A New Methodology to Assess Sex Differences and Similarities in Mate Preferences: Above and Beyond Demand Characteristics

Kristen Evans

Gary L. Brase

University of Missouri- Columbia

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Abstract

Prior experiments documenting gender differences in mate preferences have relied on directive questions (e.g., “How important is physical attractiveness?”), which are susceptible to demand characteristics. To assess this potential confound, this study assessed mate preferences using a new methodology: Indirect, open-ended questions, with anonymous computer administration and designated (same- or opposite-sex) audiences. The frequency with which traits were noted by participants supported key gender differences predicted by evolutionary accounts; evaluations of men focused more on ambitiousness, whereas evaluations of women focused more on attractiveness. The number of attractiveness comments was also greater, however, if the rated target was opposite-sex. Kindness and intelligence comments did not show strong gender differences, although kindness-related comments were very frequent overall and particularly frequent from women participants.

Keywords: Human Mate Preferences; Human Sex Differences; Demand Characteristics
A New Methodology to Assess Sex Differences and Similarities in Mate Preferences: Above and Beyond Demand Characteristics

Some of the broad conclusions from research on relationship partner preferences include that men, in general, place more of an emphasis on physical attractiveness of a mate than do women, whereas women place more of an emphasis on resources of a mate than do men (Buss, 1989, 1994). In contrast, traits such as kindness and intelligence tend to be emphasized about equally by men and women. The most commonly cited reason for these variations in mate preferences has been a history of evolutionary sexual selection. Briefly, female physical attractiveness serves as a fairly reliable index of female reproductive potential (e.g., youth, health and fertility), so the evolutionary process has selected the male mating psychology to weigh this cue more heavily in assessing attractiveness. On the other hand, male access to resources is a more reliable index of their potential reproductive contributions (e.g., ability to protect and provision offspring), so the evolutionary process has selected the female mating psychology to weight this cue more heavily in assessing male attractiveness (Trivers, 1971). In contrast, traits such as intelligence and kindness are important in potential mates regardless of gender.

Evolutionary explanations of human sex differences have a tendency of generating controversy and alternative explanations. Sex differences in reactions to relationship infidelities – predicted and found by evolutionary psychologists—have been contested as alternatively explainable as culturally learned beliefs about what to expect from members of the opposite sex (DeSteno & Salovey, 1996; DeSteno, Bartlett, Braverman, & Salovey, 2002). Similarly, sex differences in the relative values placed on a number of traits for potential partners –again predicted and found by evolutionary psychologists—have been reinterpreted by some as
Demand characteristics are primarily derived from learned social roles (Eagly, 1997; Wood & Eagly, 2002). In many ways, such alternative explanations can be characterized as demand characteristics of various sorts. Demand characteristics are the “cues and mutual role expectations that inhere in a social context, (e.g., a psychological experiment or therapy situation), which serve to influence the behavior and/or self-reported experiences of the research participant or patient” (Orne, 1962; Orne & Whitehouse, 2000, p. 469). Regarding the topic of sex differences in mating situations, at least two specific demand characteristics have been levied as potential causes:

1) Demand effects may be elicited by the specific traits provided in questions. Much of the research on mate preferences has used closed-format and forced-choice responses that explicitly provide the traits of interest (e.g., “How important is it for your mate to have a lucrative career?” and “Would you choose a mate that was cold and beautiful over one that was warm and homely?). These formats could implicitly guide respondents to consider certain traits, exclude other possible traits, and thereby may suggest certain patterns of responses. For instance, DeSteno and colleagues (DeSteno & Salovey, 1996; DeSteno, et al., 2002) have argued that a reliable sex difference in which types of relationship infidelity elicit stronger reactions is, in large part, an artifact of a forced-choice measurement technique. They point out that participant gender includes “decades of socialization and learning, both of which typically correlate with gender and, in the present case, possibly exert influences on aversion to sexual and emotional infidelity” (Desteno, et al., 2002, p. 1104), and they use methodological variations to support their assertion that some gender differences can be eliminated when “measurement artifacts” (i.e., demand effects) are changed (also see Pietrzak, Laird, Stevens, & Thompson, 2002).
for contradicting results). Such format differences have also been found to affect the accuracy and types of responses given by participants on other topics (Hall & Roggenbuck, 2002), with indications that open response formats tend to generate more accurate responses.

2) Audience effects (i.e., conforming to audience social role expectations) can influence behaviors and self-reported experiences, including the production and reporting of gender-typed behaviors. For instance, men and women have different types of conversations depending on the gender of the audience (Mulac, Wiemann, Widdenmann, & Gibson, 1988). Females tend to talk more and to engage in more turn-taking within same-sex dyads, compared to opposite-sex dyads. In email correspondences about recent vacations, both male and female participants focused on shopping and night life when writing to a female audience, and focused on sites they saw and less personal information when writing to a male audience (Colley & Todd, 2002). On the specific topic of mate preferences, Eagly and colleagues (Eagly, 1997; Wood & Eagly, 2002) have found some support for an effect of social roles and expectations as an influence within cross-cultural patterns of mate preferences.

The current study evaluates these above issues by adopting methodological techniques that, in contrast with conventional mate characteristics surveys, address some of these demand characteristics concerns. The key data were taken from open-response essays, thus minimizing specific trait question demands. The study was also conducted using a computer-administered survey, which has been found to be comparable—or perhaps slightly less reactive—than papers
distributed and collected by experimenters (Booth-Kewley, Edwards, & Rosenfeld, 1992; Kiesler & Sproull, 1986; Skinner & Allen, 1983). The variable of general audiences (male versus female) were manipulated to assess the degree to which it was exerting an influence on responses. To the extent that traditionally found sex differences dramatically lessen (or disappear) under these conditions, demand characteristics can be ascribed a major role in previous findings. The traits focused on for across-sex comparisons in this study were selected to fulfill several criteria: a) traits for which there was a substantial history of research, b) traits for which there have been fairly reliable findings, and c) traits that yielded all three possible predictions in terms of sex differences: females higher than males, males higher than females, and no difference. Reviewing the literature, using these criteria (e.g., Feingold, 1992), the following traits were selected:

a) Ambitiousness. Female evaluations have consistently been found to stress ambitiousness (and related sequela, such as resources, income, etc.) more than those of males;

b) Physical attractiveness. Male evaluations have consistently focused more on physical attractiveness, as compared to those of females; and

c) Kindness and intelligence. Both kindness and intelligence have been found to be important to both males and females (Buss, 1989), although some results also show a greater emphasis by females on intelligence (Feingold, 1992; this sex difference, when found, is generally much smaller than differences obtained regarding ambitiousness).

Method

Participants: This study involved 123 participants (61 males, 62 females) from a large, Midwestern university. The average ages were 18.77 for the males and 18.57 for the females,
and all participants completed the study as part of their requirements for an introductory psychology class. Identifying information was collected only on the informed consent form, which was kept separate from the rest of the study, making participation transparently anonymous.

*Materials and Procedure:* Upon entering the study site, participants were seated at a computer terminal on which was displayed a consent form. Participant signatures indicating consent, however, were collected on a sheet of paper next to the computer rather than using the computer in any way (encouraging a perception that participants’ identities were effectively dissociated from their responses).

The computer program next presented participants with a cover story about how the business of Internet dating is in need of help in creating even better profiles to help more couples find love, be efficient, and so forth, and that the present study was to develop a better understanding of how different dating profiles were perceived. Participants were asked basic information about their gender, age, marital status, and sexual orientation, and instructed that they would be evaluating a series of profiles. The instructions specified that the recipients of the participant’s evaluations would be either: (a) a group of people who were considering the target as a potential date (i.e., an opposite-sex audience; male audience for female targets and female audience for male targets), or (b) a group of ‘quality control judges’ for the dating service, which were clearly identified as a same-sex audience as the target. After reading these instructions, participants proceed to view, in random order, a series of dating profiles of both sexes (it was possible to move back a page within each profile, but otherwise it was not possible to go back and/or change responses after proceeding to a subsequent page).
There were two male and two female “dating profiles”, all of which were fictional composites based on actual Internet dating profiles (to effectively mimic real language use, topics covered, and personal presentation). The fictional dating profile individuals (“targets”) were all 18-25 years old (the age range of most of the participants), and each target had an approximately equal number of positive and negative profile characteristics (Topics for each profile included: name, age, hair color, eye color, height, weight, location (always local), occupation, car, favorite food, favorite music, favorite book, and idea of a perfect date. Each profile also included a one-paragraph statement, ostensibly from the target, that discussed the work and leisure activities of the target without directly addressing any of the personality traits of interest for the study.) Target pictures came from a picture rating website (see http://www.hotornot.com/pages/privacy.html regarding use of these images), with all the target pictures rated between 7.5-8 on this site, indicating about equal attractiveness.

Each dating profile was followed by an open-ended question section and then a series of trait-specific Likert-scaled questions about the daters. The open-ended section asked simply “What do you think of this dater?” followed by an open block for text. There was no length or time requirement, though participants were asked to write something if the section was left completely blank. This allowed participants to express their opinions openly without constraints of length, topic, or time. Following this section were 14 questions about different traits taken from Buss’s cross-cultural study (1989; ambitious, attractive face, kind, smart, physically attractive, trustworthy, would make my friends jealous, dependable, emotionally stable, good dresser, popular, spiritual, date-able, and financially successful). These all appeared in the form of, “How ________ do you find the dater?” or similar format, and were scored on a 1-6 scale
(items were randomly ordered across participants, and half were reverse scored). Note that these items did not ask for the *importance* of the trait; only how the target fared with respect to this trait, and the traits included female emphasized, male emphasized, and neutral traits. Thus, these closed format items served simply as primes as to what types of characteristics might be topical, without suggesting any favored characteristics (pilot research indicated that, without these primes, the open-ended responses were much shorter and therefore provided less data).

After viewing and providing responses to all four profiles, the computer program instructed participants that they were done with the study and to notify the experimenter. The experimenter asked if they had any questions or concerns about the study and provided debriefing information. Answers to the open-response format measure were coded by searching for keywords (targets and synonyms) associated with four characteristics: ambitiousness, attractiveness, kindness and intelligence (e.g., for ambitiousness, the following terms and their variants were counted: ambitious, ambition, goal, driven, motivated, go-getter, plans, and potential). A small number of keywords that were actually off-topic (e.g., “I like his plans for a perfect date”) were removed by mutual agreement of the researchers, in a culling process that was blind to all conditions. Finally, the numbers of comments on each trait were summed for each participant, across the two male and across the two female targets. It is worth noting that this process includes both positive and negative comments about each trait, as either type of comment indicates an importance of that trait as an evaluative element.

Results

Coded and summed open-response comments were analyzed using a series of 2x2x2 ANOVAs (gender of target x gender of participant x gender of audience), with each of the traits
as successive dependent variables. Means are provided in Tables 1a-d. As predicted, more comments on ambitiousness were made when discussing men ($F(1,119)= 19.155, p<0.001$, $\text{Eta}^2=0.139$), but there were no main effects of participant gender or audience gender, nor were there any interactions. More comments were made about attractiveness when discussing female targets ($F(1,119)= 7.213, p=0.008, \text{Eta}^2=0.057$), also as predicted. There was also a significant crossover interaction for attractiveness ratings between target model and participant sex: ($F(1,119)= 21.476, p<0.001, \text{Eta}^2=0.153$); male participants talked more about the attractiveness of female targets, whereas females talked more about the attractiveness of male targets. Again there was no effect of the audience gender. Comments about kindness did not produce a statistically significant difference for target model gender ($F(1,119)= 3.282, p=0.073$, $\text{Eta}^2=0.027$), but there was a main effect of participant gender ($F(1,119)=4.832, p=0.030$, $\text{Eta}^2=0.039$, respectively) and a close –but not statistically significant— target model x participant gender interaction ($F(1,119)=3.318, p=0.071, \text{Eta}^2=0.027$). Female participants talked more about kindness, and did so in particular when discussing male targets. Comments about intelligence did not show any significant effects (for participant gender: $F(1,119)= 0.086, p=0.770, \text{Eta}^2=0.001$) or interactions.

It is possible that, although many stronger demand effects were specifically eliminated in this research, the act of simply bringing up certain traits with the Likert scales could have had some effect. This would be despite the questions about these traits being ratings of the target individuals (rather than rating the importance of the traits to the participant) and this would be despite rating all the models on all the traits (i.e., presuming participants divined which traits where predicted to be commented upon for either males or females, and adopted these points
rather than their own choices). Nevertheless, one way to assess this possibility is to analyze only
the first written comments by each participant – before that participant had viewed the rating
scale items. This analysis has much less statistical power (effectively changing to a between-
subjects design, with a quarter of the sample size), but many of the previous results still held (see
Tables 2a-d). More comments on ambitiousness were made when discussing men
\( F(1,115)=5.820, p=0.017, \eta^2=0.048 \), although a three way interaction was found for these
initial comments \( F(1,115)=4.943, p=0.028, \eta^2=0.041 \); males rating other males, for female
audience rarely brought up the topic of ambition). More comments were made about
attractiveness when discussing female targets and there was the same interaction pattern for the
male participants as before, but both of these did not reach significance with the reduced power:
\( F(1,115)=2.508, p=0.116, \eta^2=0.021 \) and \( F(1,115)=2.699, p=0.103, \eta^2=0.023 \), respectively).
Comments about kindness did not produce a statistically significant difference for target model
gender \( F(1,115)= 2.468, p=0.119, \eta^2=0.021 \), but there was again a main effect of participant
gender \( F(1,115)=4.904, p=0.029, \eta^2=0.041 \), with female participants talking more about
kindness. Comments about intelligence again did not show any significant effects (for
participant gender: \( F(1,115)= 1.611, p=0.207, \eta^2=0.014 \) or interactions.

Discussion

In all the above analyses there were clear main effects of target gender for open-response
comments about ambitiousness and attractiveness, but not for kindness or intelligence, as
predicted. Specifically, under conditions designed to eliminate or minimize demand
characteristics, men more than women were evaluated based on ambitiousness and women more
than men were evaluated based on attractiveness. Indeed, even when only the first comments
Demand characteristics were analyzed—to eliminate any possible carryover effects of sequential items—the patterns and most of the statistically significant results remained.

These results established that potential demand effects do not appear to underlie the sex difference findings typical of such studies. In particular, the closed-response format questions typical of many mate characteristic ratings studies—questions that prompt participants with the target trait characteristics—do not appear to bias responses. Thus there is no support, at least within this particular arena, for the notion that sex differences in the realm of mating attitudes and preferences are an ‘artifact of measurement’ (DeSteno, et al., 2002). It is certainly possible that different measurement techniques yield clearer and more focused responses, thereby yielding clearer results, but this is a different issue from that of methodological artifacts.

There was also no support for the idea that audience effects underlie these results; for none of the traits assessed were there systematic effects of the intended audience. Although previous results have shown that intended audience can encourage behaviors and self-reports that are conforming to audience social role expectations (Mulac, et al., 1988; Colley & Todd, 2002), the present findings suggest that this effect may be not be as powerful when the audience not physically present or is a class or category of persons rather than a specific person.

In addition to the results discussed above, which were predicted to occur, a few other results were obtained:

1) Comments about attractiveness were most common when evaluating opposite-sex targets (i.e., women said more about men’s attractiveness and men said more about women’s attractiveness). This interaction appears to be in addition to the main effect, rather than a case of a spurious main effect, and it is likely due to people feeling more comfortable
discussing the attractiveness of people of the opposite sex. This pattern was observable starting with even the initial responses for the male participants.

2) For initial comments about ambitiousness (looking at just the first responses of each participant), males did not mention the ambitiousness of other males to a female audience.

3) Comments about kindness were more frequently made by women than men, and in particular women tended to talk more about the kindness of males (a pattern evident even from only comments on the first target). The relatively high frequency of comments about kindness (by everyone), as well as the tendency towards greater emphasis by women, is consistent with the results of Li, Bailey, Kenrick, & Linsenmeier (2002), who found that kindness was a fundamentally important trait in a mate selection for both sexes (and that women on some measures placed a slightly higher priority on kindness).

In some ways it is surprising that consistent results can be obtained using such indirect and obtuse measurements that at no point asked participants to indicate the importance of characteristics—only to rate the existence of traits or simply discuss individuals generally. Furthermore, the participants were asked for comments on the target models that were—rather than being for their own use—to be given to either potential daters or quality control judges. Thus, even personal preferences that could be argued as ingrained cultural norms were explicitly discouraged.

Further Issues

The current study did not further code the comments made about targets as negative or positive, which may reveal further layers of results in future research. There are also intriguing issues—largely unexplored—about the extent to which men and women monitor same-sex
individuals for traits that would make them rivals on the mating market (e.g., Brase, Caprar, & Voracek, 2004). Arguably, this may have been the reason for males’ comments about the ambitiousness of other males (to be read by females) being initially low; intrasexual competition on a particularly important trait.

Another potential approach to follow from this research would be to assess the possibility of very strong demand effects—essentially the inverse of this study—on ratings of target model traits. For example, can an audience (e.g., a person sitting in the room with participants) with known, highly gender normative views, alter participant’s responses? Although methodologically the opposite of the present research, the findings of demand effects in such a scenario would actually bolster the importance of the present research.

The present study focused on a concise set of traits: ambitiousness, attractiveness, intelligence, and kindness, and used a set of four profiles. Many other traits, and many other possible profiles, could be assessed in further research. Potential traits include those that have been found to be emphasized more by females than males (e.g., social status, education level, humor production abilities, and creativity; see Buss, 1989, 1994, Bressler and Balshine, 2005, and Haselton and Miller, 2006), traits emphasized more my males than females (e.g., youth and specifically physical aspects of attractiveness; see Buss, 1989, 1994, Kenrick and Keefe, 1992), and innumerable traits for which little or no difference would be expected. The target model profiles used in the present study were designed to be effectively neutral, with all models portrayed as moderately attractive, moderately ambitious, varying on personal taste dimensions (e.g., favorite food), but generally not inducing strong positive or negative reactions on the traits of interest. Other options include using profiles that are designed to induce particular trait
inferences, and using larger numbers of profiles to get more participant reactions. This last option, however (using a large number of profiles) runs again into an issue encountered in this study; the potential argument that previous profiles and questions/responses could set up demand characteristics for subsequent responses. Although the results of this study indicate that this is not a substantive issue, it remains a legitimate caution.

Finally, it may be argued that longer-term, more deeply ingrained social learning models remain an option that can also account for these results. For example, Eagly and Wood (1999; Wood & Eagly, 2002) locate the source of human behavioral sex differences in the differing roles of men and women in the social structural aspects of the environment. By this explanation, individuals (both male and female) adopt different behavioral and mental styles because of the different roles they are cast into throughout their lives, and —importantly—these roles become internalized and self-reinforcing. These could also be considered a form of “demand characteristics,” but of a pervasive and long-lasting nature that is not amenable to experimental manipulation.
References


Table 1: Frequency of comments about traits of ambitiousness (a), Attractiveness (b), kindness (c), and intelligence (d), comparing participants of different genders who evaluated targets of different genders, for audiences of different genders (within each cell, numbers show opposite sex / same sex audiences).

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Table 2: For only the first open-ended essays, the frequency of comments about traits of ambitiousness (a), Attractiveness (b), kindness (c), and intelligence (d), comparing participants of different genders who evaluated targets of different genders, for audiences of different genders (within each cell, numbers show opposite sex / same sex audiences).

<table>
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