one's romantic partner), measurements of person-specific perceptions may more accurately reflect the perceptual phenomena in real life, i.e., have greater ecological validity, than a method in which people estimate, in a general way, the commitment intent of men, which may tap stereotypes or perceptions of group norms more than actual perceptions of intentions.

Nevertheless, both the Haselton and Buss (2000) study and the current project found that the misperception is not limited to sexual interest; it extends to romantic interest. Perhaps future research will clarify the source of disparity in findings of Haselton and Buss (2000) and the current project.

*Question 3: Does Misperception Occur Only Between Strangers?*

The current project replicates the findings of Abbey (1987) that misperceptions occur between OSFs. Her method was to have participants recall experiences of being misperceived, an approach very different than that employed in the current studies. The divergence of method indicates that her findings were not simply an artifact of her method.

Compared to strangers, friends have an increased ability to understand each other due to accumulated observation of their friend's behaviors in various contexts (Colvin, Vogt, & Ickes, 1997). In the current studies, participants indicated that the mean length of their OSFs was over two years. Yet, in these samples of OSFs, misperceptions occurred in predictable ways. Therefore, at least for perception of romantic and sexual interest, misperceptions are not merely the result of insufficient time for information to be exchanged.

Previous research suggests two alternative potential explanations for misperception in OSFs. First, as mentioned previously, members of OSF dyads may actually avoid discussing their relationship status, perhaps because they suspect the other person may not reciprocate and hope that their feelings for their OSF might be reciprocated in the future (Afifi & Burgoon, 1998). Also, misperceptions may involve a series of escalations, as suggested by Abbey (1987). The finding that flirtatious behaviors

are common in OSFs as well as romantic relationships suggests the plausibility of this suggestion (England, Spitzberg, & Zormeier, 1996). Unfortunately, the methods of the current studies do not allow us to evaluate either of these explanations.

Misperception of sexual interest, and romantic interest, need not be limited to opposite-sex strangers or OSFs. Theoretically, such misperceptions could occur in any relationship in which sexuality and romance are an issue. Researches may therefore be rewarded by exploring the misperception of romantic and sexual interest in other relationships. Perhaps some of the most important are those in which sexual harassment is especially likely to be a problem, such as those with a power disparity, e.g., a boss and employee, a professor and student, or a military superior and subordinate.

Together, the findings of the current and previous studies suggest that misperception of romantic and sexual interest may be common; that people may allow them, maintain them, or even attempt to instill them, in order to maintain a relationship in the hope that the other will reciprocate in the future; and that reducing misperceptions could be especially challenging because people may want them to occur. However, the specific mechanisms by which these misperceptions are perpetuated in ongoing relationships are, at this point, speculation; future research could attempt to identify these mechanisms.

#### *Question 4: What Theories Can Explain and Predict Misperception of Sexual Interest?*

The current project tested the predictions of two theories: the default model hypothesis and EMT. The results were consistent with the predictions of the default model hypothesis, but were mixed with regard to the predictions of EMT. Careful consideration of the results, however, suggests that the results may actually be consistent

with both the default model hypothesis and EMT, and that these two theories may be integrated. Two different approaches to this will be discussed in turn.

First, however, the relationship between ultimate theories and proximal mechanisms needs to be clarified. EMT is an ultimate theory; i.e., it addresses *what* psychological processes should do. EMT is a general theory that poses that cognitive biases should “be biased towards committing errors that are less costly” (p. 81, Haselton & Buss, 2000). That is, cognitive errors which are less costly will be favored by natural selection. (Note: Natural selection, as used in this thesis, includes sexual selection.) Whereas ultimate theories make predictions based on evolutionary functions, proximal mechanisms address the *how*, i.e., the means in individual organisms by which psychological processes are actually executed. In these studies, the critical predictions of EMT were supported: Males showed a tendency to overperceive female sexual interest and females to underperceive male romantic interest. Thus, by whatever proximal mechanism these misperceptions occurred, EMT suggests that it would have been supported by natural selection.

In both approaches to integration, the default model is presented as the proximal mechanism that mediates the cognitive biases predicted by EMT. The two integration approaches differ primarily in their unit of analysis. For the first, predictions are based on sex differences. In the second, they are based on conditional mating strategies.

#### *Integrating EMT and the Default Model Hypothesis, Strategy One: Sex Differences*

The first approach to integrating EMT and the default model hypothesis assumes that cognitive biases in mating strategies have been shaped by sex differences, an

assumption inherent in Haselton and Buss (2000) and Haselton (2003). Parental investment theory (Trivers, 1972), in combination with EMT, provides a straightforward way to make predictions about sex differences. Because females have a greater obligatory investment in offspring, they should underestimate the romantic interest of males so as to avoid costly abandonment. The fitness of males, on the other hand, is to a large degree restricted by the number of fertile females with whom he can copulate (Symons, 1987), and therefore males should overperceive female sexual interest. In the current study, whenever there were systematic sex differences in misperception, they were consistent with these predictions.

We now explore the viability of the default model hypothesis as the proximal mechanism for a sex difference approach to cognitive biases in the misperception of mating intentions. Recall that the default model hypothesis predicts that misperceptions are the projection of one's own level of interest on another when that person does not have the same level of interest. Therefore, for misperception to be systematic by sex, the level of sexual interest (or romantic interest) should also vary systematically by sex. More specifically, males should have higher levels of sexual and romantic interests than females.

The current project found reliable support for these predictions. Males had higher levels of sexual and romantic interest in all dyad types, with the exception of romantic interest in male-student dyad types in both studies (see Table 5). However, this did not reliably translate into systematic sex differences in misperception (see Tables 2 and 7). One explanation for these null effects is that participants also corrected their perceptions of the interest of their OSF, as indicated by the large betas for the covariate in the

regression equations (see Tables 3, 4, 8, and 9). The current project used OSF dyads, in which participants indicated being close friends on average for over two years. Thus, the population evaluated in these studies may be an exception to the systematic sex differences in misperception because the OSFs have time to learn the level of interest of their OSF, and therefore to correct their perceptions of that interest.

Invoking a correction factor for accurate information to explain away the lack of systematic sex differences, however, does not sufficiently explain why the level of interest of the participant was still a robust predictor of misperception. Restated, why would correction for accuracy remove systematic sex differences, but not the effects of the participant's own interest? These findings suggest that, compared to grouping by sex, a more informative and appropriate unit of analysis may be the level of interest of the individual. This conclusion leads to the second approach to integrating EMT and the default model hypothesis.

*Integrating EMT and the Default Model Hypothesis, Strategy Two: Conditional Strategies*

Suppose, for example, that a female is in a situation in which her fitness would be greatly improved if she were to have a brief sexual encounter with a high-fitness male. Should a female in such a situation overperceive the sexual interest of her object of desire? When females are employing a short-term mating strategy, the same logic seems to apply to them as it does to males. That is, whenever a male or female is using a short-term mating strategy, it may be less costly for them to overperceive, than to underperceive, the interest of the target of their desire. This is important because, as is suggested by sexual

strategies theory (Buss & Schmitt, 1993), short-term mating is a strategy used mostly by men, but also sometimes by women.

A similar logic was provided by Haselton (2003). When explaining the finding that mate value was a positive predictor of one's sexual interest being overperceived by members of the opposite sex, she suggested that "It is possible that *men and women* are biased toward overperceiving the sexual interest of high mate value individuals because missing their potential interest was more costly over selective history than was overestimating their interest" (p. 43, italics added for emphasis). Notice that this logic is not based on sex differences; it is based on fitness consequences of worthwhile mating opportunities.

These *worthwhile mating opportunities* define the conditions under which overperception of sexual interest provides enhanced fitness. To be more precise, EMT (Haselton & Buss, 2000) suggests that when the fitness benefits of the overperception of another's sexual interest (due to capitalizing on opportunities) outweigh the costs imposed by underperceiving another's sexual interest (due to missing opportunities), natural selection should favor overperception. For reasons made clear by parental investment theory (Trivers, 1972), this condition is met more frequently by males than females. The findings of the current studies suggest, however, that this strategy is not sex-dependent, but instead situation-dependent. That is, for both males and females, when the appropriate conditions are met, they will tend to overperceive another's sexual interest. This conditional strategy, however, requires a psychological mechanism which monitors the situation, and when the appropriate conditions are met, it modifies perception appropriately.

A recently proposed theory suggests a reasonable candidate for this mechanism. The theory is *functional projection* (Maner, et al., 2005). Recall that functional projection proposes that the arousal of motivational states causes people to perceive emotions in others that would, from an evolutionary perspective, be functionally appropriate. For example, it is functional to perceive that a potential antagonist is angry, and therefore a fearful person is more likely to perceive anger in a potential antagonist. Functional projection proposes a mechanism whereby conditions are monitored, appropriate emotions are conditionally aroused, and arousal of the specific emotion produces biases in perception. These biases can be predicted by other evolutionary theories, such as EMT and parental investment theory.

*The Functional Projection of Sexual Interest.* Three components of psychological mechanisms are inputs, a decision algorithm, and outputs (Buss, 1996). A hypothetical psychological mechanism underlying the functional projection of sexual interest, labeled the *sexual-opportunity meter*, is here developed. Its inputs consist of potential benefits and costs associated with potential matings. The decision algorithm weighs these costs and benefits, evaluating if the conditions are appropriate to seek sexual intercourse with a specific individual. Once the benefits sufficiently outweigh the costs, the psychological mechanism produces its outputs via sexual arousal, which can be considered an emotional state, and therefore “promote specific motivational states (defined by the engagement of goal-consistent physiological and cognitive reactions) facilitating behavioral responses that are functionally relevant to the solution of the problems or satisfaction of those goals” (Maner, et al., 2005, p. 64). Thus, the outputs of the sexual-interest meter include changes in physiology, behavior, and cognition. The focus here is

on the changes in cognition, which are proposed to be the cause of conditionally activated misperceptions of sexual interest.

As described earlier, Maner et al. (2005) specifically tested the functional projection of sexual interest. They predicted that participants, particularly males, would increase their perception of sexual interests after undergoing a mate-search-motivation induction, which was effected by watching a film clip of a romantic first date. They found that males, but not females, perceived more sexual interest in photos of attractive (but not average-looking) members of the opposite sex. The currently proposed model of misperception predicts that both males and females should have increased their perception of sexual interest in the mate-search condition. Surprisingly, male and female participants indicated the same level of sexual interest after watching the movie, but nevertheless only males perceived more interest in the mate-search condition.

Why didn't functional projection occur for females? Maner et al. (2005) referred to Haselton and Buss (2000) as evidence that misperception of sexual interest is a male-only phenomenon - a proposition which has been argued in this paper to be inaccurate. Haselton and Buss, however, do not provide a clear theoretical explanation for why females should not, under any circumstances, overperceive male sexual interest. In a later study, Haselton (2003) provides a situation in which females may in fact overperceive male sexual interest. From a theoretical perspective, however, it is not clear why functional projection of sexual interest should be limited to males.

There are some possible explanations, however, of why the method of Maner et al. (2005) may not have been equally effective for males and females. First, for female participants, the mean for perception of sexual interest in the mate-search condition was

higher than the other conditions, suggesting the effect may simply have been smaller for females. Second, the target stimuli were faces that had been standardized for physical attractiveness. The effect was only significant for males with the attractive, not the average, female faces. For males more than females, physical attractiveness is important for evaluations of attractiveness as a short-term sexual partner (Buunk, Dijkstra, Fetchenhauer, & Kenrick, 2002); therefore, photos of physically attractive men may not have been sufficient to activate (or to maintain the activation of) the mate-search motive, i.e., sexual arousal, in females. Perhaps there was even a contrast effect in which the people in the photos appeared less attractive as potential mates immediately after watching a highly romantic film, an effect that has been found elsewhere (Sigal et al., 1988). Finally, for females, sexual arousal may be more targeted at specific individuals than is the arousal of males, a suggestion consistent with the cross-cultural finding that males prefer more sexual partners than do females (Schmitt, et al., 2003). Thus, the sexual arousal may not have transferred from the movie to the different people in the photos for females as well as it did for males.

Other research provides support for the sexual-opportunity meter. Sexual arousal increases perception of sexual attractiveness (Istvan, Griffitt, & Weidner, 1983; Stephan et al., 1971). More pertinently, in the one study in which the statistic was reported, the perception of the other's sexual interest was positively correlated ( $r$ 's from .24 to .74) with the perceivers' self-reported amount of attraction, which probably reflected their level of arousal (Abbey et al., 1987). Also in both of the present studies, level of sexual interest was a positive predictor of misperception for both males and females.

*The Functional Projection of Romantic Interest.* The logic of functional projection may also apply to romantic interest. The functional projection of romantic interest assumes that the perception that another is romantically interested is functional under the appropriate conditions. As delimited by EMT, under conditions in which the overperception of romantic interest had better fitness payoff, over evolutionary history, than did its underperception, then it would be functional to project romantic interest onto another. Recall, however, that Haselton and Buss (2000) proposed that females should be skeptical of male commitment, i.e., underperceive it. For functional projection to apply to romantic interest, it must be able to accommodate the commitment-skepticism hypothesis. In order to understand how functional projection accommodates this hypothesis, it is first necessary to articulate a model of the architecture of the psychological mechanism hypothesized to underlie the functional projection of romantic interest.

Recall that psychological mechanisms have inputs, an algorithm, and outputs (Buss, 1996). For this mechanism, the *romantic-opportunity meter*, the inputs are the costs and benefits of potential long-term matings with specific individuals. The algorithm weights the potential costs and benefits of these inputs. Once the benefits outweigh the costs to a calibrated degree, the threshold is crossed and the psychological mechanism activates its outputs. That is, it indicates that the conditions are appropriate to seek a romantic relationship with a specific individual. As for the sexual-opportunity meter, the outputs of the romantic-opportunity meter include an emotional-motivational package that produces appropriate goal-directed physiological arousal, behaviors, and cognitive changes. The emotion activated by the romantic-opportunity meter is probably *passionate love* (Hatfield & Sprecher, 1986). The cognitive changes are proposed to

underlie the misperception effects found in the current studies, and are therefore the outputs pertinent to the current discussion.

With this model of the romantic-opportunity meter, functional projection can accommodate commitment skepticism. One means is by altering the algorithm of the romantic-opportunity meter. For example, if costs are weighed heavily, and benefits weighed lightly, then the romantic-opportunity meter would act in a skeptical manner. It would require considerable beneficial input in order to induce passionate love, and therefore the perception of romantic interest. Another means by which skepticism could be achieved would be to keep the weightings the same, but instead to increase the threshold. By either means, adjustments to the calibration of the algorithm provide a viable means by which the romantic-opportunity meter could produce romantic skepticism.

To the author's knowledge, there is little empirical data by which the viability of the romantic-opportunity meter might be evaluated. The results of the current studies, however, are consistent with it.

*Sex Differences in Misperception – Revisited.* In the previous two sections, psychological mechanisms were proposed which integrated EMT, the default model hypothesis, and functional projection: the sexual-opportunity meter and the romantic-opportunity meter. These proposed mechanisms are expected to be species-universal evolved characteristics, and therefore part of male and female psychology. However, they are versatile enough to accommodate within- and between-sex differences.

The mechanisms by which these individual differences are most likely to occur were those identified in the discussion on how the romantic-opportunity meter could

accommodate the commitment-skepticism hypothesis. These *calibration mechanisms* were (a) the differential weightings provided to costs and benefits, and (b) differential thresholds for emotional arousal. Other differences are also important, such as what stimuli constitute inputs and the specific nature of the outputs. Thus, males and females can have the same psychological mechanisms, but males can be more sexually and romantically arousable because their decision algorithm is calibrated differently. Which components of these psychological mechanisms actually differ is a matter to be explored in future research, but the calibration mechanisms are strong contenders for this role.

### *Conclusions*

EMT is a general theory that predicts cognitive biases in any domain of life in which there are differential costs and benefits to overperception and underperception. Likewise, functional projection (Maner et al., 2005) provides a mechanism by which motivational states can produce predictable misperceptions, thus assimilating the default model hypothesis. In the General Discussion of this project, EMT and functional projection were integrated into domain-specific, evolved psychological mechanisms of emotions that predicted within- and between-sex differences in the misperception of sexual and romantic interest. This approach need not be limited to human mating. Any domain of life for which there have been iterated and reliable cost-benefit differentials, and for which motivated, goal-directed responses were fitness enhancing, could be addressed with this theoretical approach. For those domains in which cognitive biases were adaptive, misperceptions are predicted to reliably occur.

Outside of mating, misperception may be a common phenomenon. In any domain of life in which people are heavily invested, misperception probably occurs under

specific parameters. Thus, Democrats and Republicans, upon hearing the same news of an event, may make incompatible attributions to its causes and consequences. Other domains of life are also probably permeated with misperception, including ethnicity and coalitions, ideology and religion, parenting and family pride, same-sex friendship dyads and friendship cliques. Our ignorance of misperception in these domains provides a vast reservoir of potential research projects.

TABLE 1  
 ROMANTIC INTEREST, SEXUAL INTEREST, PERCEPTION OF ROMANTIC INTEREST,  
 AND PERCEPTION OF SEXUAL INTEREST, BY SEX AND DYAD TYPE (STUDY 1)

	Romantic Interest				Sexual Interest			
	Male		Female		Male		Female	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
<b>Male-student Dyads</b>								
Interest in Other	3.45	1.79	3.35	1.82	3.61	1.91	2.67	1.74
Perception of Other's Interest	3.42	1.62	3.71	1.81	2.56	1.68	3.34	2.00
<b>Female-student Dyads</b>								
Interest in Other	3.27	2.05	2.66	1.89	3.51	2.10	1.92	1.39
Perception of Other's Interest	2.91	1.63	2.99	1.90	2.56	1.75	3.06	2.08

TABLE 2  
 MISPERCEPTION<sup>1</sup> OF ROMANTIC INTEREST AND SEXUAL INTEREST  
 BY DYAD TYPE AND PERCEIVER SEX (STUDY 1)

	Romantic Interest Misperception				Sexual Interest Misperception			
	Male Perceiver		Female Perceiver		Male Perceiver		Female Perceiver	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Male-student Dyads	0.14	1.34	0.31	1.75	-0.11	1.13	-0.20	1.43
Female-student Dyads	0.28	1.91	-0.30	1.77	0.68***	1.90	-0.50**	1.63

<sup>1</sup>Misperception = (perception of other's interest in self) - (other's interest in self). Thus, a positive value represents an overperception of the other's interest, and a negative value an underperception.

Note: Paired-samples *t*-test, *p*-values: \* *p* < .01, \*\* *p* < .05, \*\*\* *p* < .01, \*\*\*\* *p* < .001.

TABLE 3

MULTIPLE REGRESSION ANALYSES PREDICTING PERCEPTION OF OTHER'S ROMANTIC AND SEXUAL INTERESTS IN SELF, CONTROLLING FOR OTHER'S ROMANTIC AND SEXUAL INTERESTS IN SELF, FOR MALE-STUDENT DYADS (STUDY 1)

Dependent Variable	Predictor	Multiple Regression			
		B	SE B	$\beta$	r
Perception of Other's Romantic Interest					
Both Sexes					
	Other's Romantic Interest in Self	0.36	.08	.37****	.62****
	Participant Sex <sup>1</sup>	-0.30	.24	-.09	-.09
	Own Romantic Interest in Other	0.42	.08	.44****	.64****
Males					
	Other's Romantic Interest in Self	0.50	.11	.56****	.71****
	Own Romantic Interest in Other	0.24	.11	.27**	.06****
Females					
	Other's Romantic Interest in Self	0.21	.12	.21*	.54****
	Own Romantic Interest in Other	0.60	.12	.61****	.72****
Perception of Other's Sexual Interest					
Both Sexes					
	Other's Sexual Interest in Self	0.65	.08	.65****	.77****
	Participant Sex <sup>1</sup>	-0.38	.27	-.10	-.21**
	Own Sexual Interest in Other	0.22	.08	.22***	.47****
Males					
	Other's Sexual Interest in Self	0.67	.10	.70****	.79****
	Own Sexual Interest in Other	0.16	.09	.18*	.53****
Females					
	Other's Sexual Interest in Self	0.63	.11	.60****	.74****
	Own Sexual Interest in Other	0.31	.12	.27**	.57****

\*p < .10, \*\*p < .05, \*\*\*p < .01, \*\*\*\*p < .001

<sup>1</sup> 1 = Female, 2 = Male.

TABLE 4

MULTIPLE REGRESSION ANALYSES PREDICTING PERCEPTION OF OTHER'S ROMANTIC AND SEXUAL INTERESTS IN SELF, CONTROLLING FOR OTHER'S ROMANTIC AND SEXUAL INTERESTS IN SELF, FOR FEMALE-STUDENT DYADS (STUDY 1)

Dependent Variable	Predictor	Multiple Regression			r
		B	SE B	$\beta$	
Perception of Other's Romantic Interest					
Both Sexes					
	Other's Romantic Interest in Self	0.31	.06	.35****	.52****
	Participant Sex <sup>1</sup>	-0.12	.24	-.03	-.02
	Own Romantic Interest in Other	0.38	.06	.43****	.55****
Males					
	Other's Romantic Interest in Self	0.18	.09	.21*	.42****
	Own Romantic Interest in Other	0.39	.09	.49****	.58****
Females					
	Other's Romantic Interest in Self	0.42	.09	.45****	.60****
	Own Romantic Interest in Other	0.37	.10	.37****	.56****
Perception of Other's Sexual Interest					
Both Sexes					
	Other's Sexual Interest in Self	0.45	.07	.45****	.54****
	Participant Sex <sup>1</sup>	-0.47	.31	-.12	-.13
	Own Sexual Interest in Other	0.43	.07	.43****	.42****
Males					
	Other's Sexual Interest in Self	0.11	.13	.09	.27**
	Own Sexual Interest in Other	0.44	.09	.53****	.56****
Females					
	Other's Sexual Interest in Self	0.58	.08	.58****	.69****
	Own Sexual Interest in Other	0.48	.13	.32****	.52****

\*p < .10, \*\*p < .05, \*\*\*p < .01, \*\*\*\*p < .001

<sup>1</sup> 1 = Female, 2 = Male.

TABLE 5  
 DIFFERENCES<sup>1</sup> AND CORRELATIONS FOR ROMANTIC AND SEXUAL  
 INTERESTS BETWEEN MEMBERS OF OSF DYADS (STUDIES 1 AND 2)

	Romantic Interest			Sexual Interest		
	Difference			Difference		
	<i>M</i>	<i>SD</i>	<i>r</i>	<i>M</i>	<i>SD</i>	<i>r</i>
Study 1						
Male-student Dyads	0.09	1.73	.55****	0.84***	1.85	.50****
Female-student Dyads	0.69***	2.11	.42****	1.64****	2.08	.34***
Study 2						
Male-student Dyads	-0.13	2.02	.42***	0.76***	1.54	.66****
Female-student Dyads	0.66**	1.98	.29**	1.51****	1.78	.49****

<sup>1</sup> For difference scores, a positive value occurred when males reported more interest than did females.

Note: Paired-samples *t*-test, *p*-values: \* *p* < .01, \*\* *p* < .05, \*\*\* *p* < .01, \*\*\*\* *p* < .001.

TABLE 6

ROMANTIC INTEREST, SEXUAL INTEREST, PERCEPTION OF ROMANTIC INTEREST,  
AND PERCEPTION OF SEXUAL INTEREST, BY SEX AND DYAD TYPE (STUDY 2)

	Romantic Interest				Sexual Interest			
	Male		Female		Male		Female	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
<b>Male-student Dyads</b>								
Interest in Other	3.42	1.64	3.57	2.04	3.27	1.95	2.47	1.79
Perception of Other's Interest	3.65	1.71	3.55	1.86	2.63	1.83	2.89	1.96
<b>Female-student Dyads</b>								
Interest in Other	3.31	1.68	2.59	1.69	3.00	2.04	1.54	1.16
Perception of Other's Interest	3.27	1.57	2.76	1.72	2.10	1.62	2.36	1.81

TABLE 7  
 MISPERCEPTION<sup>1</sup> OF ROMANTIC AND SEXUAL INTERESTS  
 BY DYAD TYPE AND PERCEIVER SEX (STUDY 2)

	Romantic Interest Misperception				Sexual Interest Misperception			
	Male Perceiver		Female Perceiver		Male Perceiver		Female Perceiver	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Male-student Dyads	0.20	1.61	0.10	1.61	0.15	1.43	-0.37*	1.45
Female-student Dyads	0.75****	1.43	-0.53**	1.58	0.63****	1.14	-0.69**	1.84

<sup>1</sup>Misperception = (perception of other's interest in self) - (other's interest in self). Thus, a positive value represents an overperception of the other's interest, and a negative value an underperception.

Note: Paired-samples *t*-test, *p*-values: \* *p* < .01, \*\* *p* < .05, \*\*\* *p* < .01, \*\*\*\* *p* < .001.

TABLE 8

MULTIPLE REGRESSION ANALYSES PREDICTING PERCEPTION OF OTHER'S ROMANTIC AND SEXUAL INTERESTS IN SELF, CONTROLLING FOR OTHER'S ROMANTIC AND SEXUAL INTERESTS IN SELF, FOR MALE-STUDENT DYADS (STUDY 2)

Dependent Variable	Predictor	Multiple Regression			r
		B	SE B	$\beta$	
Perception of Other's Romantic Interest					
Both Sexes					
	Other's Romantic Interest in Self	0.34	.07	.36****	.61****
	Participant Sex <sup>1</sup>	0.17	.22	.05	.03
	Own Romantic Interest in Other	0.58	.07	.60****	.72****
	Other's Long-term Mate Value	-0.14	.11	-.08	.11
Males					
	Other's Romantic Interest in Self	0.35	.09	.41****	.64****
	Own Romantic Interest in Other	0.57	.11	.54****	.69****
	Other's Long-term Mate Value	-0.19	.18	-.10	.07
Females					
	Other's Romantic Interest in Self	0.35	.11	.31***	.59****
	Own Romantic Interest in Other	0.60	.10	.65****	.75****
	Other's Long-term Mate Value	-0.11	.15	-.07	.14
Perception of Other's Sexual Interest					
All Participants					
	Other's Sexual Interest in Self	0.26	.07	.27****	.71****
	Participant Sex <sup>1</sup>	-0.59	.22	-.16***	-.07
	Own Sexual Interest in Other	0.68	.07	.69****	.82****
	Other's Short-term Mate Value	0.03	.07	.02	.27***
Male Participants					
	Other's Sexual Interest in Self	0.24	.10	.24**	.69****
	Own Sexual Interest in Other	0.60	.10	.64****	.84****
	Other's Short-term Mate Value	0.11	.10	.09	.44***
Female Participants					
	Other's Sexual Interest in Self	0.28	.10	.28***	.73****
	Own Sexual Interest in Other	0.74	.10	.68****	.86****
	Other's Short-term Mate Value	-0.01	.10	-.01	.09

\*p < .10, \*\*p < .05, \*\*\*p < .01, \*\*\*\*p < .001

<sup>1</sup> 1 = Female, 2 = Male.

TABLE 9

MULTIPLE REGRESSION ANALYSES PREDICTING PERCEPTION OF OTHER'S ROMANTIC AND SEXUAL INTERESTS IN SELF, CONTROLLING FOR OTHER'S ROMANTIC AND SEXUAL INTERESTS IN SELF, FOR FEMALE-STUDENT DYADS (STUDY 2)

Dependent Variable	Predictor	Multiple Regression			r
		B	SE B	$\beta$	
Perception of Other's Romantic Interest					
Both Sexes					
	Other's Romantic Interest in Self	0.47	.08	.49****	.53****
	Participant Sex <sup>1</sup>	0.59	.27	.18**	.15
	Own Romantic Interest in Other	0.35	.08	.36****	.50****
	Other's Long-term Mate Value	-0.09	.12	-.06	.10
Males					
	Other's Romantic Interest in Self	0.48	.10	.52****	.61****
	Own Romantic Interest in Other	0.27	.11	.29**	.47****
	Other's Long-term Mate Value	0.10	.15	.08	.24
Females					
	Other's Romantic Interest in Self	0.51	.12	.49****	.57****
	Own Romantic Interest in Other	0.39	.12	.38***	.49****
	Other's Long-term Mate Value	-0.30	.18	-.19*	-.02
Perception of Other's Sexual Interest					
Both Sexes					
	Other's Sexual Interest in Self	0.41	.08	.43****	.56****
	Participant Sex <sup>1</sup>	-0.38	.31	-.11	-.08
	Own Sexual Interest in Other	0.49	.08	.52****	.55****
	Other's Short-term Mate Value	0.04	.08	.04	.29***
Males					
	Other's Sexual Interest in Self	0.68	.14	.48****	.72****
	Own Sexual Interest in Other	0.36	.08	.46****	.71****
	Other's Short-term Mate Value	0.03	.08	.03	.25*
Females					
	Other's Sexual Interest in Self	0.28	.11	.31**	.56****
	Own Sexual Interest in Other	0.72	.20	.46***	.64****
	Other's Short-term Mate Value	0.07	.14	.06	.34**

\*p < .10, \*\*p < .05, \*\*\*p < .01, \*\*\*\*p < .001

<sup>1</sup> 1 = Female, 2 = Male.

## APPENDIX A

## STUDY HOMEPAGE (STUDY 1)

**The William and Mary Study of Sexuality and Relationships**

Thank you for participating. Your sincere and conscientious effort is greatly appreciated and is essential for the quality of the study.

Researchers: Bryan Koenig, Emily Bell, and Lee Kirkpatrick

**Instructions:**

Welcome to the Relationships & Sexuality study. We will be asking you to complete a number of online questionnaires regarding your beliefs, attitudes, and history in relationships. You should know that you are allowed to terminate your participation in this study at any time. Please answer the questions honestly as the validity of this study depends upon your honesty and cooperation. You can answer the questions just as you would answer questions on any other web-based survey. Most of the questions will be accompanied by scales. However, you may choose the "NR" option for any questions you may not be comfortable answering.

- Although some of the questions in different sections may seem redundant, they do focus on slightly different issues.
- Make certain that you respond to each question. If you do not answer a question you will be prompted to re-enter missing responses when you go to the next page.
- For ease of presentation, the questionnaires are divided into groups. After you have completed all the questionnaires in a group you will see a "Go to the next page" box. Left-click on this box to submit your responses. The study will be explained in more detail after your questionnaires are completed.
- Your responses will be treated with the utmost respect. All data will be analyzed and reported confidentially, and no individual's responses will ever be singled out. Your answers will be kept in a hidden, password-protected file that can only be accessed by the researchers.

**Opposite-sex Friend Participation:**

In order to better understand the nature of perceptions in relationships, we require that participants each have their **closest opposite-sex friend** fill out a short Opposite-sex Friend Survey, which should take no longer than 10 minutes.

**Opposite-sex friends do NOT need to register for this study.** Instead, they must use the intro to psychology participant's six-digit WM ID (e.g., blkoen) as well as the password the participant created for this study.

**Informed consent agreement:**

I consent to participate in this research in which I will answer a series of questions that may include my beliefs, attitudes, and history in my relationships and those of close others. I understand that some of these questions may concern a sensitive issue, but that I will be given the "I would prefer not to answer" option for these types of questions. It should take approximately 25 minutes to complete the first session and 35 minutes to complete the second session (except the Opposite-sex Friend Survey, which takes less than 10 minutes). I understand that all the information I submit will be strictly confidential, and that my participation in this study is voluntary. I understand that I may choose to terminate my participation at any time, without fear of punishment or reprisal. If I am an introductory psychology student, I understand that I will receive 1.0 hours of credit in exchange for my participation. By registering for this study, I certify that I have read and understood the above information and voluntarily consent to participate in this research.

**Registration (intro psych students only):**

Register by clicking on the Register button below. Use your six digit WM ID (e.g., blkoen) and **make up a password** for you and your opposite-sex friend (that is, your opposite-sex friend will sign up using **your** six letter ID and password). You may choose any password you want. Please remember it. Provide your six-letter ID and password for this study to your opposite-sex friend who will be participating. (If you are a friend of an intro psych student, you will need to get this ID name and password from your opposite-sex friend.) You must complete the first session before your opposite-sex friend can do the Opposite-sex Friend Survey.

To register for the study, click here:



- **If you have any questions, contact:**  
Bryan Koenig email: [blkoen@wm.edu](mailto:blkoen@wm.edu)  
or Emily Bell email: [ekbell@wm.edu](mailto:ekbell@wm.edu)

After registering, you will be able to log in. Please complete the **FIRST SURVEY SESSION** followed by the **SECOND SURVEY SESSION** for the relationship status (i.e., dating or single) appropriate for you. There are no set time periods to fill out these two sets of questionnaires, but please **complete questionnaires with no one else around (a dorm room is perfect).**

If you are SINGLE click here to complete the FIRST SURVEY SESSION:

[SINGLES FIRST SURVEY SESSION](#)

If you are SINGLE click here to complete the SECOND SURVEY SESSION:

[SINGLES SECOND SURVEY SESSION](#)

If you are DATING click here to complete the FIRST SURVEY SESSION:

[DATING FIRST SURVEY SESSION](#)

If you are DATING click here to complete the SECOND SURVEY SESSION:

[DATING SECOND SURVEY SESSION](#)

If you are an OPPOSITE-SEX FRIEND of a participant, click here to complete the Opposite-sex Friend Survey. By clicking this button, I indicate that I have read the above information and voluntarily consent to participate in this study.

[OPPOSITE-SEX FRIEND SURVEY](#)

If you have no more data to enter, click here to go to the WM homepage:

[Done](#)

## APPENDIX B

## ROMANTIC INTEREST, SEXUAL INTEREST, AND RELATIONSHIP HISTORY

## QUESTIONNAIRE (STUDIES 1 AND 2)

**The William and Mary Study of Sexuality and Relationships**

While answering questions on this survey, please make the following distinction. "Sexual" refers to casual sex devoid of interest in a long-term, committed relationship. "Romantic" refers to interest in a long-term, committed romantic relationship, whether or not sexual interest is also present.

Please answer honestly. Remember that your answers will not be known to [OSF's first name] or anyone else. Your answers will be kept strictly confidential. If you choose not to answer a question, simply click on the button labeled "NR" for "no response."

Instructions for Question Set 1

Question Set 1 asks about 1) your perceptions of [OSF's first name]'s thoughts and feelings about you, 2) your thoughts and feelings about [OSF's first name], and 3) your relationship history.

**Question Set 1: You and [OSF's first name]**

1. How long have you been close friends with [OSF's first name]? Years Months

0	▼	0	▼
---	---	---	---

2. How close are you to [OSF's first name]?

Not Close         Very Close  NR

3. If you and [OSF's first name] were both single, how likely is it that [OSF's first name] would join a **long-term, committed romantic relationship** with you if you asked?

Very Unlikely         Very Likely  NR



Very Unlikely        Very Likely NR

13. How much do *you* desire to have **casual sex** with [OSF's first name]?

None        Very Much NR

14. How frequently do *you* think about having **casual sex** with [OSF's first name]?

Never        Very Often NR

15. Have you and [OSF's first name] ever seriously discussed whether or not to begin a long-term, committed romantic relationship with each other?

No   Yes NR

16. Have you and [OSF's first name] ever been in an explicitly long-term, committed romantic relationship with each other?

No   Yes NR

17. How many times did *you* have sex (including manual, oral, anal, and vaginal sex) with [OSF's first name]?

- If this question does not apply to you, please enter **NA** in the textbox.
- If you choose not to answer this question, please enter **NR** in the textbox.

18. Age in years:

## APPENDIX C

## HOMEPAGE (STUDY 2)

**The William and Mary Study of Opposite-sex Friendships**

Welcome to the William and Mary Study of Opposite-sex Friendships. This research is being conducted for a Master's Thesis. Your sincere and conscientious effort is greatly appreciated and is essential for the quality of the study. Thank you for participating.

Researchers: Bryan Koenig ([blkoen@wm.edu](mailto:blkoen@wm.edu)) and Dr. Lee Kirkpatrick ([lakirk@wm.edu](mailto:lakirk@wm.edu))

---

**Instructions:**

- **Complete questionnaires privately - with no one else around (a dorm room is perfect).**
  - Answer the questions just as you would on any other web-based survey.
  - Although some of the questions may seem redundant, they do focus on slightly different issues.
  - Respond to each question. If you do not answer a question you will be prompted to re-enter missing responses when you go to the next page.
  - You may choose the "NR" option for questions you are not comfortable answering.
  - You may discontinue your participation in this study at any time.
  - The study will be explained in more detail after your questionnaires are completed.
  - Your answers will be strictly confidential, i.e., no individual's responses will ever be singled out. Your answers will be kept in a hidden, password-protected file that can only be accessed by the researchers.
- 

**Opposite-sex Friend Participation (required):**

In order to better understand the nature of opposite-sex friendships, we require that participants each have their closest opposite-sex friend fill out the short Opposite-sex Friend Survey, which should take no longer than 10 minutes.

Please confirm that your opposite-sex friend is willing to participate before beginning the study.

**Note 1:** Research pool participants must complete their questionnaire before the Opposite-sex Survey will work correctly.

**Note 2:** Research pool participants and their opposite-sex friends will not see each other's responses to any of the questionnaires.

---

### **Informed Consent Agreement:**

I consent to participate in this research in which I will answer a series of questions about my friendship with a member of the opposite-sex. I understand that some of these questions may concern a sensitive issue, but that I will be given a "I would prefer not to answer" option for these types of questions. I understand that all the information I submit will be strictly confidential, and that my participation in this study is voluntary. I understand that I may choose to terminate my participation at any time, without fear of punishment or reprisal.

If I am a research pool participant, the study should take approximately 30 minutes to complete. I understand that I will receive 0.5 hours of research credit in exchange for my participation. By registering for this study, I certify that I have read and understood the above information and voluntarily consent to participate in this research.


If I am the opposite-sex friend of a research pool participant, the study should take less than ten minutes. By clicking on the Opposite-sex Friend Survey button below, I certify that I have read and understood the above information and voluntarily consent to participate in this research.

---

### **Registration (Research Pool Participants only):**

Register by clicking on the Register button below. Use your six-digit W&M ID (e.g., blkoen) and **make up a password** for you and your opposite-sex friend. You may choose any password you want. That is, your opposite-sex friend will sign up using **your** six-letter ID and password, which you will need to communicate to him or her.

Research Pool Participants. By clicking this button, I indicate that I have read the above information and voluntarily consent to participate in this study.

To **register** for the study, click here: 

---

### **Questionnaires**

After registering, you will be able to log in. Remember, research pool participants must

1. confirm that your opposite-sex friend will participate
2. complete your questionnaire
3. inform your opposite-sex friend that the Opposite-sex Friend Survey is ready for them.

It is essential that you do not discuss the contents of the questionnaires with your opposite-sex friend. **Please complete questionnaires with no one else around (a dorm room is perfect).**

Research Pool Participants. This study must be completed before the Opposite-sex Friend Survey can be started.

[Research Pool Participant Questionnaire](#)

Opposite-sex Friends. By clicking this button, I indicate that I have read the above information and voluntarily consent to participate in this study.

[Opposite-sex Friend Survey](#)

---

If you have no more data to enter, click here to go to the WM homepage:

[Done](#)

## REFERENCES

- Abbey, A. (1982). Sex differences in attributions for friendly behavior: Do males misperceive females' friendliness? *Journal of Personality and Social Psychology*, *42*, 830-838.
- Abbey, A. (1987). Misperceptions of friendly behavior as sexual interest: A survey of naturally occurring incidents. *Psychology of Women Quarterly*, *11*, 173-194.
- Abbey, A. (1991). Misperceptions as an antecedent of acquaintance rape: A consequence of ambiguity in communication between men and women. In A. Parot & L. Bechhofer (Eds.), *Acquaintance rape: The hidden crime* (pp. 96-111). New York: Wiley.
- Abbey, A., Cozzarelli, C., McLaughlin, K., & Harnish, R. J. (1987). The effects of clothing and dyad sex composition on perceptions of sexual intent: Do women and men evaluate these cues differently? *Journal of Applied Social Psychology*, *17*, 108-126.
- Abbey, A., & Harnish, R. J. (1995). Perception of sexual intent: The role of gender, alcohol consumption and rape supportive attitudes. *Sex Roles*, *32*, 297-313.
- Abbey, A., McAuslan, P., & Ross, L. T. (1998). Sexual assault perpetration by college men: The role of alcohol, misperception of sexual intent, and sexual beliefs and experiences. *Journal of Social and Clinical Psychology*, *17*, 167-195.
- Abbey, A., & Melby, C. (1986). The effects of nonverbal cues on gender differences in perceptions of sexual intent. *Sex Roles*, *15*, 283-289.

- Abbey, A., Ross, L. T., McDuffie, D., & McAuslan, P. (1996) Alcohol, misperception, and sexual assault: How and why are they linked? In: Buss, D. M., and Malamuth, N. M. (Eds.) *Sex, power, conflict: Evolutionary and feminist perspectives*. New York: Oxford University Press. P. 138-161.
- Abbey, A., Zawacki, T., & McAuslan, P. (2000). Alcohol's effects on sexual perception. *Journal of Studies on Alcohol, 61*, 688–697.
- Afifi, W. A., & Burgoon, J. K. (1998). We never talk about that: A comparison of cross-sex friendships and dating relationships on uncertainty and topic avoidance. *Personal Relationships, 5*, 255-272.
- Afifi, W. A., & Faulkner, S. L. (2000). On being "just friends": The frequency and impact of sexual activity in cross-sex friendships. *Journal of Social and Personal Relationships, 17*, 205-222.
- Baldwin, J. D., & Baldwin, J. I. (1997). Gender differences in sexual interest. *Archives of Sexual Behavior, 26*, 181-210.
- Bleske, A. L., & Buss, D. M. (2000). Can men and women be just friends? *Personal Relationships, 7*, 131-151.
- Bleske-Rechek, A. L., & Buss, D. M. (2001). Opposite-sex friendship: Sex differences and similarities in initiation, selection, and dissolution. *Personality and Social Psychology Bulletin, 27*, 1310-1323.
- Beyer, S. (1998). Gender differences in self-perception and negative recall biases. *Sex Roles, 38*, 103-133.

- Buunk, B. P., Dijkstra, P., Fetchenhauer, D., & Kenrick, D. T. (2002). Age and gender differences in mate selection criteria for various involvement levels. *Personal Relationships, 9*, 271-8.
- Buss, D. M. (1989). Sex differences in human mate preferences: Evolutionary hypotheses tested in 37 cultures. *Behavioral and Brain Sciences, 12*, 1-49.
- Buss, D. M. (1996). The evolutionary psychology of human social strategies. *Social psychology: Handbook of basic principles* (pp. 3-38). New York: The Guilford Press.
- Buss, D. M., & Schmitt, D. P. (1993). Sexual strategies theory: An evolutionary perspective on human mating. *Psychological Review, 100*, 204-232.
- Colvin, C. R., Vogt, D., & Ickes, W. (1997). Why do friends understand each other better than strangers do? In W. Ickes (Ed.), *Empathic accuracy*. New York, NY: Guilford Publications.
- Dwight, S. A., & Feigelson, M. E. (2000). A quantitative review of the effect of computerized testing on the measurement of social desirability. *Educational and Psychological Measurement, 60*, 340-360.
- Edmondson, C. B., & Conger, J. C. (1995). The impact of mode of presentation on gender differences in social perception. *Sex Roles, 32*, 169-183.
- Egland, K. L., Spitzberg, B. H., & Zormeier, M. M. (1996). Flirtation and conversational competence in cross-sex platonic and romantic relationships. *Communication Reports, 9*, 105-115.

- Fisher, T. D., & Walters, A. S. (2003). Variables in addition to gender that help to explain differences in perceived sexual interest. *Psychology of Men and Masculinity, 4*, 154-162.
- Ford, C., & Beach, R. (1951). *Patterns of sexual behavior*. New Haven: Harper & Roe.
- Greer, A. E., & Buss, D. M. (1994). Tactics for promoting sexual encounters. *Journal of Sex Research, 31*, 185- 201.
- Harnish, R. J., Abbey, A., & DeBono, K. G. (1990). Toward an understanding of the "sex game": The effects of gender and self-monitoring in initial interactions. *Journal of Applied Social Psychology, 20*, 1333-1344.
- Haselton, M. G. (2003). The sexual overperception bias: Evidence of a systematic bias in men from a survey of naturally occurring events. *Journal of Research in Personality, 37*, 43-47.
- Haselton, M. G., & Buss, D. M. (2000). Error management theory: A new perspective on biases in opposite-sex mind reading. *Journal of Personality and Social Psychology, 78*, 81-91.
- Hatfield, E., & Sprecher, S. (1986). *Mirror, mirror . . . The importance of looks in everyday life*. Albany: SUNY Press.
- Hendrick, S. S., & Hendrick, C. (1993). Lovers as friends. *Journal of Social and Personal Relationships, 10*, 459-466.
- Hodges, C. R. (2005). *Direct and indirect aggression in males and females as a function of domain-specific self-esteem*. Unpublished master's thesis, College of William and Mary, Williamsburg, VA.

- Istvan, J., Griffitt, W., & Weidner, G. (1983). Sexual arousal and the polarization of perceived sexual attractiveness. *Basic and Applied Social Psychology, 4*, 307- 318.
- Johnson, C. B., Stockdale, M. S., & Saal, F. E. (1991). Persistence of men's misperceptions of friendly cues across a variety of interpersonal encounters. *Psychology of Women Quarterly, 15*, 463- 475.
- Kaplan, D. L., & Keys, C. B. (1997). Sex and relationship variables as predictors of sexual attraction in cross-sex platonic friendships between young heterosexual adults. *Journal of Social and Personal Relationships, 14*, 191-206.
- Kenrick, D. T., Sadalla, E. K., Groth, G., & Trost, M. R. (1990). Evolution, traits, and the stages of human courtship: Qualifying the parental investment model. *Journal of Personality, 58*, 97-116.
- Koenig, B. L., & Nezlek, J. B. (2005). Opposite-sex friendship as a long-term mate-acquisition strategy. Manuscript in preparation.
- Lee, P. C. (1996). The meaning of weaning: Growth, lactation, and life history. *Evolutionary Anthropology, 5*, 87-96.
- Mahoney, J., & Heretick, D. M. (1979). Factor-specific dimensions in person perception for same- and opposite-sex friendship dyads. *Journal of Social Psychology, 107*, 219-225.
- Maner, J. K., Kenrick, D. T., Becker, D. V., Robertson, T. E., Hofer, B., Neuberg, S. L., Delton, A. W., Butner, J., & Schaller, M. Functional projection: How fundamental social motives can bias interpersonal perception. *Journal of Personality and Social Psychology, 88*, 63-78.

- Monsour, M. (1992). Meanings of intimacy in cross-and-same-sex friendships. *Journal of Social and Personal Relationships, 9*, 277-295.
- Monsour, M. (2002) *Women and men as friends: Relationships across the lifespan in the 21st century*. Mahwah, NJ: Lawrence Erlbaum.
- Monsour, M., Beard, C., Harris, B., & Kurzwil, N. (1994). Challenges confronting cross-sex friendships: Much ado about nothing? *Sex Roles, 31*, 55-77.
- O'Meara, J. D. (1989). Cross-sex friendship: Four basic of an ignored relationship. *Sex Roles, 21*, 525-543.
- Paulhus, D. L. (1984). Two-component models of socially desirable responding. *Journal of Personality and Social Psychology, 46*, 609.
- Prentice, A. M., & Whitehead, R. G. (1987). The energetics of human reproduction. *Symposia Zoological Society of London, 57*, 275-304.
- Reeder, H. M. (2000). 'I like you . . . as a friend': The role of attraction in cross-sex friendship. *Journal of Social and Personal Relationships, 17*, 329-348.
- Rose, S. M. (1985). Same- and cross-sex friendship and the psychology of homosociality. *Sex Roles, 12*, 63-74.
- Rozee, P. D., & Koss, M. P. (2001). Rape: A century of resistance. *Psychology of Women Quarterly, 25*, 295-311.
- Saal, F., Johnson, C., & Weber, N. (1989). Friendly or sexy? It may depend on whom you ask. *Psychology of Women Quarterly, 13*, 263-276.
- Schmitt, D. P., Alcalay, L., Allik, J., Ault, L., Austers, I., Bennett, K.L., et al. (2003). Universal sex differences in the desire for sexual variety: Tests from 52 nations, 6

- continents, and 13 islands. *Journal of Personality and Social Psychology*, 85, 85-104.
- Schmitt, D. P., & Buss, D. M. (1996). Strategic self-promotion and competitor derogation: Sex and context effects on the perceived effectiveness of mate attraction tactics. *Journal of Personality and Social Psychology*, 70, 1185-1204.
- Shea, M. E. C. (1993). The effects of selective evaluation on the perception of female cues in sexually coercive and noncoercive males. *Archives of Sexual Behavior*, 22, 415-433.
- Shotland, R. L., & Craig, J. M. (1988). Can men and women differentiate between friendly and sexually interested behavior? *Social Psychology Quarterly*, 51, 66-73.
- Sigal, J., Gibbs, M., Adams, B., & Derfler, R. (1988). The effect of romantic and nonromantic films on perception of female friendly and sexual behavior. *Sex Roles*, 19, 545-554.
- Simpson, J. A., & Gangstead, S. W. (1991). Individual differences in sociosexuality: Evidence for convergent and discriminant validity. *Journal of Personality and Social Psychology*, 60, 870-883.
- Stephan, W., Berscheid, E., & Walster, E. (1971). Sexual arousal and heterosexual perception. *Journal of Personality and Social Psychology*, 20, 93-101.
- Symons, D. (1979). *The evolution of human sexuality*. New York: Oxford University Press.
- Trivers, R. L. (1972). Parental investment and sexual selection. In B. Campbell (Ed.), *Sexual selection and the descent of man: 1871-1971* (pp. 136-179). Chicago: Aldine.

Tversky, B., & Marsh, E. J. (2000). Biased retellings of events yield biased memories.  
*Cognitive Psychology, 40*, 1-38.

## VITA

Bryan Lee Koenig

Bryan Lee Koenig was born in Waconia, Minnesota on January 4, 1975. He graduated from Mound-Westonka High School in Mound, Minnesota in June 1993. He went on to graduate from Saint John's University in Collegeville, Minnesota in 1998 with a bachelor of arts degree in Psychology.

In August 2003, Bryan entered the College of William and Mary as a graduate student in the Department of Psychology, defending his thesis in July of 2005. He plans to attend New Mexico State University to pursue a doctoral degree in Social Psychology.