

Asymmetries in the Friendship Preferences and Social Styles of Men and Women

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Abstract Several hypotheses on the form and function of sex differences in social behaviors were tested. The results suggest that friendship preferences in both sexes can be understood in terms of perceived *reciprocity potential*—capacity and willingness to engage in a mutually beneficial relationship. Divergent social styles may in turn reflect trade-offs between behaviors selected to maintain large, functional coalitions in men and intimate, secure relationships in women. The findings are interpreted from a broad socio-relational framework of the types of behaviors that facilitate selective advertisement and investment of reciprocity potential across individuals and within groups of men and women.

Keywords Evolution · Friendships · Reciprocal altruism · Sex differences · Social behaviors

From a psychological perspective, the ability to attract and maintain peer relationships, such as friendships with non-kin, is essential for long-term mental and physical health (Cacioppo and Bernston 2001; Hartup 1996; Hartup and Stevens 1997). From an evolutionary perspective, social relationships are best modeled by Trivers's (1971) reciprocal altruism theory, which signifies a social contract as a mutually beneficial and equitable exchange of resources between two individuals and extended across time. The initial conception of reciprocal altruism, however, did not specify how reciprocal relationships might manifest psychologically and behaviorally across different pairs of individuals. One place to begin to systematically explore such differences is in the form of peer preferences and social styles of boys and girls and men and women (Geary 1998; Rose and Rudolph 2006). In the

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first part of the current article, I propose two primary components of *reciprocity potential* that make another individual or oneself an attractive social partner: (1) the perceived capacity or ability to reciprocate, and (2) the perceived willingness or motivation to do so. If these components are distinct cornerstones of interpersonal appraisal, they should be predictive of individual differences in friendship preferences. In the second part, I examine the confluence of group size and intimacy requirements on the differential expression of males' and females' social behaviors, respectively (Baumeister and Sommer 1997; Cross and Madson 1997; Geary et al. 2003). I then use these frameworks to test several unique predictions regarding similarities and differences in the friendship preferences and social styles of men and women.

Reciprocity Potential

On the basis of Trivers's (1971) model of reciprocal altruism, friendship formation is predicted to be accompanied by the implicit expectation that investment (e.g., in the form of time, money, empathy) provided at one time will be reciprocated in one form or another at a later time (for an experimental demonstration, see Ben-Ner et al. 2004). Tooby and Cosmides (1996) have suggested that interpersonal appraisal is an important component of social affiliation and facilitates the allocation of differential investment to *selective* peers. The complementary mechanism is that individuals must express social behaviors that signal their own reciprocity potential (they used the term "irreplaceability") and thus advertise themselves as an attractive social partner. More specifically, reciprocity potential may be best understood in terms of one's perceived capacity and motivation to reciprocate, as noted above (see also Zabatany et al. 2004). One's capacity to reciprocate is relative to the needs of the appraiser and may be conceptualized as *personal* attributes or biological markers, such as indicators of health, financial potential, intelligence, and so forth, that the appraiser desires and can readily assess. In contrast, one's motivation or willingness to reciprocate should be characterized by *interpersonal* characteristics that provide the appraiser with information about the security and reliability of a potential relationship. For instance, an individual with a social reputation for being arrogant and self-serving would be evaluated as lower in the motivational component than another individual with a reputation for being kind, congenial, and trustworthy.

Both personal (e.g., perceived intelligence) and interpersonal (e.g., perceived kindness) characteristics are indicative of peer preferences and represent distinct but interrelated components of sociability (Chen et al. 2000; Rodkin et al. 2000; Rubin et al. 1998). For example, others who are perceived as possessing either much lower or much higher personal capacity cues, such as financial resources, should be less preferred as ideal friends—the former because of the low expectancy of reciprocal returns and the latter because of the potential for rejection or social exploitation. Defensive peer preferences that protect oneself against the potential for rejection by individuals who are perceived as possessing much higher personal capacity characteristics have been documented as early as 7 years of age (McElwain and Volling 2002). This suggests that peer preferences are relatively practical behavioral strategies that are influenced by one's reciprocity potential (perceived personal and

interpersonal attributes). Peer preferences may then function to motivate individuals to form social contracts with others of roughly equal capacity, but who also present a high probability of reciprocal investment (Trivers 1971; for a related discussion, see Cole and Teboul 2004). These relationship contingencies are predicted to have resulted in the commonly observed phenomena of homophily (Lazarsfeld and Merton 1954), whereby individuals typically form bonds with peers who possess similar behavioral and dispositional traits (e.g., Challman 1932; Lusk et al. 1998). My suggestion, however, is that homophilic peer preferences are limited to capacity cues. In contrast, preference for high-level interpersonal characteristics that indicate reciprocal dispositions, such as trustworthiness, should be sought, regardless of the appraiser's own attributes; without a reasonable expectation of reciprocal intentions, capacity characteristics are irrelevant.

In other words, there should be a quadratic relation between the appraiser's friendship preferences and others' perceived capacity characteristics, such as intelligence and physical attractiveness; preference should be minimal when a prospective friend possesses much lower or much higher capacity cues than the appraiser, and should be greatest when a prospective friend signals *slightly higher* capacity cues than the appraiser himself/herself possesses. This pattern creates the potential for a net gain across the relational interchange while reducing the risks of rejection or exploitation by individuals perceived as possessing an increased ability to inflict these types of social injuries on the appraiser. In contrast, preference for others' interpersonal investment characteristics (e.g., kindness) should be more linear such that higher interpersonal attributes should be preferred, regardless of the appraiser's own prosocial characteristics; for example, appraisers should prefer higher rather than lower levels of trustworthiness or conscientiousness in a friend, independent of their self-appraisal on this same trait. A related prediction is that individuals should inflate their social presentation of these traits and do so more than they inflate presentation of capacity traits. Self-deception facilitates social deception (Trivers 2000) and may be especially important for interpersonal traits, such as kindness, in comparison with capacity traits, such as intelligence, which may be more contingent on the relational context.

Sex Differences in Social Styles

Sex differences in the social styles of males and females have been documented for centuries (Darwin 1871; Lever 1976; Sullivan 1953), but have focused primarily on young children and adolescents. Examples of this research are shown in Table 1. Among the more distinguishing characteristics to emerge from this work are preference for larger and smaller groups in boys and girls, respectively, and higher levels of intimacy within dyads of girls. The empirical demonstration of sex differences in behavioral development does not of course mean that they reflect evolved biases. Still, several patterns of human social dynamics are consistent with the prediction that many of these behaviors are indeed the product of evolutionary origins.

In the majority of traditional societies (Murdock 1981; Pasternak et al. 1997) and on the basis of population genetic studies of extant (Seielstad et al. 1998; Wells et al.

Table 1 Selected developmental research indicating sex differences in social behaviors

Group Size and Dynamics. Boys form larger groups and dominance hierarchies within these groups, whereas girls tend to form equitable dyads (Benenson 1993; Cheng and Chan 1999; Jennings et al. 2001; Lever 1978; McHale et al. 2004; Rose and Rudolph 2006; Strough and Covatto 2002). Boys are more efficient at group-level problem-solving tasks and competitive sports and girls at dyadic sharing tasks (Erwin et al. 2004; Kurzban 2001; McElwain and Volling 2002). Experimental evidence suggests that boys' dominance hierarchies reduce intragroup conflict (Hemelrijk and Gygas 2004) and thus may facilitate group-level competition and problem solving (Savin-Williams 1987).

Level of Intimacy. In comparison with boys and men, girls and women score higher on measures of empathy and personal disclosure, especially with close confidants (Agrawal et al. 2002; Baron-Cohen and Wheelwright 2004; Rose and Asher 2004; Sy et al. 2003; Warden and MacKinnon 2003). Intimate, dyadic friendships are associated with more interpersonal maintenance behaviors, and especially among girls and women (Oswald et al. 2004). Boys endorse dominance and leadership qualities within their friendships whereas girls view social success as a result of being "sincere" (Jarvinen and Nicholls 1996).

Friendship Stability. Friendship intimacy is related to increased interpersonal conflict (Sheets and Luger 2005), and girls' friendships are more fragile than boys' (Benenson and Christakos 2003).

2001) and historical (Hammer et al. 2001; Semino et al. 2000) societies, *male-based philopatry* is likely to have been the most common form of intergroup migration during human evolution. According to this theory, males tended to stay in their natal group in order to form strong, kin-based coalitions, whereas females tended to emigrate to their husband's (or sometimes capturer's) kinship groups upon reproductive maturation or once pair-bonded. Stronger kinship ties may have enabled males to form larger and hence more competitive coalitions by relaxing the selective pressure to engage in interpersonal maintenance behaviors with each group member within their social ecologies (Geary 2002; Geary et al. 2003). For females, an increased rate of interaction among—and reliance upon—more distantly related kin and with non-kin may have created a unique suite of selection pressures for females to be more sensitive to the display and reception of higher levels of interpersonal investment behaviors. On the basis of evolutionary reasoning (Hamilton 1964) and empirical research (Daly and Wilson 1988; de Waal 1993, 2000; West et al. 2002), relationships between non-kin and with increasing genetic distance among kin require more initial investment, more interpersonal maintenance, and are generally more fragile than relationships among closely related kin. Smaller social spheres (e.g., fewer numbers of close confidants) may have thus enabled females to allocate greater investment into fewer relationships, which may have ultimately facilitated a safer and hence more secure socioecological environment.

In other words, the tendency of boys to form themselves into large, functional groups and form dominance hierarchies within these groups, especially in competitive contexts, is consistent with an evolutionary history of kin-based, male-male, coalitional competition (Geary et al. 2003). A related prediction is that males will form these groups more readily and maintain relationships with other in-group members with less one-on-one contact than females. The tendency of girls to prefer equality in their relationships, as opposed to acceptance of dominance hierarchies, and for these relationships to dissolve after conflict or with a perception of non-equality, is consistent with the proposal that these biases evolved in the

context of relationships more heavily dependent on reciprocal altruism in comparison with relationships among males (for a discussion see Geary and Flinn 2002). Psychologically, the result is the potential for the evolution of sex differences in the form and function of social relationships.

Current Project

The following study uses an adult sample to contrast the components of reciprocity potential that are predicted to be the same for men and women with components that are predicted, based on the above, to differ across the sexes. For the former, both men and women are predicted to: (a) prefer personal capacity traits in others that are comparable to, but slightly higher in magnitude than, their own; (b) demonstrate a higher preference for interpersonal investment (e.g., prosocial) traits than personal capacity traits in an ideal friend; and (c) evaluate their own interpersonal traits higher than their personal capacity traits. A related prediction is that, when assessing potential friends, both men and women should (d) demonstrate a quadratic pattern of preference for personal capacity traits (e.g., intelligence; preferring more moderate trait levels over much lower and much higher trait levels) and a linear preference for interpersonal investment traits (e.g., kindness; preferring the highest trait level).

The predicted sex differences follow from the proposal of an evolutionary history and sensitivity to form larger competitive groups in males and more intimate, dyadic relationships in females. Based on the developmental literature shown in Table 1, and in comparison with women, men should report: (e) having larger numbers of close, same-sex friends and (f) spending less time engaged in interpersonal intimacy activities (e.g., self disclosure) and more time engaged in physical activities with these friends. From a socio-relational perspective, larger functional coalitions may have promoted the advertisement and solicitation of capacity displays in men (e.g., through athletic skill), whereas smaller social networks may have enabled women to allocate more of their reciprocity potential toward the maintenance of and hence security within their interpersonal relationships (e.g., through displays of empathy). In addition, men are predicted to (g) demonstrate an explicit preference for larger social spheres at the cost of having lower levels of intimacy with each network member. The converse is such that women should report a preference for greater levels of intimacy with each friend, at the cost of having a smaller number of total friends. Because large, functional groups require fluid interpersonal relations, and based on research evidencing greater fragility in girls' dyadic relations, men should also (h) be more tolerant of within-group conflict; without this tolerance, the coalition will dissolve (Savin-Williams 1987). And finally, based on women's propensity to engage in higher maintenance behaviors, they are predicted to (i) demonstrate a greater awareness of the reciprocal friendship preferences of others, such that they should be better able to discern whether or not other women would prefer them as a friend based on the other women's personal attributes (i.e., relative reciprocity potential). In contrast, men should be less sensitive to the expectation that others may adjust their friendship preferences in accordance with their relative reciprocity potential (e.g., lower vs similar vs higher rated traits).

Methods

Participants and Procedure

Two hundred fifty-one undergraduate students (163 women) were recruited from the University of Missouri–Columbia (mean age for men=18.8, s.d.=1.1 years; mean age for women=18.4, s.d.=0.7 years). In a 30- to 40-min testing session, participants completed a series of “peer relations” questionnaires in a classroom setting.

Materials

The questionnaires were designed specifically for this study and consisted of 117 items across two broad sections. Items in the first section were designed to assess trait preferences in an ideal friend and then in a hypothetical friend who varied in levels of the two proposed components of reciprocity potential; again, with personal capacity traits and interpersonal investment traits signifying willingness to invest in a reciprocal relationship. For hypotheses *a* through *c*, participants were asked to rate themselves in relation to their same-sex peers (using a seven-point scale: “lower than almost everyone, lower than most, below average, average, above average, higher than most,” and “higher than almost everyone”) on 12 traits that were chosen based on previous research (e.g., Lusk et al. 1998; Rodkin et al. 2000). These traits were divided into two broad categories: The first set of traits consisted of interpersonal attributes that should signal one’s willingness to invest in a reciprocal relationship; these included kindness, cooperativeness, responsibility, sense of humor, and personality. The second set of traits consisted of personal attributes that signal capacity to reciprocate and included creativity, intelligence, education, financial potential, athleticism, social connections, and physical appearance. In a non-adjacent section of the questionnaire, friend preferences were assessed using the same method, except participants rated their preference for each of the 12 traits in their ideal or “perfect friend.” For hypothesis *d*, participants were asked to imagine a scenario in which they were to meet a new same-sex roommate, but were only told a limited amount of information about him/her. More precisely, they were told how this prospective roommate rated (on the seven-point scale used above, from “lower than almost everyone” to “higher than almost everyone”) on one of five traits: physical attractiveness, intelligence, education, personality, and kindness. Participants were then asked to rate how likely they would want this person as a best friend (scored on a five-point scale: never, not likely, maybe, probably likely, and definitely) based on this potential friend’s trait condition. For example, the participants were asked to rate how likely they would be to prefer a prospective roommate as a best friend if this person’s “intelligence was lower than almost everyone.” The process was repeated for each of the five traits and presented in random order for each of the seven ratings (average, below average, and so forth; 35 items total).

The second section examined sex differences in same-sex social structures; hypothesis *e* was examined through self-reported number of close and best friends, and hypothesis *f* through several items that examined the types of activities in which participants engaged with their same-sex peers. These latter items included number of hours spent talking with same-sex friends on the telephone, as well as additional

items that were designed to assess the frequency of engagement in group activities and interpersonal discussion (measured on five-point scales, ranging from rarely to almost always). To assess hypothesis *g*, I created a forced constraint scale to measure voluntary trade-offs between ideal levels of interpersonal intimacy and number of close, peer relationships. For hypothesis *h*, several items were created to assess the likelihood of dissolving a close friendship in response to various forms of interpersonal conflict (e.g., as a result of being teased about one's physical appearance and physical abilities). Finally, hypothesis *i* was examined by including an additional item to the roommate scenario described above; for each trait (attractiveness, intelligence, education, personality, and kindness) and trait condition (lower than almost everyone to higher than almost everyone), participants were asked to report "how likely this person would want you as a best friend" (again, scored 1–5, from "never" to "definitely"). Individual items are further described in their respective subsections in the [Results and Discussion](#) below.

Results and Discussion

The findings are described in two sections. The first focuses on reciprocity potential and the second on sex differences in social styles. Within both sections, the hypotheses are tested in the order (*a* through *i*) they were presented above.

Reciprocity Potential

Hypothesis a: Trait Ratings for Preferred Friends will be Higher than Self-Ratings for the Same Trait The means and standard deviations of the participants' self- and friend-ratings are shown in the first and second sets of columns in Table 2, respectively. For each of the 12 traits and for men and women, participants' friend-ratings were significantly (p values < 0.05) correlated with their corresponding self-rating (r values ranged from 0.25 to 0.65). These findings are consistent with other research (e.g., Challman 1932; Lusk et al. 1998) and indicate homophilic friend preferences (e.g., individuals self-rated as high in creativity preferred similarly creative friends). To test the original prediction that men and women prefer friends with traits that are *slightly higher* (in relative magnitude) than their self-evaluated levels, difference scores (friend ratings – self-ratings) were computed for each of the traits. As shown in the rightmost set of columns of Table 2, men rated the levels for 11 of the 12 traits higher in a preferred friend compared with their self-evaluated ratings (increases in friend ratings ranged from 0.26 to 1.19 units; p values < 0.05). The only trait that showed no difference between the friend- and self-rating was financial potential. Women rated the levels for 10 of the 12 traits (all but physical appearance and financial potential) higher for a potential friend than for themselves (increases in friend ratings ranged from 0.22 to 1.04 units; p values < 0.05). Still, none of the difference scores were significantly different across men and women (p values > 0.05).

Hypothesis b: People will Rate the Interpersonal Investment Traits of Preferred Friends More Highly than Personal Capacity Traits A repeated measures ANOVA on friend-ratings yielded a significant effect for sex, $F_{1,247} = 12.59$, $p = 0.0005$; trait,

Table 2 Self-evaluated and friend-preference trait ratings

Characteristic	Self-ratings				Friend ratings				Difference scores (friend – self ratings)			
	Men		Women		Men		Women		Men		Women	
	mean	s.d.	mean	s.d.	mean	s.d.	mean	s.d.	mean	s.d.	mean	s.d.
Interpersonal compliance traits												
Kindness	5.75 ^a	1.05	5.51 ^a	1.05	6.32 ^{ab}	0.74	6.25 ^a	.82	.45***	0.50	0.40***	0.49
Cooperativeness	5.47 ^{abc}	1.05	5.22 ^{bc}	1.13	5.93 ^{bcd}	1.00	5.85 ^{cd}	.93	.47***	1.22	0.63***	1.24
Responsibility	5.24 ^{abcd}	1.39	5.32 ^{ab}	1.23	5.76 ^c	1.20	5.68 ^{de}	1.04	.52***	1.36	0.36***	1.13
Sense of Humor	5.55 ^{ab}	1.10	5.10 ^{cd}	1.10	6.42 ^d	0.67	6.02 ^{bc}	.85	.88***	1.08	0.93***	1.16
Personality	4.97 ^{de}	1.47	4.95 ^{de}	1.28	6.16 ^{abcd}	0.83	5.99 ^{bc}	.96	1.19***	1.35	1.04***	1.21
Personal capacity traits												
Creativity	5.10 ^{cd}	1.23	4.77 ^{de}	1.20	5.70 ^{ef}	0.89	5.28 ^f	0.87	0.60***	1.35	0.52***	1.21
Intelligence	5.18 ^{cd}	0.99	4.94 ^{de}	0.99	5.64 ^{ef}	0.92	5.36 ^f	0.89	0.45***	1.00	0.42***	0.99
Education	4.97 ^{de}	0.90	4.99 ^{cd}	0.90	5.33 ^{fg}	1.00	5.21 ^f	0.95	0.36***	0.87	0.22**	0.87
Financial	5.20 ^{bcd}	1.11	4.72 ^f	1.12	4.99 ^{gh}	1.21	4.55 ^g	0.90	-.03 (ns)	1.40	-.17(ns)	1.20
Athleticism	5.16 ^{cd}	1.42	4.26 ^f	1.53	5.32 ^{fg}	1.26	4.63 ^g	1.09	0.41***	0.49	0.39***	0.49
Connections	5.00 ^{de}	1.35	4.88 ^{de}	1.28	5.82 ^{de}	1.03	5.51 ^{ef}	1.11	0.82***	1.43	0.63***	1.34
Appearance	4.56 ^e	1.08	4.62 ^{ef}	0.91	4.82 ^h	0.84	4.69 ^g	0.73	0.26*	1.19	0.06(ns)	0.91

Superscript letters indicate significant mean differences within men and women for hypotheses a through i ($\alpha=0.0034$). Traits that showed sex differences in the self- and friend preference ratings are in italics. The significance values in the righthand columns test the hypothesis that the difference score is not equal to zero.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

$F_{12,2964}=6.83$, $p<0.0001$; and the sex \times trait interaction, $F_{12,2964}=3.36$, $p<0.0001$. Mean differences across characteristics were assessed by pair-wise dependent t tests with a Bonferroni correction for multiple comparisons ($\alpha=0.0034$). As shown in the friend-preference set of columns in Table 2, across all traits, men's preference for sense of humor, kindness, and personality were rated higher than the remaining traits; however, they were not statistically different from each other according to the Bonferroni correction. In contrast, women rated kindness more highly than any of the other 11 traits. Across men and women, there were no significant sex differences for any of the interpersonal investment traits except sense of humor, which men rated more highly than women ($t_{215}=4.05$, $p<0.0001$). In terms of effect sizes (mean difference / mean standard deviation; Cohen and Cohen 1983), this difference was moderate in magnitude ($d=0.53$). Among the capacity traits, men reported a higher preference for creativity, $t_{249}=3.64$, $p=0.0003$, $d=0.48$; intelligence, $t_{249}=2.30$, $p=0.0221$, $d=0.31$; financial potential, $t_{140}=2.99$, $p=0.0033$, $d=0.42$; athleticism, $t_{249}=4.51$, $p<0.0001$, $d=0.59$; and social connections, $t_{249}=2.15$, $p=0.0325$, $d=0.29$. No other sex differences emerged.

Hypothesis c: People will Self-Rate Interpersonal Investment Traits Higher than Personal Capacity Traits A repeated measures ANOVA using self-traits as a within-subjects variable and sex as a between-subjects variable yielded a significant effect for sex, $F_{1,246}=9.41$, $p=0.0024$; trait, $F_{12,2952}=3.62$, $p<0.0001$; and the sex \times trait interaction, $F_{12,2952}=3.29$, $p<0.0001$. In general, men and women rated themselves highest on the interpersonal investment traits. Without the Bonferroni correction, men self-rated kindness more highly than all other traits, although this rating was not statistically different than the rating for sense of humor. With the correction, men rated themselves as high in cooperativeness and responsibility. In contrast and with the Bonferroni correction, women rated their kindness more highly than all other traits, with the exception of responsibility. Again, no sex differences were reported for the self-rated investment traits except sense of humor, in favor of men, $t_{249}=3.08$, $p=0.0023$, $d=0.41$. Among the capacity traits, men self-reported a higher sense of creativity, $t_{248}=2.06$, $p=0.0405$, $d=0.27$; financial potential, $t_{249}=2.06$, $p=0.0408$, $d=0.43$; and athleticism, $t_{249}=4.57$, $p<0.0001$, $d=0.61$. No other sex differences emerged.

Hypothesis d: People will Show a Different Pattern of Preference for Potential Friends' Interpersonal Investment and Personal Capacity Traits The hypothesis is that preferred levels of interpersonal traits that signal a friend's willingness to invest in a reciprocal relationship will increase linearly (i.e., higher perceived levels lead to higher preference), whereas preference for friends' personal traits that indicate capacity cues will show a quadratic trend such that the highest trait level will be less preferred than a more moderate level. A repeated measures ANOVA using condition as a within-subjects variable revealed a significant effect for each trait (p values < 0.0001). The mean scores (pooled across men and women) for the 35 items are plotted separately for each trait in Fig. 1. Examination of the means revealed that the highest trait condition ("higher than almost everyone") was the most preferred for only the kindness trait (with and without a Bonferroni correction, $\alpha=0.01$). For the other interpersonal trait (personality), the result for the highest trait condition was

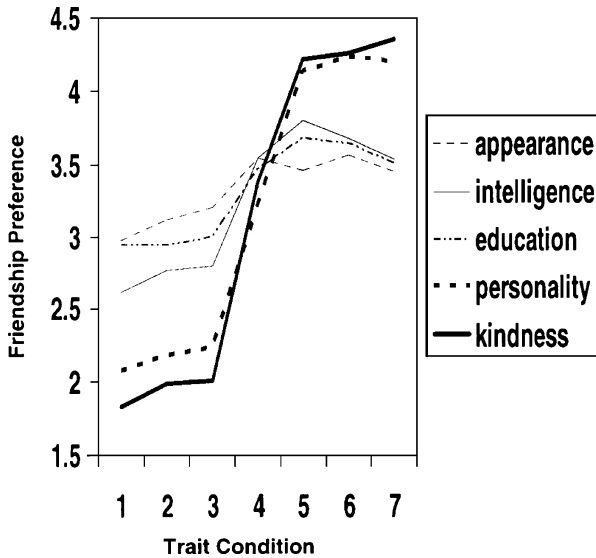


Fig. 1 Nonlinearities in preference for personal capacity and interpersonal, investment traits. Note: The Y-axis shows mean ratings for how likely they would want a roommate as a best friend (scored on a five-point scale: 1=never, 2=not likely, 3=maybe, 4=probably, and 5=definitely); the X-axis shows mean ratings for this prospective friend's traits (scored on a seven-point scale: 1=lower than almost everyone, 2=lower than most, 3=below average, 4=average, 5=above average, 6=higher than most, 7=higher than almost everyone)

statistically equivalent to the next highest condition (“higher than most”). In contrast, the highest trait condition was rated significantly *lower* than the next highest condition for each of the capacity traits (p values < 0.01).

Another way to identify potential nonlinearities among the friend preference traits shown in Fig. 1 is to examine the correlations between the condition level and preference rating for each trait; higher correlations suggest a stronger linear relationship between friendship preferences and each respective trait. The correlation coefficients were each significant (p values < 0.0001) and largest for kindness ($r=0.83$) and personality ($r=0.78$); moderate for intelligence ($r=0.48$) and education ($r=0.38$); and smallest for attractiveness ($r=0.28$). The data were then analyzed using regression equations by inputting the linear and quadratic terms of the trait condition as the predictor variables and friendship preference as the outcome variable. For these analyses and for each trait, higher F -statistics for the quadratic terms should indicate a stronger quadratic trend—that is, higher trait levels should be less preferred than more modest trait levels. For the interpersonal traits, the quadratic term was not significant for personality, $F_{1,1754}=2.11$, $p>0.10$, but it was significant for kindness, $F_{1,1754}=10.46$, $p=0.0012$. In contrast, the magnitudes of the respective F -statistics for each of the three capacity traits were nearly twice as large (p values < 0.0001). Specifically, the quadratic trend was largest for intelligence, $F_{1,1754}=59.26$, followed by physical attractiveness, $F_{1,1754}=29.84$, and education, $F_{1,1754}=18.89$.

Reciprocity Potential Discussion Consistent with the hypotheses, both men and women preferred levels of traits in others that were rated slightly higher than their

self-described level of the same trait, except for financial potential in men and attractiveness in women. This finding is inconsistent with that of Lusk et al. (1998), who found that individuals reported a preference for others with slightly lower rated attributes than themselves. One potential reason for the discrepancy between these findings is that while they used the term “prospective friend,” I used the term “perfect friend.” In theory, the term “prospective” may connote the perception of a *likely* social scenario, whereby the risk of rejection by higher-rated individuals is probable. My use of the term “perfect friend” may have allowed participants to imagine a more *ideal* relational interchange, one that maximizes potential gains with minimal socio-relational risks (Geary 2005). This interpretation is consistent with recent findings that help-giving behaviors among children are contingent on the quality of the interpersonal relationship (see also MacDonald 1988), whereas help-seeking behaviors are not (Rose and Asher 2004). In other words, individuals should be equipped with psychological heuristics that motivate selective allocation of interpersonal investment (Tooby and Cosmides 1996), but much less discriminating solicitatory behaviors. The finding that men and women did not prefer slightly higher rated financial potential and attractiveness cues, respectively, suggests that these characteristics are primary contingencies of self-worth, because they relate to intrasexual competition over mates (for a review of mate choices in humans, see Geary 1998; Geary et al. 2004). Contrast effects may then influence individuals to prefer less-advantaged levels of these types of characteristics, in comparison with oneself (see also Tesser 1991). Further research may discern these possibilities.

I also found strong support for the utility of bisecting reciprocity potential into more discrete properties, that is, one’s capacity to reciprocate and one’s likelihood of doing so. Individuals placed a higher premium on the interpersonal investment component of potential friends than on cues that signal personal capacity to reciprocate. Likewise, both sexes self-described higher levels of interpersonal investment traits (especially kindness) than capacity traits (e.g., intelligence), thereby suggesting that self-perceptions are influenced, in part, by social pressures to advertise attractive characteristics. In theory, self-deception allows individuals to better deceive and exploit others because there is a lowered tendency to exhibit cues (e.g., shame, embarrassment) that would reveal these self-serving biases (Trivers 2000). The findings of differences, favoring men, in appraisal for and advertisement of certain capacity traits (e.g., creativity, financial potential, and athleticism) suggests an evolutionary context (i.e., coalitional competition) in which men may be more disposed to advertise and solicit the capacity component of their reciprocity potential. In other words, because their aptitude to perform had to be signaled to a larger group of individuals, boys and men may have evolved a tendency to express “flashy” displays (e.g., athletic, financial) that were indicative of such qualities and more observable by many as opposed to fewer individuals. This interpretation may help to account for the corpus of evidence demonstrating sex differences in externalizing behaviors in children (e.g., displays of physical prowess, resistance to authority) and inflated sense of self-competencies in males (e.g., school performance). Again, further research is needed to accredit such hypotheses.

Also consistent with the current predictions, the results suggest that individuals demonstrate a more linear pattern of preference for interpersonal investment traits, cues that signal reciprocal intentions, and a more quadratic pattern of preferences for

personal capacity characteristics. In theory, the capacity component of reciprocity potential is relative to the appraiser, such that social interchanges with relatively low- or high-capacity individuals may present an increased risk of interpersonal defection in the form of exploitation and rejection, respectively. In contrast, cues that signal a higher probability of reciprocation (e.g., prosocial dispositions) should be highly appraised, regardless of the capacity differential across the dyad. This distinction overlaps with the prediction that individuals should be more apt to adjust the presentation of their own capacity traits according to the relational context (e.g., similarity across the dyad), but display their interpersonal investment traits more pervasively across social contexts; an empirical demonstration of this prediction awaits future research.

Sex Differences in Social Styles

Hypothesis e: Men Have Larger Social Networks Consistent with the hypothesis, men reported significantly more *close* friends (mean=10.19, s.d.=7.69) than did women (mean=7.03, s.d.=4.23), $t_{111}=3.52$, $p<0.001$, $d=0.53$, and men reported significantly more *best* friends (mean=3.81, s.d.=3.02) than did women (mean=2.89, s.d.=1.52), $t_{111}=2.68$, $p<0.01$, $d=0.61$.

Hypothesis f: Women Engage in More Relational Maintenance Behaviors I used number of hours per week spent talking (e.g., on the phone) to close and best same-sex friends as proxy for degree of interpersonal investment required to maintain the relationship. Inconsistent with the hypothesis, there was no sex difference in mean number of hours spent talking with *close* friends ($p>0.05$). However, consistent with the hypothesis, women spent more hours talking with *best* friends (mean=17.48; s.d.=18.12) than did men (mean=12.01; s.d.=13.85), $t_{221}=-2.67$, $p<0.01$, $d=-.34$.

Also consistent with this hypothesis and with observational research on children's play styles (e.g., Lever 1976), several significant (p values <0.001) sex differences emerged in types of same-sex activities; men were more likely to report engaging in physical activities that involved groups, $t_{248}=5.10$, $d=0.67$, and shared group activities that did not involve discussion, $t_{249}=3.89$, $d=0.51$. In contrast, women reported more time spent discussing social relationships, $t_{249}=-6.42$, $d=-.86$, personal feelings, $t_{249}=-8.22$, $d=-1.07$, and school and other academic issues, $t_{249}=-5.01$, $d=-.66$. In fact, the only activity item that did not show a sex difference was discussion of financial issues ($p>0.05$).

Hypothesis g: Men Trade Off Intimacy for Higher Number of Friends and Women Trade Off Number of Friends for Higher Levels of Intimacy To test this prediction and to parse the positive correlation between degree of investment and *access* to friends (i.e., you cannot invest if you do not have friends), I created a forced-constraint scale that directly assessed the trade-off between number of friends and level of intimacy with each friend (Fig. 2). A series of 10 units (labeled alphabetically from A to J) was placed between the constructs "number of friends" and "intimacy level" with each individual friend; intimacy was defined as "emotional support and willingness to help solve personal problems." Participants were asked to choose a

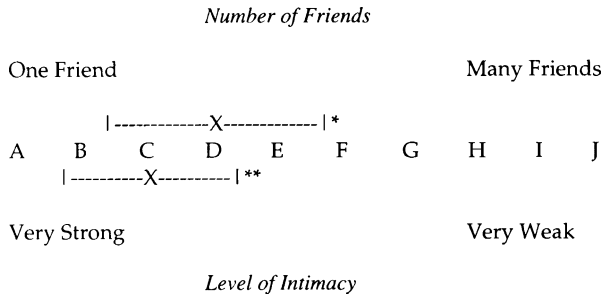


Fig. 2 Trade-off between total number of friends and level of interpersonal intimacy. *Asterisk*, men’s unit average=4.06 (s.d.=1.65). *Double asterisk*, women’s unit average=3.05 (s.d.=1.19)

social comfort level that represented their preferred balance between number of friends and intimacy, such that a one-unit increase in number of friends was accompanied by a unit decrease in interpersonal intimacy. Likewise, a unit increase in intimacy necessarily included the cost of fewer total friends. Consistent with the hypothesis and shown in Fig. 2, men preferred more friends at a cost of lower intimacy (mean=4.06, s.d.=1.65) and women preferred higher intimacy at a cost of fewer friends (mean=3.05, s.d.=1.19, $t_{132}=4.93, p<0.001, d=0.71$).

Hypothesis h: Men have a Higher Threshold for Interpersonal Conflict The participants were asked to imagine a series of interpersonal scenarios that involved themselves and a close friend, and then to assess (on a 7-point scale, ranging from not likely to very likely) the probability that each event would motivate them to end their relationship. The scenarios included (non-cumulative) descriptions of a close friend (a) spreading hurtful personal rumors; (b) flirting with the participant’s romantic partner; (c) getting arrested for a felony crime; (d) physically hurting the participant during a “roughhousing” bout; (e) intentionally teasing them about their physical abilities (e.g., “strength”); and (f) intentionally teasing them about their physical attractiveness. Consistent with the hypothesis and developmental research on the fragility of girls’ dyadic relationships (e.g., Benenson and Christakos 2003), women were more likely to end a close friendship for each of the scenarios (t -scores ranged from -2.57 to $-5.60, p$ values <0.01), except for the scenario in which the friend flirted with their romantic partner; this item revealed no significant sex difference ($p>0.05$). The magnitude of the effect sizes for the significant scenarios ranged from small for getting arrested ($d=-.34$) to moderate for spreading a rumor ($d=-.44$), getting physically hurt ($d=-.55$), and teasing about physical abilities ($d=-.48$) to large for teasing about physical attractiveness ($d=-.77$).

Hypothesis i: Women are More Sensitive to the Reciprocal Preferences of Others Finally, I tested the prediction that women are more accurate at detecting others’ reciprocated friendship preferences based on the other person’s individual attributes (i.e., perceived reciprocity potential). In other words, women should be more accurate at detecting that others with relatively distinguished characteristics are less willing to seek the participant’s friendship than those with more average characteristics. Again, this hypothesis was examined by asking the participants how

likely a hypothetical roommate with varying characteristics would desire the participant as a best friend. I first examined the difference between the second-from-highest roommate trait condition (“higher than most”) and the average condition (“average”) for each trait; a higher difference score should indicate a greater sensitivity to others’ friendship preferences.

Consistent with the hypothesis, men showed no significant difference in their expectations of reciprocated preferences across the “average” and “distinguished” conditions such that the participants expected to be preferred as a friend regardless of the other person’s capacity traits (attractiveness, education, and intelligence; p values >0.10). In contrast, women indicated a significant *decrease* in the expected preference from others described as having relatively distinguished rather than just average capacity characteristics (p values <0.05). As expected, both men and women reported a significantly greater expectation that they would be preferred by others with higher interpersonal traits (personality and kindness; p values <0.001).

I then examined the raw correlations between trait condition and expectation of reciprocated preference, separately for men and women; again, higher correlations suggest more linear and hence less sensitive awareness of others’ friendship preferences. The correlations between condition rating and men’s expectations were significant for each trait (p values <0.05), though modest for kindness ($r=0.67$) and personality ($r=0.55$) and small for education ($r=0.13$), intelligence ($r=0.16$), and attractiveness ($r=0.10$). For women, significant correlations emerged for kindness ($r=0.66$), personality ($r=0.54$), education ($r=0.14$), and intelligence ($r=0.09$); there was a nonsignificant correlation between roommate’s physical attractiveness and women’s expectation of reciprocated preference. A Fisher’s r to z transformation (which accounts for sample size) revealed that women reported a larger correlation between roommate’s kindness ratings and the expectation of reciprocated friendship preference ($p<0.001$). In contrast, women reported a smaller correlation (and hence more sensitive expectation) between roommate’s trait-levels and expectations of reciprocated preferences across personality ($p<0.001$), intelligence ($p<0.10$), and physical attractiveness ($p<0.10$); a sex difference in the relation between roommate’s intelligence levels and friendship expectations did not emerge.

Finally, regression equations were run using the linear and quadratic terms of the trait condition and sex as the predictor variables, and expectation of reciprocated friendship preference as the outcome variable. The analyses revealed that sex was a significant (p values <0.01) predictor of expected friendship preferences for each of the traits except intelligence ($p=0.10$). These significant and near-significant results provide tentative support for the utility of examining the expectation of reciprocated preferences separately for each sex. This was performed using the linear and quadratic terms of the trait condition as the predictor variables and expectation of reciprocated friendship preference as the outcome variable; again, higher F -statistics for the quadratic terms should indicate a stronger quadratic trend—that is, sensitivity to individual differences in others’ friendship preferences. For men, the only significant quadratic term was physical appearance, $F_{1,611}=7.12$, $p=0.008$. In contrast and for women, each of the quadratic terms was significant: significance was greatest for physical appearance, $F_{1,1137}=30.30$, $p<0.0001$, followed by education, $F_{1,1138}=14.28$, $p=0.0002$; intelligence, $F_{1,1138}=11.32$, $p=0.0008$; kindness, $F_{1,1137}=7.57$, $p=0.006$; and personality, $F_{1,1138}=4.14$, $p=0.04$.

Social Styles Discussion Consistent with previous studies conducted on children (Table 1) and predictions by Geary (2002; Geary et al. 2003), men reported larger social networks and spent more time engaged in group activities and less time on intimate behaviors (but see Sheets and Luger 2005). Women reported having a smaller numbers of friends but spent more time sharing intimate information (e.g., professional and relationship) about themselves and other people within their social networks (see also Rose and Rudolph 2006). When asked to make an explicit trade-off between their ideal number of friends and degree of interpersonal intimacy, men preferred more friends at a cost of decreased intimacy with each friend and women preferred more intimate relationships at a cost of having fewer friends. Also consistent with the hypotheses and developmental studies (e.g., Benenson and Christakos 2003), the results suggest that men have a higher threshold for friendship conflict and interpersonal slight; no sex differences were found for more serious types of friendship conflict such as when one's reproductive interests were perceived as being threatened (i.e., the potential for infidelity). The final set of findings provided tentative support for the hypothesis that women are better able to discern the reciprocal friendship preferences of others in accordance with individual differences in other women's personal attributes. Overall, men were less likely to expect discriminatory preferences across individuals with varying reciprocity potential and women were better able to make these distinctions.

In total, the results provide strong support for the prediction that sex differences in some forms of social behaviors are influenced by prototypical group sizes. In a related study, Benenson et al. (2002) found that children facultatively adjusted their dominance and submissiveness behaviors in response to group size; larger group size induced assertiveness behaviors, such as anger and meanness to others, and smaller groups (dyads) induced subservient behaviors, including self-deprecating and sadness behaviors. According to the male-based philopatry hypothesis, stronger kinship ties among groups of related individuals enabled men to form larger functional coalitions with a reduced risk of interpersonal defection, and to tolerate in-group competition through the formation of dominance hierarchies. For women, an evolutionary history which may have necessitated a greater reliance on non-kin or more distantly related kin is predicted to have selected for a greater propensity to engage in more explicit forms of interpersonal investment and with fewer individuals (Geary 2002; Geary et al. 2003; Geary and Flinn 2002; but see Taylor et al. 2000). Smaller social spheres may ultimately function to enable more secure interpersonal relationships, in part through the efficacy in allotting the investment component of reciprocity potential (e.g., through demonstrations of empathy) to fewer individuals. In contrast, men's tendency to form larger functional coalitions may have placed a constraint on such displays, and instead placed a higher premium on the advertisement and solicitation of personal capacity cues—presumably, cues related to male competition (e.g., performance referential skills).

General Discussion

Charles Darwin's (1871) principles of sexual selection and Robert Trivers's (1971) theory of reciprocal altruism provide solid frameworks for understanding friendship

preferences and contemporary social styles in men and women. The current study attempted to expand on these theoretical insights and recent pioneering work in the peer relations literature (for a review see Rose and Rudolph 2006) and demonstrated a number of intriguing and potentially useful findings among adult participants. The most basic of these findings is that interpersonal appraisals may be related to two distinct components of reciprocity potential, that is, the capacity or ability to provide valuable resources that the appraiser might readily observe and access, and the potential for or likelihood that this other individual will actually invest in a reciprocal relationship and thus make his/her capacity available for use by the appraiser. If so, then such a framework should help to account for many forms of social interactions, including same- and opposite-sex peer relations and long- and short-term pair-bonding, along with the types of behaviors that facilitate the solicitation for and/or protection from such relationships. For instance, one can easily extend these components to individual differences in mate value and sex differences in the types of characteristics that men and women seek in a romantic partner; mate preferences for long-term partners should place a higher premium on interpersonal investment cues, whereas preference for shorter-term relations should value capacity characteristics more highly (e.g., Vigil et al. 2006).

From a broader standpoint, a socio-relational model which highlights the selective solicitation and advertisement of capacity and investment components of reciprocal interchanges, coupled with an evolutionary history characterized by intense social selection pressures (Geary 2005), may provide a novel framework to better interpret other types of motivational systems, including human affect and emotional expressivity behaviors. Such a framework may predict that facultative demonstrations of sadness behaviors (e.g., crying) reflect a selective advantage in displaying the investment component of reciprocity potential to *reliable* social partners (individuals presenting a reduced probability of interpersonal defection) in response to and under conditions of experiential adversity. The contra prediction is that happiness behaviors (e.g., a wide, symmetrical smile) may function, in part, to advertise the capacity component of reciprocity potential to better solicit *potential* resources (i.e., sociopolitical) from high-capacity individuals in response to and under conditions of experiential prosperity.

The second major emphasis of this article and respective findings suggest that sex differences in social styles may reflect a divergence in the social constraints faced by our male and female ancestors. The current suggestion is that exposure to and reliance upon more closely related kin may have relaxed the selective pressures for men to solicit and manipulate their social relationships through explicit displays of trustworthiness and hence the interpersonal investment component of reciprocity potential, in comparison to women. Specifically, evolved sensitivities to form large, functional coalitions may have constrained the degree to which males could have efficiently interchanged these cues (e.g., via intimacy behaviors) amongst each other (i.e., across larger social spheres); the resultant pattern being a higher premium on the advertisement and solicitation of personal capacity characteristics (e.g., dominance behaviors, such as inflated self-competencies and increased risk-taking and physical aggression). In contrast, a disproportionate reliance upon more distantly related kin and non-kin among females may have selected for a greater propensity to advertise their trustworthiness and interchange more investment

behaviors (e.g., vis-à-vis submissiveness displays, such as crying and expressed empathy) and to form smaller social networks. Smaller social spheres may ultimately increase the ability to invest in one's interpersonal relationships (thereby creating more reliable socio-resources) and reduce the risk of social injury (e.g., exploitation and rejection) by less-invested, and hence more direct, social competitors.

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