Evidence of conditional strategies in human friendship

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Abstract

Many species employ conditional strategies for reproduction or survival. In other words, each individual "chooses" one of two or more possible phenotypes to maximize survival or reproductive advantage given specific ecological niche conditions (e.g., Moran, 1992). Humans seem to employ at least one conditional reproductive strategy, choosing between a more short-term or a more long-term mating strategy (Gangestad & Simpson, 2000), and as with non-human animals, their choices relate in part to an assessment of their own traits (Belsky, 1997; Schmitt, 2005). However, the selection pressures that individuals of a species can exert on each other are not restricted to mate selection; they can arise from many forms of social interaction (West-Eberhard, 1983; Wolf, Brodie, & Moore, 1999). Evidence suggests that individuals are sensitive to characteristics of the self, friend, and environmental conditions when choosing friends (Fehr, 1996; Rose, 1985; Verbrugge, 1977), and that a person's economic, social, and environmental circumstances influence how they form and organize their friendships (Adams & Allan, 1998; Feld & Carter, 1998). Thus, in this paper I hypothesize that humans have evolved a coherent range of conditional friendship strategies: that we vary predictably in terms of the friendships we form, based on an assessment of our own traits, others' traits, and our own current needs. I propose a continuum of individual differences in friendship strategy, anchored on one end by those who use friendships for exploration (e.g., skill-building and networking) and on the other end by those who use friendships for intimate exchange (e.g., emotional support and intimacy). I created a measure assessing this continuum, and found that men tended to report a stronger exploration strategy than women. I also found that people with a stronger exploration strategy also had a more short-term mating strategy and were more extroverted, and that people with a stronger intimate exchange strategy reported themselves to be more kind and generous; these results remained when controlling for gender. However, friendship strategy did not relate to socioeconomic status, age, attachment avoidance, relationship status, or presence of kin relationships. There was some evidence that friendship strategy was related to the number of friends an individual reported having and how close they felt to their friends.

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Introduction

Many species show evidence of conditional reproductive or survival strategies. That is, there may be several possible phenotypes an individual could adopt, and the individual may "decide" upon a phenotype which is maximally advantageous given the conditions of the specific niche in which it finds itself (e.g., Moran, 1992). To do this, the individual must be able to assess the niche and their own traits relative to the niche (Gross, 1996; Stephens, 1987), though this does not necessarily imply overt cognitive assessment or decisions by the individual. These conditional strategies can be "fixed," meaning that the individual is shaped during ontogeny into a specific phenotype which is then stable in adulthood, or they can be plastic, with adults moving flexibly between alternative strategies as ecological conditions vary (Henson & Warner, 1997; Moore, 1991; Moran, 1992). For example, in many species of insects and fish, males choose between strategies of either fighting for and defending mates or sneaking close to females to mate, depending on their body size (Gross, 1996; Henson & Warner, 1997).

Conditional strategies are sensitive to social and ecological context, including features such as population density and the presence of predators (Gross, 1996). For example, male guppies are more likely to court females when predators are absent, but are more likely to attempt to coerce matings when predators are present; reciprocally, females will resist forced copulations in the former situation, but are more likely to accept them in the latter (Henson & Warner, 1997). Conditional strategies are often prominent in the context of mating and mate choice (Gross, 1996). Thus they are often the result of sexual selection pressure, which can result in extreme phenotypic traits as well as extreme phenotypic variation (Andersson, 1994; West-Eberhard, 2003). Such extreme variation is often seen, in particular, in social behaviors, which are, for this reason, often the most useful way to distinguish between two very similar species (Rice & Holland, 1997; West-Eberhard, 1983).

Humans appear to use conditional strategies with regard to choosing mates, in particular choosing between short-term and long-term mating strategies (Gangestad & Simpson, 2000). That is, individuals differ in the extent to which they seek out or will accept sexual activity in the absence of long-term commitment, as well as in their tendency to seek additional partners while in a committed relationship (Buss & Schmitt, 1993). Mating strategy choice seems to relate in part to characteristics of available partners, including their facial and body symmetry (an indicator of genetic quality), as well as indicators of partners' caretaking ability and potential as a provider (Buss & Schmitt, 1993; Gangestad & Simpson, 2000). And as with non-human animals' assessment of their own traits (e.g., body size), human mating strategy also appears to relate to individuals' own somewhat stable preferences, as shaped in part via ontogenetic experiences and, likely, assessments of one's own quality as a partner (Belsky, 1997; Schmitt, 2005). Indeed, there is evidence that the kinds of characteristics preferred in a mate are reliably related to one's own characteristics. For example, those who prefer "kind and considerate" mates rate themselves higher on measures of emotional reliance and interpersonal dependency; and those who prefer "socially exciting" mates rate themselves higher on extroversion and public self-consciousness (Buss & Barnes, 1986). Thus humans appear to be evaluating both their own characteristics and the characteristics of their social environment (e.g., partner quality) in deciding between conditional reproductive strategies.

Again, this does not imply conscious decision-making with regard to reproduction, and appears to operate via mechanisms such as preferences for certain kinds of partners and greater or lesser willingness to engage in uncommitted sex with those partners (Gangestad & Simpson, 2000).

However, mating strategies are not the only arena of social interaction in which individuals can use conditional strategies. It has been recognized that sexual selection pressure on reproductive fitness is in fact a subset of a larger category of social selection pressures (West-Eberhard, 1983). In other words, the kinds of selection pressures that individuals of a species can exert upon each other are not restricted specifically to mate selection or mate competition; they may arise from any form of social interaction that has an effect on reproductive fitness (West-Eberhard, 1983; Wolf, Brodie, & Moore, 1999). Further, though social selection can result in increasingly competitive traits (e.g., resource competition), it can also result in increasingly cooperative traits, if those who are more cooperative gain some reproductive advantage over others (Frank, 2006; Trivers, 1971). It is likely that social selection pressure favoring cooperation has been a strong force during human evolution, and that such pressure has also resulted in humans' tendency to evaluate and choose relationship partners with whom cooperative interactions are likely to yield some kind of reproductive advantage (Alexander, 2006; Nesse, 2007; Trivers, 1971). (Note that "reproductive advantage" can be conferred in many ways, including for example protection or resource provision, and does not necessarily imply involvement in reproductive acts themselves. Nor does it require awareness by the individual of strategic decisions or the possibility that reproductive advantage could be gained on the basis of such decisions.)

If, as seems likely, social selection in humans has favored the tendency to interact with helpful and cooperative partners, it is also possible that humans have developed conditional strategies by which to choose social partners who are maximally helpful, given the individual's traits and ecological circumstances. In other words, we may have evolved conditional strategies with regard to choosing friends. If so, humans would be expected to vary predictably in terms of the kinds of friendships we form and the ways in which we use these friendships, as a function of some assessment of our own and others' traits as well as our own current needs.

Friendship appears to be a universal type of human social relationship (Fehr, 1996; Krappmann, 1996; Shackelford & Buss, 1996), and it is the only type of relationship in which reciprocity is the single avenue by which individuals can obtain fitness benefits; in kin and mating relationships, individuals additionally share genetic interests (or potential genetic interests, in the case of mates without children). Thus, as used here, friendship refers to bonds of affection and mutual liking formed between individuals who are not kin and not mating partners (Shackelford & Buss, 1996). Friendship has been defined in various ways, but its key features are that it is a specific bond between two (not more) individuals, in which no other can substitute (Buysse, Goldman, West, & Hollingsworth, 2008; Krappmann, 1996; Ladd, 2005); that there is a sense of equality between the friends (Allan, 1998); and that the friendship is voluntary and involves mutual affection, liking, and enjoyment (Buysse et al., 2008; Fehr, 1996; Feld & Carter, 1998; Hartup & Stevens, 1997). Crucially, characterization of friendship almost always includes a consideration of its benefits, including things such as companionship, social comparison, evaluative feedback, affection, instrumental assistance, informational assistance, and emotional support (Bleske & Buss, 2000; Buysse et al., 2008; Granovetter, 1982; Tardy,

1985). And the ability to reciprocate in providing benefits is seen as a key feature in the maintenance of these relationships (Allan, 1998). Indeed, positive feelings about a friend are predicted both by the amount of benefits one receives from a friend and by the amount one gives to that friend (Mendelson & Kay, 2003).

Such benefits have the potential to contribute to reproductive fitness in various ways, including the provision of resources, facilitation of other beneficial social relationships including reproductive ones, physiological benefits such as stress reduction, and assistance in the development of skills (social or otherwise) which in turn facilitate better acquisition of other resources. There is evidence that friendship can provide all of these benefits. Children who are friends are better able to cooperate in order to maximize each individual's access to a scarce resource (Hartup, 1996), and children produce better-quality schoolwork when working with friends compared to when working with non-friends (Hartup & Stevens, 1997; Newcomb & Bagwell, 1996). Children will also explore an unfamiliar room or toy more readily when in the presence of a friend (Hartup, 1996; Ladd, 2005), and will tend to form "alliances" with friends against non-friends (Ladd, 2005). Children with friends tend to develop better social skills over time, facilitating further fruitful social relationships (Hartup & Stevens, 1997; Ladd, 2005; Lindsey, 2002; Sebanc, 2003). In adults, friends can facilitate introductions to, and information about, new social contacts including potential mates (Bleske & Buss, 2000; Bleske & Shackelford, 2001) or the opposite sex in general (Bleske & Buss, 2000), and they can provide protection, companionship, social status, and of course concrete resources such as food (Bleske & Buss, 2000; Fehr, 1996). Friendship also contributes to physical and mental health; those who have more friends tend to live longer (Berkman & Syme, 1979; Fehr, 1996), have lower rates of hypertension (Uchino, Cacioppo, & Kiecolt-Glaser, 1996), lower rates of depression over time (Hartup & Stevens, 1997), and higher levels of self-esteem and subjective well-being (Hartup & Stevens, 1997; Siebert, Mutran, & Reitzes, 1999).

The fact that there are many different types of benefits that friends can exchange suggests that different kinds of friendships can serve different functions. This combined with the wide latitude an individual often has in choosing friends (Fehr, 1996; Feld & Carter, 1998; Krappmann, 1996) suggests that friend selection is a prime area in which conditional strategies might be operating. It seems likely that individuals would have a tendency to choose friends whose characteristics match their own needs, particularly their social needs. How these conditional strategies might operate, however, is a complicated question. Assessment of one's own needs is an important element of conditional strategies (e.g., Gross, 1996), as is assessment of current environmental conditions (Moran, 1992; Stephens, 1987).

Evidence does suggest that, as when choosing mating partners, individuals are sensitive to characteristics of the self, friend, and environmental conditions when choosing friends. People's friends tend to be similar to themselves in terms of characteristics such as age, gender, socioeconomic status, ethnicity, family background, and political or religious preferences, and these similarities tend to be strongest for one's closest friends (Fehr, 1996; Rose, 1985; Verbrugge, 1977). People are also more likely to form friendships with those with whom they are frequently in close proximity, for example those on the same floor of an apartment building, compared to those on other floors (Fehr, 1996). Proximity is especially important in predicting friendships between people who are otherwise dissimilar, for example in age or race (Fehr, 1996). Moreover, friends who live closer are more likely to consider each other best

friends (Fehr, 1996). People also prefer to choose as friends those who have strong social skills such as nonverbal expressiveness, appropriate turn-taking in conversation, ability to initiate interactions effectively, and self-disclosure, as well as those who show interest in and responsiveness to oneself (Fehr, 1996). From an evolutionary perspective, both similarity and proximity could be considered signals of likely utility in reciprocal exchanges (i.e., a person who is close by and similar to oneself is likely to be available to help, and to understand what kind of help is needed), and features such as social skills and responsiveness could be considered signals of the partner's intention and ability to reciprocate.

There is also evidence that an individual's circumstances (i.e., niche conditions), including economic, environmental, and social ones, influence the ways in which friendships are formed and organized (Adams & Allan, 1998; Feld & Carter, 1998). With regard to economic conditions, working-class men appear more likely to organize friendships around particular contexts or activities, whereas middle-class men tend to engage in broader ranges of activities with friends; this difference has historically been largest when the conditions of working-class life have been more difficult (Allan, 1998). Similarly, unemployed men tend to maintain less extensive friend networks (Allan, 1998). Allan (1998) argues that this is in part a consequence of the need to limit reciprocal commitments when individuals' resources are scarce. Economic context also influences the ways friendships are organized. People living in impoverished economic conditions, or who are unemployed, rely particularly strongly on resource exchange in friendships (Adams & Allan, 1998), and people in non-skilled jobs are more likely to maintain their closest friendships over time (Tampubolon, 2005).

Individuals also seem to choose friends who provide a good match to their social needs. For example, there is evidence that people vary with regard to how much they monitor others' behavior and reactions to the self and mold themselves to these social circumstances, what has been termed self-monitoring (Gangestad & Snyder, 2000). People who are high self-monitors seem to prefer friends who are good at specific activities, and they seem to engage in specific activities mainly with those friends who are good at them. In contrast, those who are low self-monitors seem to choose friends based on overall liking of the person, and choose most-liked friends as activity partners, regardless of the friend's skill in that particular activity (Snyder, Gangestad, & Simpson, 1983). Though the concept of self-monitoring as a coherent personality trait has been debated (e.g., Briggs & Cheek, 1988; John, Cheek, & Klohnen, 1996), these findings are nevertheless an enticing example of the potential operation of conditional strategies in friendship choice.

Gender is also a variable that influences friendship choice. Men more than women prefer opposite-sex friends who are more sexually attractive, and women more than men prefer opposite-sex friends who are stronger and provide protection (Bleske-Rechek & Buss, 2001). All of these findings suggest that individuals assess their own needs in a variety of ways, and shape their friendship choices accordingly. These tendencies and preferences may well reflect underlying benefits to reproductive fitness that friendships can provide.

Though these findings indicate apparently strategic individual differences in friend selection, it is not clear whether there are overarching, coherent, and reliably discernible conditional strategies in friendship choice, as there appear to be with regard to mating strategies. In this paper, I hypothesized that there are such coherent, overarching conditional strategies, and that these would relate in predictable ways to aspects of individuals'

circumstances and traits, and to the characteristics of the individual's actual friends. Specifically, I proposed a model of individual differences in friendship strategy that can be defined via a continuum, anchored on one end by those who use friendships for exploration (e.g., skill-building and networking) and on the other end by those who use friendships for intimate exchange (e.g., emotional support and intimacy). These predictions build on the more general idea that, in network formation in both humans and other species, individuals tend to choose between "broad, shallow" and "narrow, deep" social networking strategies (Oishi & Kesebir, 2012; Tutin, 1979).

More specifically, it was hypothesized that individuals' self-reported friendship preferences and actual social networks would show evidence of conditional friendship strategies falling along a continuum. At one end of this continuum would be individuals who are using friendships primarily for exploration: to build skills (social or otherwise), develop social networks, and find reproductive partners. These individuals were hypothesized to have greater numbers of friends, but feel less close to each friend on average, to have a shorter average duration for each friendship, and to spend less time with each friend. They were also hypothesized to have friends who they see as good networking partners (i.e., see them as socially skilled, successful, and outgoing) and who tend to give them support with practical or social problems. This kind of social strategy is similar to Granovetter's (1973) concept of "the strength of weak ties" and Oishi and Kesebir's (2012) concept of a "broad, shallow" networking strategy. At the other end of the continuum would be individuals who are using friendships primarily for intimate exchange. That is, they are currently using friendships to provide stability, support, emotional intimacy, and reciprocal exchange. These individuals were hypothesized to have fewer, closer friendships of longer duration, and to spend more time on average with each friend. They were also hypothesized to have friends who they see as kind and generous, and who tend to give them emotional support. This kind of social strategy is similar to Oishi and Kesebir's (2012) idea of a "narrow, deep" networking strategy. It was hypothesized that these would not be discrete categories; instead, individuals would fall along a continuous spectrum ranging between these two extremes.

It was further hypothesized that individuals are strategically "choosing" (though not necessarily consciously choosing) these friendship strategies to meet certain needs, and thus that these strategies would relate to a number of aspects of individuals' circumstances and personal characteristics. Regarding the exploration friendship strategy, first, it was predicted that people with a stronger exploration-related friendship strategy would be more likely to be extroverted and describe themselves as socially exciting; individuals with such traits should seek out relationships with other socially exciting people, as a way of maximizing their social strengths. This is suggested in research on mate selection: individuals who are more extroverted tend to prefer mates who are more socially exciting (Buss & Barnes, 1986).

Second, it was predicted that individuals with a stronger exploration strategy would be more likely to be engaged in or more open to short-term mating strategies, as suggested by findings indicating that both a short-term mating strategy (Gangestad & Simpson, 2000) and extroversion (Pound, Penton-Voak, & Brown, 2007) relate to higher facial symmetry, suggesting that both preferences may be aspects of a conditional strategy that is influenced by an accurate assessment of one's own attractiveness or health. Engaging in an exploration friendship strategy would aid these individuals in meeting a larger number of potential romantic and

sexual partners, as suggested by findings indicating that one of the functions of opposite-sex friendships is to gain sexual access to the friends themselves (Bleske & Buss, 2000; Bleske-Rechek & Buss, 2001).

Third, those with a stronger exploration strategy would be more likely to have a higher-socioeconomic-status (higher-SES) background; such individuals will have the resources to invest in numerous social contacts and frequent social activities (e.g., Harrison, 1998). Indeed, research suggests that when interacting with strangers, higher-SES individuals are more likely to dominate conversations and engage less intimately with partners, and they also tend to self-report higher levels of extroversion (Kraus & Keltner, 2009), traits that are hypothesized to be related to an exploration strategy.

Fourth, those with a stronger exploration strategy would be younger; younger people will have a greater need to develop skills, explore the social environment, and grow new relationships (e.g., Carstensen, 1992), all of which are functions that a large network of socially skilled and socially exciting individuals would be likely to provide.

Fifth, those with a stronger exploration strategy would be less likely to have a current exclusive romantic relationship, and would have more kin nearby, or would feel more close to and spend more time with kin. From an evolutionary perspective, romantic, kin, and friend relationships can provide very similar sets of benefits (Bleske & Buss, 2000; Shackelford & Buss, 1996; Tardy, 1985); indeed, in some research traditions all three are lumped into the single category of "communal relationships" (Clark & Mills, 1993; Fiske, 1992). But because friendships are the most voluntary type of relationship (Feld & Carter, 1998), individuals may "fill in" needs not being met in other relationships by seeking out friends who can do so. There is evidence of this; people who are more involved in kin relationships tend to participate less in non-kin friendships (Adams & Allan, 1998). Similarly, when romantic partners provide less emotional support, women seek it out from friends instead (e.g., Harrison, 1998). And individuals who are not in a romantic relationship, more so than those in relationships, report that providing protection is a more important function of friends (Bleske-Rechek & Buss, 2001). Friends are also perceived as providing indispensable support upon loss of a romantic relationship (Harrison, 1998). An exploration strategy would also aid non-partnered individuals in meeting potential new partners; findings suggest that individuals indeed use opposite-sex friendships to meet and gain information about potential mates (Bleske & Buss, 2000; Bleske-Rechek & Buss, 2001).

Sixth, those with a stronger exploration strategy would have a more avoidant attachment style; such individuals are less comfortable with emotional closeness (Mikulincer & Shaver, 2007; Simpson, 1990) and thus may pursue this friendship strategy in order to avoid intimacy. Such a strategy would be in keeping with more avoidant individuals' tendency to report feeling less closeness and less positive emotion in their romantic relationships (Feeney & Noller, 1990; Hazan & Shaver, 1987), and less distress upon losing a romantic relationship (Simpson, 1990). Research on attachment has focused primarily on romantic and parent-child relationships; if supported, the current hypothesis would add detail regarding how attachment style influences interactions within the third major category of relationships (i.e., friends).

On the opposite end of the spectrum, it was hypothesized that engaging in a strategy of intimate exchange friendships would be associated with essentially the opposite suite of situational variables and individual traits. First, it was hypothesized that individuals engaging in

intimate exchange friendships would be more likely to also be oriented toward long-term mating strategies, and would be more likely to be involved in long-term romantic relationships. These individuals would have less need to meet new mating partners. They might also be more oriented toward establishing lasting relationships which could aid in the rearing of offspring (as suggested in findings indicating that men who wanted children preferred wives who were more warm and nurturing, Buss & Barnes, 1986; a similar result with regard to friends would not be surprising). And they may be more oriented toward intimate friendships that could help them develop the kinds of social skills useful in rearing young, such as caretaking and successfully navigating intimate bonds.

Second, these individuals would be more likely to see themselves as kind, warm, and generous; individuals who tend to be more kind and generous are likely to seek out relationships with others who are similar to themselves on these traits, thereby maximizing the fitness benefits they can obtain by engaging in reciprocal exchanges with kind and generous others. This is suggested by the finding that individuals who rate themselves higher on traits such as interpersonal dependency prefer mates who are more kind and considerate (Buss & Barnes, 1986); again, a similar finding with regard to friendships seems likely.

Third, those with a stronger intimate exchange strategy would be more likely to have a lower-SES background; such individuals may tend to limit their numbers of reciprocal commitments because of a need to manage limited resources (Allan, 1998), especially given that low-SES individuals tend to rely on friends for resource exchange particularly strongly (Adam & Allan, 1998). Indeed, lower-SES individuals are more likely to display signs of engagement (e.g., laughing and nodding) when interacting with strangers (Kraus & Keltner, 2009); these signs of warmth and kindness are hypothesized to indicate a stronger intimate exchange strategy.

Fourth, those with a stronger intimate exchange strategy would be older; older people are likely to have less need for skill development and the meeting of new relationship partners. And as with individuals in long-term relationships, older individuals may similarly prefer more intimate friendships that may be more helpful in rearing young. Indeed, people do tend to desire a smaller number of more stable and intimate relationships as they get older (Carstensen, 1992).

Fifth, those with a stronger intimate exchange strategy would have fewer kin nearby, or would be less close with and spend less time with kin; these individuals would have more need to seek out intimate relationships with friends, as suggested by the findings of Adams and Allan (1998) that those who have fewer kin relationships tend to engage more in friendships.

Sixth, these individuals would have a less avoidant attachment style; they would be more comfortable with intimacy (Mikulincer & Shaver, 2007) and thus would not specifically avoid a friendship strategy that focuses on developing emotionally intimate friendships.

Method

Participants

Data were collected from two separate samples of participants; these two groups completed two somewhat different sets of surveys, as described below. The first consisted of 149 undergraduate students (75 women, 73 men, and 1 with another gender identity). Reported ethnicity of these participants was as follows: 77 Asian/Pacific Islander, 42 White, 13

mixed ethnicity, 9 Latino/a, 2 African American, and 6 of other ethnicities. Participants' average age was 20.7 (*SD* = 2.7), with a range of 18 to 36. The average family income was 4.32 (*SD* = 2.42) on an 8-point scale; a score of 4 corresponds to an average income of between $76,000 and $100,000 a year. Reported highest level of education for either parent averaged 5.08 (*SD* = 2.15) on a 7-point scale; a 5 indicated a Bachelor's degree.

The second sample consisted of 158 undergraduate students (93 women and 65 men). There were significantly more women than men in this sample, $X^2(1) = 4.96$, $p = .026$. Reported ethnicity for this sample was as follows: 85 Asian/Pacific Islander, 36 White, 16 mixed ethnicity, 9 Latino/a, 2 African American, and 7 of other ethnicities. Participants' average age was 20.2 (*SD* = 2.6), with a range of 18 to 43. The average family income was 4.33 (*SD* = 2.28) on an 8-point scale. Reported highest level of education for either parent averaged 5.10 (*SD* = 1.96) on a 7-point scale. Because there were more women than men in the second sample, for all analyses in which gender was a predictor, statistics were run on both the sample as a whole and on a sample in which the last 10 female respondents had been removed. This removal resulted in a statistically equal number of male and female participants, $X^2(1) = 2.19$, $p = .14$. Unless otherwise noted, statistics are for the sample as a whole.

This research was approved by the Committee for Protection of Human Subjects of the University of California, Berkeley, CPHS #2010-3-1055, and was carried out in accordance with all ethical principles of the protection of human subjects. All participants were informed of their rights as research participants, and all gave written informed consent to participate.

Materials

To measure individuals' friendship strategy, a specific measure was created: the Friendship Strategies Survey (FSS). The questions in this survey were designed to assess where an individual falls on a continuum between the exploration and the intimate exchange friendship strategies. The instructions ask participants to think about "the kind of person who would be an ideal friend for you," and each question asks the participant to decide between one exchange-related versus one exploration-related feature of an ideal friend, on a 6-point rating scale (participants are not allowed to rate the two features as equally important). Participants can indicate that they "greatly prefer," "somewhat prefer," or "prefer a little" each item in a pair, over the other. The 19 pairs of items originally included in this measure can be found in Table 1. (The final measure created as a result of analyses on these two samples, and used in subsequent studies, can be found in Table 8.) In the actual measure as seen by participants, half of the items are reversed, such that half of the exploration-related items appear as the left-side option, and half appear as the right-side option.

In the second sample, in order to refine the FSS, the items presented on each side of each question were presented to participants individually, and participants rated how important each one would be in a new "ideal friend," on a 7-point Likert scale ranging from "not at all important" to "extremely important." Participants in the second sample also completed the original, 19-question, paired-items version of the measure; they completed the paired-items version first, followed by the single-item ratings.

To test the hypotheses regarding the traits and life circumstances that were hypothesized to relate to each friendship strategy, participants also completed a number of self-report measures. First, participants completed a set of measures assessing the features of

396 their friendship networks that were predicted to relate to their friendship strategy, detailed in
397 the following paragraphs.
398

Table 1

Factor Loadings of the Friendship Strategy Survey Items Created for the First Sample

	Factor loadings[a]				
	3-factor solution			2-factor solution	
Easygoing/adaptable OR Intellectually stimulating	.572			.552	
Socially exciting OR Kind/considerate		.700			.696
Likes children OR Financially successful	.486		-.365	.450	
Caring/warm OR Shares your interests	.456		-.437	.412	
Quick-witted OR Thoughtful/wise		.447	-.304		.398
Relaxed/laid-back OR Socially poised	.399		.316	.401	
Adventurous OR Responsible		.591			.607
Empathic OR Charismatic	.675			.675	
Help you get things done OR Express concern for your well-being	.346	.351		.389	.365
Be a good confidante OR Teach you how to do something	.727			.731	
Introduce you to or help you meet people OR Give you physical affection or comfort		.625			.631
Spend time with you one-on-one OR Organize or invite you to parties/events		.498			.477
Be fun and engaging OR Keep your important matters private		.442	.570		.529
Understand your feelings OR Give you important information	.746			.748	
Give you good advice OR Listen to you without judgment			.486		
Express their deep feelings OR Introduce you to new activities	.526	.314	.309	.563	.314
Come to you for practical advice OR Tell you their secrets	.374		.543	.426	
Rely on your kindness and empathy OR Rely on your knowledge and skill	.716			.700	
Ask you for help getting things done OR Come to you for affection and comfort	.391	.505		.424	.483

Note. Participants were asked to rate which of each pair they would prefer in an ideal friend, on a 6-point scale. Items were coded such that low scores indicated an exchange strategy.

[a]Loadings less than .30 are not shown.

Participants answered questions about their current friendships: how many friends they had, how many of these lived close enough to see regularly, how many years the participant had had each of the two oldest friendships, how emotionally close the participant felt to his or her friends in general, and how many hours per week the participant spent with his or her friends, in aggregate. Participants were asked to use the following definition: "Think of 'friends' as people with whom you have a current, mutual bond that you both consider to be a friendship. Do not include old friends you haven't talked to in a long time, relatives, current romantic partners, or people you consider to be acquaintances rather than friends."

Participants completed individual ratings of the importance of various traits in an "ideal friend" on a 7-point Likert scale ranging from "not at all important" to "extremely important." These traits included items that should describe individuals closer to each end of the friendship strategies continuum. Characteristics that were hypothesized to describe an intimate exchange friendship included kind/considerate, domestic/home-oriented, likes children, easygoing/adaptable, and sharing/generous. Characteristics that described an exploration friendship included socially exciting, intellectually stimulating/witty, and financially successful. Filler items included politically conservative and physically attractive. These characteristics were taken from those used in previous studies of friend and mate preferences (Bleske & Buss, 2000; Bleske-Rechek & Buss, 2001; Buss & Barnes, 1986; DeKay, Buss, & Stone, 1998, as cited in Bleske-Rechek & Buss, 2001).

Participants reported on the number of male and female acquaintances (i.e., "acquaintances: people you do not consider to be friends") they had on a 7-point Likert scale ranging from "0-50" to "more than 150." They reported on the number of Facebook friends (or other networking site contacts) they had on an 8-point Likert scale ranging from "0-100" to "more than 700," and they reported the amount of time per week they spent with acquaintances overall on a 7-point Likert scale ranging from "less than 1 hour" to "more than 30 hours."

In the second sample only, participants reported on the amount and types of emotional and instrumental support or assistance received from their friends as a group, on a 7-point Likert scale ranging from "never" to "very often." These items were selected from the Inventory of Socially Supportive Behaviors (Barrera, Sandler, & Ramsay, 1981) and the Social Support Questionnaire (Sarason, Levine, Basham, & Sarason, 1983). Specifically, participants rated how often their friends gave them the following types of support: "Gave you information on how to do something, or how to understand a situation you were in;" "Keeps the things that you talk about private: just between the two of you;" "Comforted you by showing you some physical affection;" "Introduced you to, or helped you meet, other people you wanted to know;" "Expressed interest and concern in your well-being;" and "Pitched in to help you get something done." This brief measure of social support was drawn from the social support literature, rather than from benefits questionnaires devised for other evolutionary psychology studies of human friendships (e.g., Bleske & Buss, 2000), because the former measures are backed by a large body of research indicating their predictive power for fitness-related outcomes such as physical health and longevity (e.g., Berkman & Syme, 1979; Cohen & Syme, 1985; Sarason & Sarason, 2001). Specific items were chosen that reflected benefits more likely to be valued by individuals at each end of the friendship strategies spectrum; items regarding affection, privacy, and concern should be of more interest to those with an intimate exchange strategy, and items

regarding information, introductions, and getting things done should be of more interest to those with an exploration strategy.

Participants also completed a set of measures assessing the social conditions that could influence a participant's friendship strategy, detailed in the following paragraphs.

Participants answered questions about their kin relationships, including open-ended responses of how many relatives they interacted with regularly and how many of these lived close enough to see regularly, as well as reporting on how emotionally close they felt to their relatives as a group, on a 7-point Likert scale ranging from "not close at all" to "extremely close," and how many hours per week they spent interacting with relatives, on the same 7-point scale as that used for acquaintances.

Participants reported on their relationship status, specifically whether or not they were in a long-term romantic relationship or any short-term romantic/sexual relationships. If participants answered in the affirmative, they were asked to answer the following questions about each romantic or sexual partner: how much time they spent with the partner (on the same 7-point scale as that used for acquaintances), the length of the relationship in an open-ended response format, whether the partner lived close enough to see regularly, and how emotionally close they felt to the partner, on the same 7-point scale as that used for kin. They also reported on their partner's age and gender, and whether they had had sex or had children with the partner.

Participants reported on the characteristics of their current romantic partner (if they had more than one, they reported on their primary partner); these were the same characteristics as those answered regarding the "ideal friend" (i.e., kind/considerate, etc.). If participants reported having no current romantic relationships, they answered these questions regarding their ideal romantic partner.

Participants reported on the amount and types of emotional and instrumental support or assistance received from their primary romantic partner, or if they did not have a current partner, the support they would receive from an ideal partner. These were the same social support items as those completed regarding support from friends.

Finally, participants completed a set of measures assessing individual traits that could influence or be influenced by an individual's friendship strategy, as well as basic demographic information, detailed in the following paragraphs.

Participants reported on their own age in an open-ended response format, their gender (participants could choose male, female, neither, transgendered FTM, transgendered MTF, intersex, genderqueer, or other), their ethnicity (participants could choose as many as applied from the following categories: American Indian / Alaska native, Asian / Native Hawaiian / other Pacific Islander, Black / African American, Hispanic / Latino/a, White, or Other, and could fill in an open-ended response for Other), and their sexual orientation (participants could choose heterosexual/straight, homosexual/gay/lesbian, bisexual, asexual/nonsexual, non-heterosexual/queer, unsure/questioning, or other / prefer not to say).

Participants reported on their family of origin's socioeconomic status (SES), specifically, their family's income level on an 8-point Likert scale ranging from "$25,000 or less" to "$175,000 or more" and the highest level of education attained by either parent, on a 7-point Likert scale ranging from "less than high school" to "post-graduate degree."

Participants reported on their preference for a short- vs. long-term mating strategy, by completing the Revised Sociosexual Orientation Inventory (RSOI; Penke & Asendorpf, 2008). This scale contains nine items assessing three dimensions of sociosexual orientation: past behavior, attitude, and desire. Past behavior questions are answered in an open-ended format (e.g., "with how many different partners have you had sex in the past year?") and the remaining questions are answered on 7-point Likert scales (e.g., "sex without love is ok.")

Participants rated themselves on the same set of characteristics that they used to rate their ideal friend and current romantic partner (i.e., kind/considerate, etc.), using the same 7-point Likert scale.

Participants rated themselves on a 10-item measure of the Big Five personality dimensions (Gosling, Rentfrow, & Swann, 2003), rating how well each item described themselves on a 7-point Likert scale ranging from "not at all" to "extremely."

Finally, participants rated their own attachment style, according to a 3-item measure in which they assessed their own similarity to descriptions of a secure style, an avoidant style, and an anxious style (Mikulincer, Florian, & Tolmacz, 1990), again on a 7-point Likert scale.

Procedure

Undergraduate participants were recruited from Psychology classes via a centralized, online recruiting system, and were given course credit in exchange for participation. Participants completed all surveys online.

First Sample: Results

Friendship Strategy Survey

First, the FSS was examined. Scores had been recorded such that responses on the far left received a score of 1, while those on the far right received a score of 6. Therefore all the items for which the exchange-strategy option appeared on the right were reverse-coded, so that a low score would indicate an intimate exchange strategy preference and a high score would indicate an exploration strategy preference. Every item on the measure elicited scores ranging from 1 to 6, and average scores all tended to fall near the center of the range, with very similar standard deviations. The lowest mean score for a single item was 2.55 (SD = 1.51) and the highest mean score was 3.93 (SD = 1.52). Standard deviations ranged from 1.32 to 1.74.

Because good variability was found for every item, all items were included in a principal components factor analysis, to determine how the items related to each other. Direct oblimin rotation (with Delta set to the default value of 0) was used, because the survey was written with a single underlying dimension in mind and thus responses for all items were expected to be related rather than forming orthogonal dimensions (Field, 2005). The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy for this analysis was .72, indicating that interrelations between survey items were more than adequate for factor analysis (Kaiser, 1974, as cited in Field, 2005; values over .5 are considered adequate, while those over .7 are considered good). Bartlett's test of sphericity was highly significant ($p < .001$), indicating that there were enough relationships between the items for factor analysis to be valid (Field, 2000). The determinant of the correlation matrix was .008, indicating that the data did not have excessive multicollinearity (values above .00001 are considered adequate; Field, 2000). The first factor analysis resulted in six factors with eigenvalues greater than 1. A scree plot indicated that a two-, three-, or four-

factor solution might be appropriate; the first four factors accounted for 21.8%, 12.0%, 7.9%, and 6.5% of the variance, respectively. Thus factor analyses were run specifying each of these solutions, but the four-factor solution failed to converge in 25 iterations. Factor loadings for the two- and three-factor solutions can be found in Table 1.

An examination of the results of these two analyses led to the removal of four items that loaded fairly equally, and relatively weakly, on more than one factor in both the two- and three-factor solutions: "express deep feelings vs. introduce new activities," "help you get things done vs. express concern for your well-being," "give you good advice vs. listen without judgment," and "ask you for help getting things done vs. come to you for affection/comfort." The remaining items were subjected to another factor analysis, without constraining the number of factors. In this analysis, KMO was .725, Bartlett's test of sphericity was again at $p <$ .001, and the determinant of the correlation matrix was .039. This analysis resulted in four factors with eigenvalues greater than 1, accounting for 22.8%, 14.4%, 9.2%, and 7.2% of the variance, respectively. The scree plot again suggested a three-factor solution, and the fourth factor consisted mainly of lower loadings of items that loaded more highly on one of the other three factors. The analysis was thus constrained to a three-factor solution, which again resulted in a third factor that consisted mainly of items that loaded more strongly on other factors. Therefore the final factor analysis was constrained to a two-factor solution. This analysis resulted in two clean factors, with each item loading more strongly on one factor or the other (Table 2). A component plot showed two clear groupings of items (Figure 1). Though each factor had one item with a factor loading of less than .40, these items fit into the factor conceptually, and removing them only marginally increased the percent of variance accounted for by each factor; thus both were retained in their respective factors. The items in the first factor describe an ideal friend who is either "warm, easygoing, and a confidante" or "successful, intelligent, stimulating, and poised." The items in the second factor describe an ideal friend who is either "kind, affectionate, and responsible" or "fun, exciting, outgoing, and adventurous."

Two subscale scores were created by taking the mean score on the subset of items loading on each factor. Cronbach's alpha for the first factor was .761, and for the second factor was .610. The mean score for the first factor was 3.16 (*SD* = .88), and for the second factor was 3.36 (*SD* = .92). The distributions of both sets of scores approximated a normal distribution. However, because the two factors remain conceptually similar, remain relatively close in space in a component plot (see Figure 1), and were all created with a single underlying dimension in mind, a single score was also calculated, using all 19 of the items in the questionnaire, including those ultimately left out of the final two-factor solution. Cronbach's alpha for this composite scale was .773. The mean score for this overall scale was 3.24 (*SD* = .69), and the distribution of scores also approximated a normal distribution, though it was somewhat more leptokurtic than the two factor scores (Figure 2). Because one of the main goals of the current study was to create a valid measure of individual preferences for exploration or exchange relationships, the hypotheses of the study were tested using both versions of this measure, as a way of comparing them.

Scores on the FSS differed by gender, for both factor scores as well as the overall mean score: men reported higher scores on each of the three scales. (Factor 1: mean for men: 3.33, *SD* = .89; mean for women: 3.00, *SD* = .86; $t[145] = 2.28$, $p = .024$. Factor 2: mean for men: 3.58, *SD* = .90; mean for women: 3.14, *SD* = .90; $t[146] = 2.98$, $p = .003$. Total score: mean for men:

574 3.44, *SD* = .69; mean for women: 3.05, *SD* = .63; *t*[144] = 3.63, *p* < .001.) Therefore, in
575 subsequent analyses, gender was included as a control variable when necessary.
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Table 2

Factor Loadings of the Friendship Strategy Survey Items in the Second Analysis, with Four Items Removed

	Factor loadings[a]				
	3-factor solution			2-factor solution	
Easygoing/adaptable OR Intellectually stimulating	.561		.371	.593	
Socially exciting OR Kind/considerate		.782			.766
Likes children OR Financially successful	.578		-.373	.504	
Caring/warm OR Shares your interests	.530		-.399	.449	
Quick-witted OR Thoughtful/wise			-.503		.389
Relaxed/laid-back OR Socially poised	.366		.562	.444	
Adventurous OR Responsible		.660			.644
Empathic OR Charismatic	.640			.654	
Be a good confidante OR Teach you how to do something	.720			.733	
Introduce you to or help you meet people OR Give you physical affection or comfort		.568			.595
Spend time with you one-on-one OR Organize or invite you to parties/events		.519			.522
Be fun and engaging OR Keep your important matters private		.602	.305		.505
Understand your feelings OR Give you important information	.725			.736	
Come to you for practical advice OR Tell you their secrets			.525	.383	
Rely on your kindness and empathy OR Rely on your knowledge and skill	.730			.722	

Note. Participants were asked to rate which of each pair they would prefer in an ideal friend, on a 6-point scale. Items were coded such that low scores indicated an exchange strategy.

[a]Loadings less than .30 are not shown.

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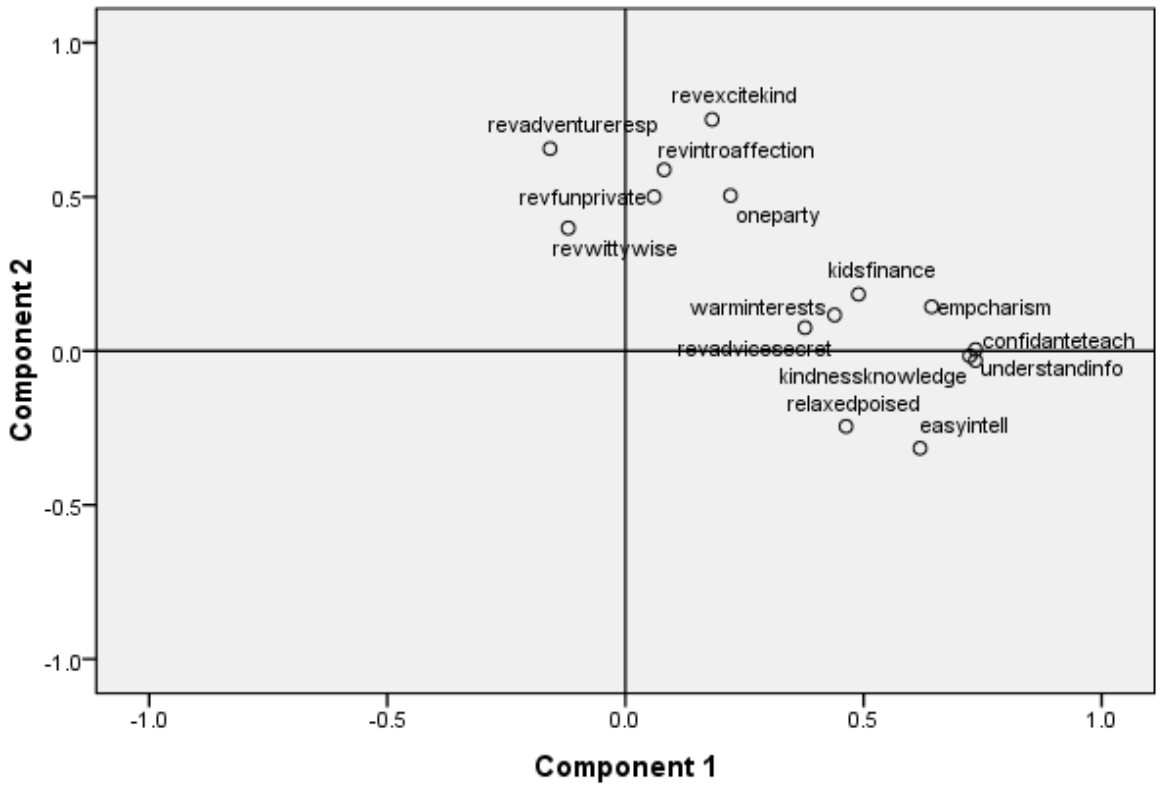

Figure 1. Forced two-factor solution for the Friendship Strategy Survey, after removing four items based on previous factor analyses. Principal components analysis, with Direct oblimin rotation (Delta = 0).

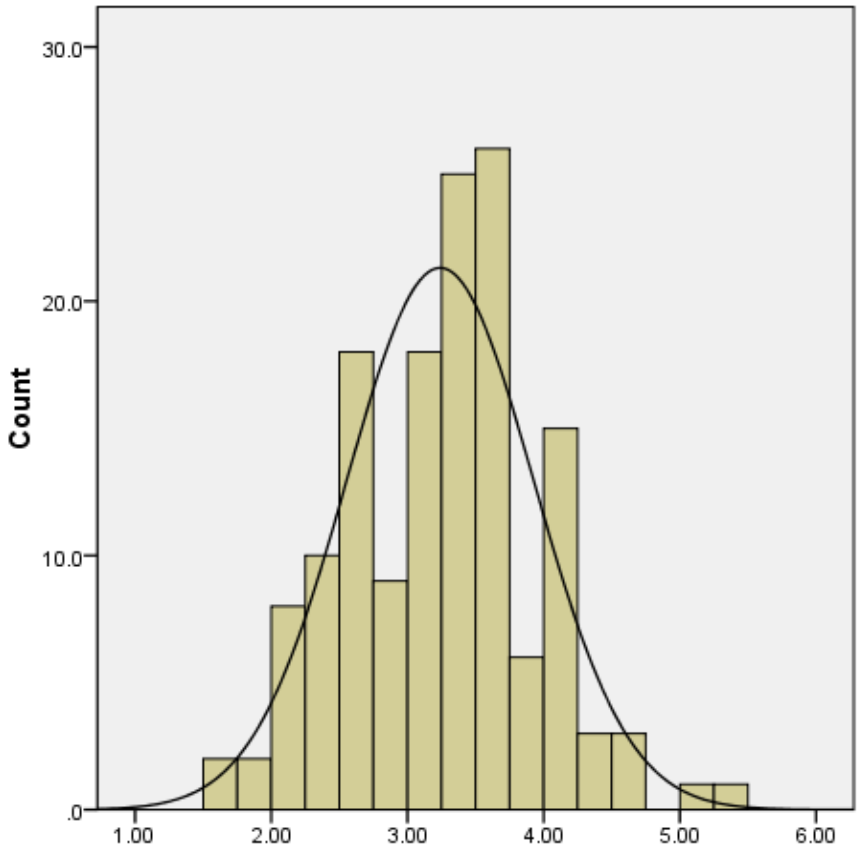

Figure 2. Distribution of mean scores for all individual items on the Friendship Strategy Survey.

Features of the Friendship Network

The hypotheses for the first set of variables, features of the friendship network, included the idea that an exploration strategy would be related to having more friends, less closeness with friends, shorter friendships, and less time spent with friends, while an intimate exchange strategy would be related to having fewer friends, more closeness with friends, longer friendships, and more time spent with friends.

Number of friends. The mean number of friends reported was 36.2 (*SD* = 64.7; some individuals reported a very large number of friends). Male and female participants did not differ on this variable. The correlation between the first friendship style factor and number of friends approached significance: $r(148) = .15$, $p = .07$. Correlations for the second factor and the total friendship strategy score were not significant, indicating that overall, those with a stronger exploration strategy did not report having more actual friends.

Closeness to friends. Participants reported on how close they felt to all of their friends, considered as a group, on a 1-7 scale. The average score on this scale was 5.26 (*SD* = 1.15). There was a trend for female participants to report somewhat higher closeness (mean = 5.43, *SD* = 1.15) than male participants (mean = 5.04, *SD* = 1.13), $t(146) = 1.91$, $p = .059$. Scores on this scale did not correlate significantly with FSS scores.

Length of friendships. Participants reported on the length in years of their two longest friendships. These were averaged into a single score, with a mean of 10.4 years (*SD* = 4.36). Men reported having longer friendships (mean =11.2, *SD* = 4.4) than women (mean = 9.7, *SD* = 4.3), t(145) = 2.10, *p* = .038. The length of friendships did not correlate significantly with any of the FSS scores.

Time spent with friends. Participants reported on the number of hours per week spent with friends, on a 1-7 scale. The average score on this scale was 3.70 (*SD* = 1.60); scale point 4 corresponded to 13-18 hours per week. Men and women didn't differ on this variable. This score was not significantly correlated with any of the FSS scores.

Intercorrelations among friend variables. The intercorrelations of the above variables were also examined. Three of the six correlations were significant: Mean length of friendships correlated positively with the number of friends, $r(148) = .29$, $p < .001$; mean length of friendships correlated positively with emotional closeness, $r(148) = .17$, $p = .038$; and time spent with friends correlated positively with emotional closeness, $r(149) = .33$, $p < .001$. Most of these correlations were consistent with the hypotheses regarding friendship strategy; however the positive correlation between number of friends and length of friendships was counter to hypotheses: those with an exploration strategy were hypothesized to have more friends and shorter friendships.

Conditions and Characteristics Related to Friendship Strategy

Hypotheses regarding the social conditions and individual characteristics expected to relate to friendship strategy included the following: that an exploration strategy would relate to a short-term mating strategy, a lack of an exclusive long-term relationship, higher extroversion, lower kindness/generosity, higher SES, lower age, more close kin nearby, more closeness with kin, and higher attachment avoidance. An intimate exchange strategy was hypothesized to relate to the opposite of these.

Mating strategy. The Revised Sociosexual Orientation Inventory (RSOI) assesses short- versus long-term mating strategy via three subscale scores (Penke & Asendorpf, 2008): sexual behavior, sexual attitudes, and sexual desire. For all scales, higher scores indicate a more short-term mating strategy. Because higher scores on the FSS indicate a stronger exploration strategy, a positive correlation between RSOI scores and FSS scores was hypothesized. Of the nine possible correlations between the three RSOI scores and the three FSS scores, eight were significant at the .05 level; applying a Bonferroni correction for multiple comparisons with a significance criterion of $p < .0056$, five of the correlations still reached significance (Table 3). However, men and women differed in their scores for two of the subscales. For the RSOI attitude scale, men reported higher scores (mean = 3.66, *SD* = 1.85) than women (mean = 2.89, *SD* = 1.60), $t(146) = 2.71$, $p = .008$. For RSOI desire, men again reported higher scores (mean = 3.29, *SD* = 1.51) than women (mean = 2.35, *SD* = 1.22), $t(146) = 4.20$, $p < .001$. Men and women did not differ significantly on the RSOI behavior subscale.

Multiple regressions were used to examine whether RSOI scores would still predict friendship strategy after controlling for gender. The first regression predicted scores on the first FSS factor score, with gender entered as a predictor on the first step and RSOI desire entered on the second step. In this regression, the first step, with only gender entered, did not reach significance, $\Delta R^2 = .02$, $\Delta F(1, 146) = 2.97$, $p = .087$, and RSOI desire also did not result in a

significant increase in variance accounted for, $\Delta R^2 = .023$, $\Delta F(1, 145) = 3.56$, $p = .061$. Reversing the order of the predictors, with RSOI desire entered on the first step, the result was significant, $\Delta R^2 = .028$, $\Delta F(1, 146) = 4.23$, $p = .042$, and though gender in the second step did not result in a significant increase in variance accounted for, it did reduce the variance accounted for by RSOI desire back to trend level, Beta = 1.89, $p = .061$. The second regression predicted scores on the second FSS factor, with gender entered on the first step and all three RSOI scores entered stepwise on the second step. Both RSOI attitude and RSOI desire remained significant predictors when controlling for gender, and the coefficient for gender was no longer significant on the second step (Table 4). The third regression predicted the FSS overall score, with gender entered on the first step and the three RSOI subscale scores entered stepwise on the second step. In this regression, RSOI attitude remained significant after controlling for gender, but behavior and desire were excluded from the model (Table 5). Thus, overall, though gender related significantly to both FSS scores and RSOI scores, it did not account for the association between the latter two measures.

Table 3

Correlations Between Friendship Strategy and Revised Sociosexual Orientation Inventory scores, for the First Sample

	2	3	4	5	6
1. RSOI attitude	.401***	.486***	.125	.304***	.259**
2. RSOI desire		.318***	.168*	.294***	.256**
3. RSOI behavior			.181*	.212*	.240**
4: Friendship strategy factor 1				.110	.805***
5: Friendship strategy factor 2					.626***
6: Friendship strategy total score					

*$p < .05$. **$p < .005$. ***$p < .001$. All tests 2-tailed.

Table 4

Hierarchical Regression Predicting Friendship Strategy Factor 2 from RSOI Scores, Controlling for Gender, for the First Sample

Variable	β	R^2	ΔR^2	ΔF
Step 1				
Gender	-.186*	.035		
Step 2				
Gender	-.151	.117	.083	13.40***
RSOI attitude	.290***			
Step 3				
Gender	-.141			
RSOI attitude	.214*	.143	.026	4.27*
RSOI desire	.178*			

Note. $n = 145$.
*$p < .05$. ***$p < .001$.

Table 5

Hierarchical Regression Predicting Friendship Strategy Total Score from RSOI Scores, Controlling for Gender, for the First Sample

Variable	β	R^2	ΔR^2	ΔF
Step 1				
Gender	-.251**	.063		
Step 2				
Gender	-.222**	.117	.054	8.65**
RSOI attitude	.234**			

Note. n = 144.
**p < .01.

Long-term relationship. Each participant was assessed as being involved in a long-term relationship if he or she reported having a romantic partner and described this relationship as marriage, engagement, domestic partnership, long-term relationship, or "could become" a long-term relationship. Relationships reported as short-term or casual were not counted. Participants were allowed to report on up to five romantic partners. Four participants reported having more than one romantic partner; for these participants, only data for the first partner were used. The hypothesis that those in a long-term relationship would have a stronger intimate exchange friendship strategy was tested using independent-samples t-tests. Results were not significant for any of the three FSS scores; the difference in scores on the first factor of the FSS was at trend-level in the direction opposite of that predicted, $t(146) = -1.73$, $p = .086$. Those who didn't have a long-term relationship (n = 96) had a mean first-factor FSS score of 3.07 (SD = .84), whereas those who did had a mean score of 3.33 (SD = .94).

Personality. Participants reported on their personality traits on a 7-point scale. Higher extroversion was predicted to be associated with a stronger exploration strategy, and higher levels of a trait composed of kindness, warmth, and generosity was predicted to be associated with a stronger intimate exchange strategy. To assess extroversion, a single score was created from the mean of participants' ratings of themselves as "extroverted/enthusiastic," "socially exciting," and "reserved/quiet," reverse-coded. Cronbach's alpha for these items was .844. The mean extroversion score was 3.93 (SD = 1.41). To assess participants' kindness/generosity, a single score was created from the mean of participants' ratings of themselves as "kind/considerate," "sharing/generous," and "sympathetic/warm." Cronbach's alpha for these items was .813. The mean kindness/generosity score was 5.35 (SD = .98). FSS scores were hypothesized to correlate positively with extroversion, and negatively with kindness/generosity. The first FSS factor and the overall FSS score both correlated negatively with kindness/generosity, $r(148) = -.204$, $p = .013$, and $r(147) = -.188$, $p = .023$, respectively. The second FSS factor correlated positively with extroversion, $r(149) = .202$, $p = .013$. However, men reported lower extroversion (mean = 3.64, SD = 1.41) than women (mean = 4.20, SD = 1.36), $t(146) = 2.49$, $p = .014$. A multiple regression was run, with the second FSS factor as the dependent variable, and gender and then extroversion entered on the first and second steps, respectively. Even with gender controlled, extroversion still explained significant variance in FSS

second factor scores: ΔR^2 = .061, $\Delta F(1, 146)$ = 9.99, p = .002. Beta coefficients were -.251 for gender and .253 for extroversion; both were significant at p = .002, and thus appeared to account for non-overlapping variance in FSS scores.

Socioeconomic status (SES) and age. Participants answered questions about their family of origin's income (1 – 8 Likert scale; mean = 4.32 [4 = $76-100,000], *SD* = 2.42) and either parent's highest level of education (1 – 7 Likert scale; mean = 5.08 [5 = BA], *SD* = 2.15). The distribution of parent's education scores was highly skewed (most parents had above a Bachelor's degree), whereas family income had a wider distribution, and thus the latter was used as the index of SES. Men and women did not differ in SES, and SES did not relate to any of the FSS scores. Participants reported their age in years. Mean age was 20.7 (*SD* = 2.7). Higher FSS scores were predicted to correspond with higher SES and lower age; however, again, age did not correlate significantly with any FSS scores.

Kin variables. Participants gave open-ended reports of the number of relatives with whom they were in regular contact (mean = 5.82, *SD* = 6.23) and the number who lived close enough to see regularly (mean = 2.81, *SD* = 3.80). They also rated their emotional closeness with relatives overall on a 1 – 7 scale (mean = 5.15, *SD* = 1.74), and reported on the number of hours per week spent with relatives on a 1 – 7 scale (mean = 2.38, SD = 1.44; 2 = 1-6 hours). Men and women did not differ on this variable, except that men reported spending slightly less time with relatives (mean = 2.08, *SD* = 1.21) than women did (mean = 2.68, *SD* = 1.60), $t(146)$ = 2.56, p = .011. FSS scores were hypothesized to correlate positively with scores on all of these variables. None of these correlations were significant, though FSS second-factor scores were positively correlated at trend level with number of relatives who live close, $r(145)$ = .158, p = .058, and with emotional closeness with relatives, $r(149)$ = .150, p = .067.

Attachment avoidance. Participants rated their attachment avoidance on a 7-point Likert scale, with higher scores indicating greater avoidance. The average score on this scale was 3.38 (*SD* = 1.84). Men and women did not differ in avoidance scores. FSS scores were hypothesized to correlate positively with avoidance, but these scores were not significantly correlated, and in fact were almost perfectly orthogonal. Scores for attachment security and attachment anxiety also did not relate to FSS scores.

First Sample: Discussion

Overall, findings of this study indicated that individuals do report a range of preferences for their ideal friendships, as indicated via the distribution of responses on the FSS. However, responses on this measure did not relate as expected to characteristics of individuals' actual friendship networks, their life circumstances (including SES, age, relationship status, and kin relationships), or their level of avoidant attachment. In contrast, friendship strategy was related as predicted to individual differences in mating strategy, extroversion, and kindness/ generosity. It was also related to gender, with men indicating a stronger exploration strategy than women. Each of these findings is discussed in more detail below.

Findings suggested that people do report a range of preferences with regard to their ideal friend, as reflected in the relatively normally distributed scores obtained on the FSS. At one extreme, some individuals had a strong preference for a friend who is kind, affectionate, responsive, and emotionally supportive; at the other extreme, others had a strong preference for a friend who is exciting, outgoing, fun, and knowledgeable. As predicted, most participants

reported preferences which fell somewhere between these two extremes. However, characteristics of individuals' actual friendship networks did not relate as predicted to this measure of friendship strategy. The number of friends a person reported having, emotional closeness to these friends, length of these friendships, and time spent with these friends were not significantly related to friendship strategy. Characteristics of individuals' life circumstances (i.e., SES, age, presence of a long-term relationship, and presence of close kin) also did not relate as predicted to friendship strategy.

One possible explanation for the lack of relationships between friendship strategy and features of actual friendship networks is that the relatively basic questions used to measure aspects of participants' friendship networks were not adequate to capture this relationship. Due to constraints on the length of the survey, each of these variables was measured using only one or two general questions. For example, participants reported on the length of their longest two friendships only, and the average of these was taken as an index of friendship length. But it is likely that even individuals with a very strong exploration strategy have at least some long friendships. The shorter friendships hypothesized for individuals with a strong exploration strategy may emerge only when averaged across all friendships, as it is hypothesized that these individuals will have a large network of relatively recent, less-close friendships. Similarly, the lack of correlation between time spent with friends and friendship strategy scores may be due to the fact that participants were asked how much time they spent with friends as a group, rather than how much time was spent with each friend individually. An individual with a strong intimate exchange strategy might be expected to spend relatively large amounts of time with a small number of friends, and a person with a strong exploration strategy might be expected to spend smaller amounts of time with a larger number of friends. These two patterns could result in an overall equal number of hours spent with all friends.

It is also likely that individuals' actual friendship networks are influenced by many real-world circumstances that interact with individuals' ideal preferences; the FSS assesses only the latter, in asking what the respondent's "ideal friend" would be like. Various real-world considerations likely interfere with an individual's ability to find friends who match their "perfect" ideal, including availability of potential friends, skill in social interaction that would be required to make friends effectively, and the presence in the friendship network of previously existing friendships, some of which might have been made when one's "ideal" preferences were different. Such considerations may interact with ideal friendship strategy preferences in ways that would require more detailed measures to assess. Thus, a study that includes more detailed questions regarding participants' friendship networks is needed to determine whether and how friendship strategy relates to features of actual friendship networks.

In contrast to the null results regarding features of the friendship network, one clear finding that did emerge was that friendship strategy was related to individual differences in three relatively stable traits: mating strategy, extroversion, and kindness/generosity. Friendship strategy was also related to gender, with men having a tendency toward a more exploration-related strategy compared to women. With regard to mating strategy, people who reported having a more short-term mating strategy also tended to have a more exploration-related friendship strategy. Although there were some gender differences in scores on each of these scales, in general the relationship between mating strategy and friendship strategy remained when controlling for gender.

With regard to personality, those with a stronger exploration strategy reported being more extroverted (and this association again remained when controlling for gender), and those with a stronger intimate exchange strategy reported being more kind/generous. These results are consistent with the hypothesis that one's ideal friendship preferences, as assessed via the FSS, represent a conditional strategy aimed at maximizing the value of friendships, based on an individual's assessment of his or her own traits and the kinds of friends who will be most rewarding to interact with, given those traits. The picture that emerges is that extroverted people who are more interested in a short-term mating strategy are more likely to prefer friends who are charismatic, successful, outgoing, witty—friends who will maximize their ability to meet new people and interact in socially exciting ways. In contrast, people who see themselves as more kind and generous and who are more interested in a long-term mating strategy are more likely to prefer friends who are thoughtful, caring, affectionate, empathic—friends who will maximize their ability to engage in deeply reciprocal intimate bonds. These findings suggest that it would be fruitful in a future study to determine the kinds of benefits that pairs of friends are actually exchanging, and whether different kinds of benefits are exchanged at different frequencies between pairs of friends with strong exploration strategies versus those with strong intimate exchange strategies.

Combined with the lack of significant associations between friendship strategy and characteristics of individuals' life circumstances (i.e., SES, age, long-term relationship status, and kin relationships), results indicating that friendship strategy relates to mating strategy and personality may suggest that friendship strategy is relatively stable across fluctuating life circumstances, and stems from other stable, "internal" traits, rather than fluctuating as the individual's life circumstances change. Conditional strategies, across species, can either fluctuate as conditions change, or can be chosen once and remain relatively stable (Henson & Warner, 1997; Moore, 1991; Moran, 1992); thus the current findings are in line with one way that conditional strategies can operate. However, the conclusion that conditional friendship strategies do not fluctuate according to changing life circumstances should be considered tentative at best; it is very possible that characteristics of the current sample account for the lack of relationship between FSS scores and life circumstances. The current sample was composed of college students, and therefore was very restricted in age range. Most of this sample of young adults did not have children, and although there was variability in terms of family of origin's SES, college students are almost by definition upwardly mobile and therefore may not be representative of SES-related differences that might be present in a more diverse population. With this sample, it is not possible to detect a more long-term tendency for friendship strategy to shift with age and as life circumstances change in major ways. Similarly, because these participants were all relatively young, their romantic relationships might inherently be less "serious," or even if serious, they have not had the chance to become truly "long-term," and therefore relationship status might not have as much influence on friendship strategy among college students as it might among older people. And, of course, the very restricted age range would make it very difficult to reveal any correlation between friendship strategy and age itself. These considerations suggest, of course, that the current study should be replicated using a sample that varies more in terms of age and SES.

Characteristics of the current sample are not however a possible explanation for why attachment avoidance was unrelated to friendship strategy. This association should not be

influenced in particular by age, as attachment style is a relatively stable trait that is associated with a wide variety of outcomes among college-age individuals (Mikulincer & Shaver, 2007). It may be that attachment is more closely related to behavior with romantic partners than it is to behavior with friends.

Overall, results of the current study do suggest that individuals' ideal friendship preferences are associated with other stable individual traits, including general features of personality as well as preferences regarding romantic relationships, and therefore that friendship strategy may be a relatively deeply held preference. For this reason, it seems likely that friendship strategy will relate to differences in the kinds of people that an individual will tend to choose as a friend, when given an ideal choice situation. It is also possible that friendship preferences would relate to the things that a person values most about his or her current friends, including those friends' personality features and the kinds of support and interaction enjoyed with those friends. This possibility is one that must await a future study, in which individuals could be asked to report on their current friends' characteristics in more detailed ways.

One major issue that emerged in these findings remains to be resolved: the factor structure of the FSS proved difficult to interpret, and thus the measure required a revision. Specifically, it was unclear whether the FSS contained one underlying factor or two. An examination of the two subscales that resulted from a factor analysis of the FSS (Table 2) shows that conceptually, the two scales seem to differ more in terms of the exploration strategy items; the first factor seems to describe a more skillful, intelligent, poised friend whereas the second seems to describe a more fun, spontaneous, gregarious friend. In contrast, the intimate exchange items seem to be more conceptually similar across the two factors. This suggests that the results of the factor analysis may have been driven by a distinction between two sub-types of features belonging to the exploration strategy, and that the features of an intimate exchange strategy might have been "brought along for the ride" because the pairs of items in each question could not be analyzed separately. To make the FSS more robust, therefore, it was necessary to examine participants' preferences for each item individually, in order to create paired choices that would either reflect a single underlying dimension of exploration versus intimate exchange preferences, or would allow subscales within each strategy to emerge without being influenced by relations between items on the other strategy. This was undertaken in the second sample, and all hypotheses were tested again with this new sample.

Second Sample: Results

Friendship Strategy Survey

In this sample, participants rated the importance in an ideal friend of each of the 38 FSS items individually, on a 1-7 scale. The range of responses for most items was either 1-7 or 2-7, though one item, "fun and engaging," had a range of 3-7. Mean responses ranged from 3.14 (*SD* = 1.63) for "financially successful" to 5.97 (*SD* = 1.07) for "kind/considerate." Most items had means between 4.0 and 6.0; three items had means below 4.0. Standard deviations ranged from 0.97 to 1.78. Distributions of most items were reasonably normal.

All items were included in an initial principal components factor analysis with Varimax rotation. The KMO measure of sampling adequacy was .834, a value considered very good (Field, 2005), and Bartlett's test of sphericity was highly significant ($p < .001$), indicating enough

relationships among the items for factor analysis. However, the determinant of the correlation matrix was very small (4.67×10^{-11}), suggesting multicollinearity. A scree plot indicated two strong primary factors (with eigenvalues of 10.13 and 4.66 for these two factors, accounting for 26.65% and 12.27% of the variance, respectively). However, the rotated solution failed to converge. Because the items were expected to cluster around two factors (i.e., exploration versus exchange strategies), the analysis was constrained to a two-factor solution, which did converge. Almost all items loaded as expected on two factors which mirrored the exploration-exchange continuum; no item loaded strongly on the factor opposite to that predicted. Six items, however, had low and roughly equal loadings on both factors, and therefore do not appear to differentiate well between the two strategies. These six items were: "likes children," "easygoing/adaptable," "relaxed/laid-back," fun/engaging," "gives good advice," and "comes to you for practical advice." Two subsequent factor analyses specifying 3- and 4-factor solutions verified that these six items either loaded strongly on a third or fourth factor or continued to load equally across more than one factor.

These six items were removed and the factor analysis was repeated with the remaining items, again specifying a two-factor solution. The KMO measure was .838 and Bartlett's test of sphericity was again highly significant ($p < .001$). Again the determinant of the correlation matrix was very small (5.36×10^{-9}), though slightly larger than it had been with all items included. In this analysis, the first two factors had eigenvalues of 9.05 and 4.63, respectively, accounting for 28.28% and 14.46% of the variance. Each item loaded on the expected factor and no items showed strong double-loadings (Table 6). Sixteen items remained for the exploration subscale; Cronbach's alpha for these items was .88. Sixteen items also remained for the exchange subscale; Cronbach's alpha for these items was .92. Mean scores were created for each of these sets of items.

Next, the relationships between these two mean scores and scores on the original FSS were examined. For the original FSS, as in the results for the first sample, an examination of the means for each item showed that most were near the center of the scale, ranging from 2.61 to 4.32, with standard deviations ranging from 1.37 to 1.72, and with estimates of skewness all falling between -1 and 1 and estimates of kurtosis ranging from -1.40 to -.58, indicating a slightly peaked distribution for all items. The overall mean score for this scale was again coded such that a low score indicated an intimate exchange strategy and a high score indicated an exploration strategy. Cronbach's alpha for the scale was .737. This mean score should correlate positively with the mean score for single-item exploration ratings, and should correlate negatively with the mean score for single-item exchange ratings. Correlations were as predicted; the paired-item FSS score correlated positively with single-item exploration ratings, $r(157) = .303$, $p < .001$, and negatively with single-item exchange ratings, $r(157) = -.596$, $p < .001$. The single-item ratings for exploration and exchange strategies also correlated positively with each other, $r(157) = .351$, $p < .001$. This may be an artifact of the fact that all items described positive traits in an ideal friend; when rated separately, an individual is not forced to choose between them and thus is free to prefer them all.

Table 6

Factor Loadings of the Friendship Strategy Survey Single-Item Ratings for the Second Sample: Final Version, with 6 Items Removed

	Factor loadings[a]: 2-factor solution	
Kind/considerate	.720	
Caring/warm	.764	
Thoughtful/wise	.607	
Empathic	.750	
Responsible	.451	
Give you physical affection or comfort	.505	.227
Be a good confidante	.706	
Express concern for your well-being	.764	
Understand your feelings	.766	
Spend time with you one-on-one	.648	
Listen to you without judgment	.702	
Express their deep feelings	.827	
Keep your important matters private	.599	
Come to you for affection and comfort	.783	
Tell you their secrets	.565	
Rely on your kindness and empathy	.676	
Socially exciting		.708
Intellectually stimulating		.472
Shares your interests		.431
Financially successful		.564
Quick-witted		.556
Charismatic		.577
Adventurous		.514
Socially poised		.604
Introduce you to new activities		.676
Help you get things done		.616
Organize or invite you to parties/events		.570
Teach you how to do something		.742
Introduce you to or help you meet people		.760
Give you important information	.291	.566
Rely on your knowledge and skill	.227	.471
Ask you for help getting things done	.205	.523

Note. Participants were asked to rate how important each item was in an ideal friend, on a 7-point scale.

[a]Loadings less than .20 are not shown.

920
921
922

After having determined which single items were appropriate to retain in a revised version of the FSS, and having verified that mean scores for these items related as expected to the original FSS, the next goal was to determine whether there were subscale factors evident within the items meant to measure each friendship strategy, so that individual items could be paired appropriately in the revised version of the scale.

For these analyses, principal components factor analysis with Direct oblimin rotation (Delta = 0) was used, with separate analyses for exploration and exchange items. For the exchange items, KMO was .908, and Bartlett's test of sphericity was significant, $p < .001$. The determinant of the correlation matrix was .000, indicating strong multicollinearity, perhaps not surprising given that the scale was written to capture a single dimension of preference. Results revealed two factors with eigenvalues greater than 1. These had eigenvalues of 7.60 and 1.40, respectively, and accounted for 47.49% and 8.77% of the variance. However, the scree plot suggested a one-factor solution. An examination of the factor loadings showed that only two items loaded strongly only on the second factor, four loaded strongly on both, and the rest loaded strongly only on the first. Items loading on the second factor or double-loading included those describing giving and receiving physical affection, being a confidante, expressing deep feelings and telling secrets. Items loading on the first factor included those describing a friend's personality features, spending time one-on-one, expressing concern, listening and keeping things private, and understanding feelings. These clusters of items were not clearly distinguishable conceptually, though some related themes seemed to be clustering together.

For the exploration items, KMO was .863, Bartlett's test of sphericity was significant, $p < .001$, and the determinant of the correlation matrix was .002. The analysis resulted in four factors with eigenvalues greater than 1; these had values of 5.94, 1.44, 1.27, and 1.01, and accounted for 37.12%, 8.99%, 7.98%, and 6.33% of the variance, respectively. However, the scree plot again suggested a single factor. Examination of the factor loadings did not reveal conceptually coherent factors; the fourth consisted of apparently random items, all items loaded negatively on the third, and few items loaded only on the second. The analysis was repeated, specifying a two-factor solution. In this analysis, many items loaded moderately on both factors. Those loading only on the first factor included financially successful, gives help getting things done, invites to parties, and introduces new people. Those loading only on the second factor included intellectually stimulating, adventurous, relies on your knowledge and asks for help getting things done. Those loading on both factors included items describing adventurousness, excitement, skill, and charisma. A three-factor solution improved the conceptual fit somewhat, with items loading on the first factor describing a friend who is successful, plans parties and introduces new people, and helps get things done; items on the second factor describing a friend who is stimulating, witty, charismatic, and adventurous; and two items on the third factor describing a friend who asks for help.

To construct the revised, paired-items FSS, the factor clusters for each of the two factor analyses above were used. Items that loaded most strongly onto the first factors of their respective analyses were paired together, and then the remaining items were paired (those which loaded onto their second factors or loaded moderately on both). This rule was violated for two pairings which worked well together conceptually and did not have other readily apparent items to pair with; for both of these, at least one of the items had loaded somewhat ambiguously and thus changing its category did not seem problematic. These pairings were

"thoughtful/wise" with "quick-witted" and "give you physical affection and comfort" with "teach you how to do something." The final version of the FSS can be found in Table 7.

Table 7

Pairings of Items in the Final Version of the Friendship Strategy Survey

Intimate exchange items		Exploration items
Kind/considerate	OR	Socially exciting
Good confidante	OR	Adventurous
Thoughtful/wise	OR	Quick-witted
Expresses their deep feelings	OR	Charismatic
Caring/warm	OR	Shares your interests
Responsible	OR	Financially successful
Empathic	OR	Socially poised
Express concern for your well-being	OR	Help you get things done
Spend time with you one-on-one	OR	Organize or invite you to parties/events
Understand your feelings	OR	Give you important information
Keep your important matters private	OR	Introduce you to or help you meet people
Listen to you without judgment	OR	Introduce you to new activities
Give you physical affection or comfort	OR	Teach you how to do something
Tell you their secrets	OR	Be intellectually stimulating
Come to you for affection and comfort	OR	Ask you for help getting things done
Rely on your kindness and empathy	OR	Rely on your knowledge and skill

Note. When presented to participants, every other item is reversed in order, such that half of the exchange items appear on the left and half appear on the right.

Features of the Friendship Network

All the hypotheses of the study were tested in the second sample using the two mean scores obtained from the ratings participants made of each friendship strategy separately, as well as using scores from the original FSS.

Gender differences. Men and women did not differ in their mean scores for exploration, $t(155) = .156$, $p = .877$, but women had higher mean scores for exchange, $t(155) = 4.36$, $p < .001$. The mean exploration score for men was 4.62 ($SD = .81$) and for women was 4.60 ($SD = .80$); the mean exchange score for men was 5.05 ($SD = .96$) and for women was 5.65 ($SD = .76$). Men and women also differed in their mean scores on the original FSS, $t(155) = 3.33$, $p = .001$. The mean score for men was 3.36 ($SD = .63$) and for women was 3.02 ($SD = .65$). These results were essentially the same when run on the reduced sample with equal numbers of men and women. Thus, gender was controlled for where necessary in all subsequent analyses.

Number of friends. It was hypothesized that preference for an exploration strategy would correlate positively with how many friends a person had. Thus, number of friends should

correlate positively with exploration and paired-items scores, and negatively with exchange scores. Mean number of friends was 34.75 (*SD* = 57.27). Only the correlation with exchange scores was significant, and it was in the expected direction, $r(156) = -.195$, $p = .015$.

Closeness with friends. It was hypothesized that an exploration strategy would be negatively related to emotional closeness with friends. The mean score for closeness to friends was 5.42 (*SD* = 1.14). Emotional closeness correlated negatively with the score on the original FSS, $r(157) = -.180$, $p = .024$ and positively with the intimate exchange strategy score, $r(157) = .451$, $p < .001$, but it did not correlate significantly with the exploration strategy score; these correlations were consistent with hypotheses.

Length of friendships. It was hypothesized that the length of friendships would be negatively related to an exploration strategy and positively related to an exchange strategy. Participants reported on the length of their longest and second-longest friendships; these mean lengths were 11.33 years (*SD* = 4.84) and 8.40 years (*SD* = 4.40), respectively. These two responses were not significantly related to any of the friendship strategy scores.

Time spent with friends. It was hypothesized that the amount of time spent with friends would relate negatively to an exploration strategy and positively to an exchange strategy. Participants reported on the number of hours per week they spent with their friends as a group. The average score was 4.17 (*SD* = 1.76); a score of 4 corresponds to 13-18 hours per week. This measure was not related to friendship strategy scores.

Conditions and Characteristics Related to Friendship Strategy

Mating strategy. Short- versus long-term mating strategy was assessed via the RSOI, with three subscale scores for sexual behavior, sexual attitudes, and sexual desire; higher scores indicated a more short-term strategy. It was hypothesized that these scales would correlate positively with the original FSS score and the exploration strategy score, and negatively with the exchange strategy score. As in the previous sample, men scored higher than women on RSOI attitudes and desire, $t(153) = 4.32$, $p < .001$, and $t(152) = 5.79$, $p < .001$, respectively. Scores were not significantly different for RSOI behavior. Mean scores for behavior, attitudes, and desire for men were 1.21 (*SD* = 3.61), 3.99 (*SD* = 1.78), and 3.75 (*SD* = 1.73), respectively, and for women were .69 (*SD* = 1.56), 2.82 (*SD* = 1.60), and 2.37 (*SD* = 1.23), respectively. Of the nine possible correlations between friendship strategy and RSOI scores, six were significant at the .05 level or higher, and two more showed trends in the expected direction (Table 8). Applying a Bonferroni correction for multiple comparisons, with a significance criterion of $p < .0056$, three of the correlations still reached significance; these were the correlations between original FSS scores and RSOI attitude and behavior, and the correlation between exchange strategy score and RSOI attitude.

Because men and women differed in some friendship strategy scores and in some RSOI scores, multiple regressions were used to examine whether RSOI scores would predict friendship strategy scores with gender controlled. A regression in which the original FSS score was the dependent variable, gender was entered on the first step, and the three RSOI variables were entered stepwise on the second step showed that on the first step, gender was a significant predictor, $\Delta R^2 = .063$, $\Delta F(1, 150) = 10.12$, $p = .002$. On the second step, only RSOI behavior was added to the model, and resulted in a significant increase in the variance accounted for, $\Delta R^2 = .054$, $\Delta F(1, 149) = 9.16$, $p = .003$. Gender remained a significant predictor

in this model, Beta = .229, p = .004. RSOI attitude narrowly missed being included as a predictor (p = .055). A regression with exchange strategy score as the dependent variable showed that on the first step, gender was a significant predictor, and on the second and third steps, RSOI attitude and then RSOI desire were added to the model (Table 9). In the final model, all three were significant predictors. Regression was not used to examine the exploration strategy scores, because these did not differ significantly by gender and only one of the RSOI scores was significantly correlated with the exploration score.

Table 8

Correlations Between Friendship Strategy and Revised Sociosexual Orientation Inventory Scores, for the Second Sample

	2	3	4	5	6
1. RSOI attitude	.599****	.382****	.050	-.294****	.290****
2. RSOI desire		.222**	.185*	-.139†	.205*
3. RSOI behavior			.140†	-.207*	.257***
4: Exploration strategy score				.351****	.303****
5: Exchange strategy score					.596****
6: Original FSS score					

†p < .10. *p < .05. **p < .01. ***p < .005. ****p < .001. All tests 2-tailed.

Table 9

Hierarchical Regression Predicting Intimate Exchange Strategy from RSOI Scores, Controlling for Gender, for the Second Sample

Variable	β	R^2	ΔR^2	ΔF
Step 1				
Gender	.337***	.114		
Step 2				
Gender	.273**	.151	.037	6.51*
RSOI attitude	-.203**			
Step 3				
Gender	.330***			
RSOI attitude	-.312**	.175	.025	4.40*
RSOI desire	.209*			

Note. n = 145.
*p < .05. ** p < .01. ***p < .001.

Long-term relationship. Participants were invited to report on up to five romantic partners. Seven participants reported having more than one romantic partner; for these participants, data were used only for the most long-term partner. Men and women were equally likely to report being in a romantic relationship ($X^2(1)$ = .099, p = .75 for the full sample;

$X^2(1) = .053$, $p = .82$ for the equal-genders subsample). It was hypothesized that people who were currently in a long-term relationship would have higher exchange-strategy scores, lower exploration-strategy scores, and higher scores on the original FSS. No significant differences were found in any of these scores.

Personality. As in the first sample, a score for extroversion was created using the mean score of participants' self-ratings of "extroverted/enthusiastic," "socially exciting," and "reserved/quiet," reverse-coded. The mean score for this scale was 4.38 (*SD* = 1.25), and Cronbach's alpha for these items was .721. Kindness/generosity scores were again created using the mean score of participants' self-ratings of "kind/considerate," "sharing/generous," and "sympathetic/warm." The mean score for this scale was 5.41 (*SD* = 1.08), and Cronbach's alpha for these items was .841. As predicted, extroversion correlated positively with the exploration strategy score, $r(157) = .381$, $p < .001$, and with the original FSS score, $r(157) = .162$, $p = .043$, but it was not significantly correlated with the exchange strategy score. Similarly, kindness/generosity correlated positively with the exchange strategy score, $r(157) = .547$, $p < .001$, and negatively with the original FSS score, $r(157) = -.335$, $p < .001$; however, counter to predictions, it also correlated positively with the exploration strategy score, $r(157) = .195$, $p = .014$. Women scored higher than men on exchange strategy scores and lower than men on the original FSS score, and they also scored higher than men on kindness/generosity, $t(155) = 2.15$, $p = .033$ (scores for extroversion were not significantly different between men and women). Therefore, multiple regressions were run, in which gender was controlled for in the relationships between kindness/generosity and exchange strategy, and between kindness/generosity and the original FSS score. After entering gender in the first step, kindness/generosity remained a significant predictor of exchange strategy scores when added on the second step: $\Delta R^2 = .248$, $\Delta F(1, 154) = 59.26$, $p < .001$. Similarly, after entering gender in the first step, kindness/generosity remained a significant predictor of the original FSS score when added on the second step: $\Delta R^2 = .087$, $\Delta F(1, 154) = 15.83$, $p < .001$.

Socioeconomic status and age. It was hypothesized that SES would correlate positively with exploration strategy scores and original FSS scores, and negatively with exchange strategy scores. As in the previous sample, SES was assessed via participants' family income (mean = 4.33 on an 8-point Likert scale [4 = $76-100,000], *SD* = 2.28) and parents' highest level of education (mean = 5.10 on a 7-point Likert scale [5 = BA], *SD* = 1.96). Again, scores for level of education were skewed, with most parents having high levels of formal education, so family income was used as the measure of SES. SES did not correlate significantly with the original FSS score or with exchange strategy score, but there was a negative correlation between income and exploration strategy scores, $r(152) = -.184$, $p = .023$. This finding was the opposite of that predicted: those who came from higher-SES families reported a lower preference for an exploration strategy.

It was hypothesized that age would correlate positively with exploration strategy scores and original FSS scores, and negatively with exchange strategy scores. These correlations were not significant for any of the friendship strategy scores.

Kin variables. It was hypothesized that having more kin living nearby and feeling closer to kin would correlate positively with exploration strategy scores and original FSS scores, and negatively with exchange strategy scores. None of these correlations were significant, except

that exchange strategy score correlated positively with feelings of emotional closeness with kin, $r(157) = .259$, $p = .001$. This was the opposite of the predicted correlation.

Attachment. It was hypothesized that attachment avoidance would correlate positively with exploration, negatively with exchange, and positively with original FSS scores. There were no significant correlations between avoidance and friendship strategy scores. However, attachment security scores were positively correlated with exploration strategy scores, $r(157) = .19$, $p = .017$, and attachment anxiety scores were positively correlated with exchange strategy scores, $r(157) = .195$, $p = .014$.

Second Sample: Discussion

In this second sample, a revised version of the FSS was created which had a more satisfactory factor structure. The previous version of the FSS, as well as friendship strategy scales composed of the individual items assessing an intimate exchange strategy and the individual items assessing an exploration strategy, were all used to test all of the original hypotheses. Overall, findings mirrored those in the first sample, with a few additional results. As in the first sample, friendship strategy was related as predicted to individual differences in mating strategy, extroversion, and kindness/generosity. Again men reported a significantly stronger exploration strategy than women, and again friendship strategy was not related as predicted to life circumstances (i.e., SES, age, relationship status, and kin relationships) or to attachment avoidance. Indeed, two findings regarding SES and closeness to kin ran counter to hypotheses. However, unlike in the first sample, some features of individuals' actual friendship networks were related to friendship strategy, including the number of friends individuals had and their closeness to their friends. And unlike in the first sample, attachment security and anxiety were both related to some friendship strategy scores. Use of the separate mean scores for exploration and exchange preferences in the second sample uncovered some of these new findings. Each of these findings is discussed in more detail below.

The problems with the factor structure of the original FSS were corrected in the current sample, by asking participants to rate each individual item separately and then eliminating items that did not relate strongly to either an exploration or an exchange strategy. Then, the remaining individual items describing each strategy were factor analyzed, to determine their relationships to each other. These results were used to create new pairs of items that were related both statistically and conceptually. The final version of the FSS, with 16 pairs of items, will be used in subsequent studies of friendship strategy.

Regarding features of individuals' actual friendship networks, the number of friends participants reported having, and their emotional closeness with their friends, did relate in expected ways to some of the three friendship strategy scores, results which were not obtained for the first sample. Specifically, those who reported a stronger preference for an exploration strategy also reported that they had more friends, and those who reported a stronger preference for an exchange strategy reported that they felt more emotionally close to their friends. The reason for the discrepancy in findings between the first and second samples is unclear; a replication of the study, using more detailed measures of friendship networks, is needed before firm conclusions can be drawn. However, mirroring the results for the first sample, length of friendships and time spent with friends did not relate to any of the friendship strategy measures.

Also mirroring findings for the first sample, presence of a long-term relationship and participants' age did not relate to any of the friendship strategy scores, though these results should not be considered conclusive until replicated in a sample with a much wider age range than the current one. SES and kin variables similarly did not relate to friendship strategy as hypothesized. Indeed, two findings for SES and kin variables ran counter to hypotheses. First, those who more strongly preferred an exploration strategy reported a lower SES. This correlation was significant though not very large. However, it suggests that higher-SES individuals are less interested in exciting, outgoing, skillful friends than are lower-SES individuals, and that this association may be obscured when using the FSS, because SES does not appear to relate to any preference for kind, empathic, warm friends. Similarly, although most aspects of kin relationships were not associated with friendship strategy, those who more strongly preferred an intimate exchange strategy reported feeling more emotionally close to kin. The hypothesis was that people with a weaker kin network would compensate by seeking out more intimate exchange in their friendships. Obtaining a finding counter to this suggests that individuals who feel close with kin also value intimate exchange with friends; thus, rather than a compensation, this result points to the possibility of a preference for intimate exchange which may be applied in similar ways within both kin relationships and friendships. As with SES, if true, this finding suggests that a relation between an exchange preference and closeness to kin might be obscured when using the FSS, because there does not appear to be a relationship between exploration strategy and closeness to kin. Thus, when exploring these particular associations, it may be advisable to include the opportunity for participants to rate exploration and exchange items individually.

With regard to mating strategy and personality, results from the second sample replicated those from the first sample. It was again found that those with a short-term mating strategy tended to have a stronger preference for an exploration friendship strategy, and this relationship remained when controlling for gender. It was also again found that those who rated themselves as more kind/generous had a stronger preference for an intimate exchange strategy, and those who rated themselves as more extroverted had a stronger preference for an exploration strategy. One finding ran counter to hypotheses: those who rated themselves as more kind/generous also had a stronger preference for an exploration strategy, when these items were rated separately. However, the fact that the original FSS scores were correlated in the expected direction with kindness/generosity, and the fact that the correlation between kindness/generosity and exchange strategy scores was much larger than that between kindness/generosity and exploration strategy scores, suggests that this finding does not undermine the general hypotheses of the study. Indeed, it can be expected that most people would generally prefer kind and empathic friends; the assertion of the current study is that the preference for kind and generous friends will be a central concern for those pursuing an intimate exchange strategy, whereas the desire for exciting and outgoing friends will be a more central concern for those pursuing an exploration strategy. This is why these items are pitted against each other in the FSS: forcing participants to choose between them will reveal which set of preferences takes precedence.

Finally, regarding attachment, again avoidance did not relate to any of the friendship strategy measures. However, interestingly, attachment security and attachment anxiety did relate to exploration scores and exchange scores, respectively. Specifically, the more strongly

participants indicated that a description of a secure attachment style described themselves, the more strongly they preferred an exploration strategy, and the more strongly they indicated that a description of an anxious attachment style described themselves, the more strongly they preferred an intimate exchange strategy. Again, because scores on the FSS itself did not relate to attachment in either sample, it appears that some relationships between friendship strategy and other constructs appear only when ratings for each strategy can be made separately. The meaning behind these specific findings is not entirely clear, although a relationship between attachment anxiety and a desire for warm, empathic friends who express their deep feelings does make intuitive sense; attachment anxiety is inherently characterized by an exaggerated desire for reassurance, comfort, and care from others (Mikulincer & Shaver, 2007).

Conclusions

Overall, results suggest that individuals' preferences regarding friendship do fall along a normally distributed continuum, anchored on one end by those who use friendships for exploration and on the other end by those who use friendships for intimate exchange, and that people with a stronger exploration strategy also have a more short-term mating strategy, are more extroverted, and consider themselves to be less kind and generous. These results provide evidence that it may in fact be accurate to characterize friendship preference as a conditional strategy, with an individual's strategy choice stemming from a (conscious or unconscious) assessment of his or her own traits and what kinds of friends will be most suited to those traits.

Results also provided some tentative evidence that friendship strategy is related to the number of friends an individual has and how close he or she feels to those friends, indicating that self-reported strategy may in fact be reflected in the makeup of peoples' actual friendship networks. This evidence is important; if future studies indicate that self-reported friendship strategy does not in fact relate reliably to any concrete aspects of individuals' friendship networks or their actual relationships with friends, this would call into question the idea that friendship preferences can be considered a conditional strategy, or at least that the FSS actually measures friendship strategy. A conditional strategy is by definition a behavioral mechanism by which an organism interacts with or makes decisions in the actual world (e.g., Moran, 1992), and thus friendship preference should not be considered a conditional strategy if it does not in fact relate to anything about the individual's choices or behaviors.

Friendship strategy also did not relate to age (although this result cannot be considered conclusive, given the very limited age range of the sample), socioeconomic status (though, again, the range for this variable was limited), attachment avoidance, relationship status, or presence of kin relationships. A conditional strategy is the way that an individual maximizes fitness under a given set of environmental conditions (Moran, 1992). Thus the fact that friendship strategy scores did not relate strongly to the set of environmental conditions measured in this study could suggest one of at least three possibilities: first, that this conditional strategy is influenced by different environmental circumstances than the ones that were measured in this study; second, that this conditional strategy is influenced only by features of the individual and not by an assessment of environmental circumstances, which seems unlikely given that conditional strategies are, by definition, a process of "phenotype-environment matching" (Moran, 1992, p. 971); or third, that this is evidence against the idea

that friendship preferences ought to be considered a conditional strategy. Further investigation of these three possibilities awaits future study.

Human friendship may represent the most complex form of non-kin relationship found in the animal kingdom. Its importance not only for human well-being but also for theories of social behavior and reproductive fitness should not be underestimated. This paper presents a novel theoretical framework for understanding friendship, and represents the first empirical attempt to examine human friendship choice through the evolutionary lens of conditional strategies. However, human friendship is complex, and findings were no doubt constrained by the limitations in diversity (in terms of age and SES) of the sample, and the limitations in complexity of some of the measures used (particularly those used to measure features of the friendship network). The use of more diverse samples and more complex measures in future studies might provide more conclusive evidence regarding the question of whether human friendship formation should be considered an instance of conditional strategy use.

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