

Preference Effects on Friendship Choice: Evidence from an Online Field Experiment

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Abstract

Realized friendship choices result from the combined forces of not only personal preferences but also opportunity structures. Thus, it is not possible to infer preference effects from observed friendship data without invoking unrealistic assumptions about opportunity structures. In this paper, we report a study, based on an online field experiment, demonstrating the role of preference in friendship choice. Specifically, we test the influences of preferences in two dimensions: (1) identity homophily -- preference for other persons of the same or similar identity, and (2) status asymmetry -- preference for other persons of higher social status. We empirically tested these preference effects with an online field experiment in one of the largest social network service (SNS) websites in China. The results of our study confirm the preference effects on friendship choice in both of the two dimensions we tested.

INTRODUCTION

Human beings are social animals and as such have an intrinsic need for association with one another. Of all forms of association in modern society, friendship is perhaps the most socially significant. Family kinship and coworker relationships in a work setting are the two other most important forms of association. However, compared to family kinship and coworker relationships, friendship is unique in being voluntary and flexible and can be terminated by any party. Due to its personal rather than formal nature, friendship should be a good indicator for measuring social preferences, particularly social distances across different racial groups (Gonzalez *et al.*, 2007; Huckfeldt, 1983; Kinzler *et al.*, 2009; Verbrugge, 1977; Vigil, 2007; Zeng and Xie, 2008).

Despite the centrality of friendship data to sociological understanding of social distances, empirical work studying friendship choices in the past has suffered from lack of information in observational data that would distinctly identify the effects of subjects' personal preferences, because realized friendship choices result from the combined forces of not only personal preferences but also opportunity structures. Thus, it is not possible to simply infer preference effects from observed friendship data without invoking unrealistic assumptions about opportunity structures. In this paper, we report a study, based on an online field experiment, demonstrating the role of preference in friendship choice. Specifically, we test the influences of preferences in two dimensions: (1) in-group identity -- preference for other persons of the same or similar identity, and (2) status asymmetry -- preference for other persons of higher social status. We empirically test the preference effects with an online field experiment in one of the largest social network service (SNS) websites in China. The results of our study confirm the preference effects on friendship choice in both of the two dimensions we tested.

1. THEORETICAL ISSUES

1.1 Choice: Unconstrained Preference versus Structural Constraint

From empirical data, we can observe certain patterns in actual social relationships across individuals. For example, in a U.S. high school, we may observe that most in-school friends of black students are blacks. However, we cannot simply conclude from this observation that black

students in this school prefer to have blacks as friends. If most of the students in the school are black, even when students were color-blind in choosing friends, most in-school friends would, albeit by chance, be blacks. This example illustrates the importance of “structural constraint” in friendship choice, which has long been recognized in sociology. Social structures, such as schools, neighborhoods, organizations, or metropolitan areas (Feld, 1981; Kornrich, 2009; Kossinets and Watts, 2009; McPherson and Smith-Lovin, 1987; Mouw and Entwisle, 2006; Tilly, 1999; Wimmer and Lewis, 2010) “govern social relations among their incumbents” (Blau, 1974: 616). Because such social structures create social boundaries between individuals and segregate them into limited social circles, within which social interactions such as friendship take place, social structures are said to impose opportunity constraints on social interactions, i.e., limit possibilities for social interactions within shared social circles.

Hence, friendship choices are subject to the influences of both personal preferences and opportunity structures. Only when opportunity structures are identical can friendship choices be said to reveal preferences. Similarly, when preferences are identical, variation in opportunity structure results in variation in friendship choices (Zeng and Xie, 2008). Because of this potential confounding, past research has been careful in controlling for structural constraints in studying friendship choice. For instance, researchers have adapted dyad analysis to eliminate the confounding effect of group size (Hallinan and Teixeira, 1987; Moody, 2001; Quillian and Campbell, 2003; Mouw and Entwisle, 2006); controlled individual-level structural variations, such as shared school activities (Moody, 2001) and school segregation (Mouw and Entwisle, 2006); and used exponential random graph models to take balancing reciprocity into consideration (Goodreau, 2007, Goodreau *et al.*, 2009, Wimmer and Lewis, 2010). Furthermore, separating out the effects of structural constraints has been discussed extensively as a methodological challenge (Cheng and Xie, 2012; Currarini *et al.*, 2010; Feld, 1981; McPherson and Smith-Lovin, 1987; Hallinan and Williams, 1989; McPherson *et al.*, 2001; Moody, 2001; Mayer and Puller, 2008; Quillian and Campbell, 2003; Mouw and Entwisle, 2006; Wimmer and Lewis, 2010; Zeng and Xie, 2008).

In addition, friendship formation has a dynamic dimension, evolving sequentially over time. For example, two individuals are exposed to each other to form a potential friendship because both are friends with a common friend. We may view this tendency to balance reciprocity in a triadic friendship network as a form of varying exposure, as friendship networks in a closed system cause different dyads to have different levels of exposure, or different potential likelihoods of friendships being formed in the absence of personal preference, due to the existence of common friends. Because prior friendships may be driven at least in part by preference, this raises the possibility that social constraints may be endogenous with respect to preference so as to compound the effects of preference on friendship choice (Goodreau, 2007; Goodreau *et al.*, 2009; Wimmer and Lewis, 2010).

Thus, the separation of the sheer effects of individual preferences from compounding structural constraints has long been of central interest in the literature on friendship choice. Otherwise, we would not be able to draw firm conclusions that social actors' true psychological preferences are true causes that determine observed patterns of friendship choices, such as homophily (Zeng and Xie, 2008). Unfortunately, all previous efforts at separating out the influences of structural constraints have essentially relied on the method of statistical controls in observational data. As is well known in the causal inference literature, however, the method of statistical controls relies on an unverifiable assumption of ignorability, i.e., there are no unobserved confounders once the relevant covariates are controlled for (Morgan and Winship, 2007). For studies of friendship choice, this ignorability assumption amounts to assuming that individuals with different preferences do not have systematic differences in structural constraints within the same social context or, as is typically the case, after all contextual variations are properly measured and included in statistical analyses.

This is a very strong, unrealistic, and, unfortunately, unverifiable assumption. Zeng and Xie's (2008) methodological discussion on separating out structural constraints and personal preferences recognizes this. The Zeng and Xie study implemented certain forms of structural

constraints based on ad hoc assumptions on observed data pertaining to nominations of in-school friends in Add Health. Only after imposing such *a priori* structural constraints were Zeng and Xie able to study preference free of structural constraints.

Zeng and Xie (2008) pointed out that when opportunity structure is equalized for all actors, choices are unconstrained. They stated, axiomatically, that unconstrained choices are driven solely by preferences. Of course, they realized that unconstrained choices cannot be found in real life and thus proposed a thought experiment to define unconstrained choices:

In unconstrained choice, choice is based purely on preferences for alternatives under consideration. A prime example of unconstrained choice is a consumer survey of product preference, where respondents are presented with a hypothetical choice situation and asked to make one or more selections from a list of products. For example, they may be given a choice of Coke and Pepsi and asked which soft drink they prefer (Zeng and Xie, 2008, p.618).

In this paper, we report a study that borrows Zeng and Xie's basic idea in uncovering personal preferences for friends from unconstrained choices, with an online field experiment. We carried out the experiment in the summer of 2011 in one of the largest real name social network service (SNS) websites in China, Renren.com. Known as the "Facebook of China," by March 31, 2011, Renren.com had approximately 117 million activated users. The user base of Renren.com consists largely of Chinese college students, young urban professionals, and high school students (Renren.com 2011). On average, users in Renren.com spend approximately seven hours per month, and collectively produce 40 million pieces of user-generated content per day, including approximately three million photos and 13 million status updates. As of March 31, 2011, Renren.com had accumulated a total of approximately 2.9 billion photos, 249 million blogs and 20.8 billion comments or reviews (Renren.com 2011). In our experiment, we created fictitious user accounts and used these fictitious user applicants to send "adding friend" requests to our experiment targets; 688 students were sampled with equal probability from the roster of registered first-year and second-year students at a well-known large university in Beijing. We manipulated experimental conditions that allow us to detect the effects of two dimensions for

friendship preference that have been suggested in the literature: in-group identity and preference for higher status. Before describing our experiment further, in the following two subsections, we will first review the existing literature that motivated our focus on these two dimensions in our experiment.

1.2 In-Group Identity Preference

In-group identity preference is based on the recognition of in-group versus out-group, categorical, non-hierarchical attributes in reference to one's own perspective. As in the old adage, "birds of a feather flock together," it has long been noted that friends tend to be similar to each other (for a review, see McPherson *et al.*, [2001]). In past studies, preference based on homophilic group identity has been conceptualized as "in-group preference" (Blau, 1977), "similarity effects" (Hallinan and Williams, 1989), "net friendship segregation" (Moody, 2001), "assortative mixing" (Goodreau *et al.*, 2009), and "choice homophily" (Kossinets and Watts, 2009). Why, then, do people prefer to befriend those with the same social identity as their own? The primary explanation is people's psychological favoritism towards in-group members or social identity homophily. First defined by Tajfel (1972), the concept of social identity is known as "the individual's knowledge that he belongs to certain social groups together with some emotional and value significance to him of this group membership" (p.292). The theory of identity preference has three propositions. First, for cognitive reasons, people tend to categorize themselves and others in terms of nominal social attributes such as race, ethnicity, gender, age, education, etc. (Allport, 1954). Second, people use these attributes to characterize others as in-group or out-group based on the similarity or dissimilarity of the attributes (Allport, 1954). Third, people have a natural tendency to develop affinity with in-group members (Turner, 1987).

In empirical studies, researchers have also found that subjects are able to distinguish in-group from out-group members even in minimal conditions (Tajfel, 1970, 1971). Bonding with their own in-group members has also been found to have important social implications. First, it enhances individuals' self-esteem and reduces subjective uncertainty within the social

world (Turner, 1975, 1987; Hogg and Abrams, 1988; Abrams and Hogg, 1990; Hogg and Abrams, 1993; Long and Spears, 1997; Rubin and Hewstone, 1998; Hogg and Mullin, 1999; Terry *et al.*, 2000; Stets and Burke, 2000). Second, it facilitates communication (Carley, 1991; Mayhew *et al.*, 1995) and sharing of resources (Adler and Kwon, 2002; Kavanaugh *et al.*, 2005; Putnam, 2001) among members of the same group. Third, it fosters individuals' group loyalty and contributes to the stability of social ties with other group members (Brewer, 1979; Van Vugt and Hart, 2004). For example, in marriage studies, researchers found that religious homogamy promoted marital stability, satisfaction, and happiness (Albrecht *et al.*, 1983; Glenn, 1982; Heaton, 1984; Heaton *et al.*, 1985; Lehrer and Chiswick, 1993; Ortega *et al.*, 1988; Heaton and Pratt, 1990).

1.3 Higher-Status Preference

In-group preference is not the only psychological motivation affecting friendship choice. Past research suggests another motivation: higher-status preference. Status is usually defined as “a ranking of individuals (or groups of individuals) in a given society, based on their traits, assets, and actions” (Weiss and Fershtman, 1998). The traits, assets, and actions, either categorically or continuously measured, are associated with the general capacity to achieve a desired end in society (Berger *et al.*, 1977; Ridgeway, 1991). Categorically measured social attributes are distinctive traits, such as social class, race, and gender (Berger *et al.*, 1980; Cohen and Roper, 1972; Eagly, 1987; Goldberg, 1968; Wood and Karten, 1986). Continuously measured social attributes, on the other hand, usually order people by the degree to which they possess something (Ridgeway, 1991), such as wealth, education, occupation, physical attractiveness, etc.

Why would people prefer to make friends with those of higher status from their own? There are at least three causal mechanisms through which higher status attracts friendship. First, higher status is desirable. The desire for higher status is a universal phenomenon. In Hobbes' words, “Men are continually in competition for honor and dignity” (cited in Hirschman, 1973). More recently, Maslow (1943) argued for a fundamental longing for prestige and social esteem. Buss (1999) posited that the desire for status is an evolved adaptation---ascending the hierarchy is an

important means to secure resources. Tay and Diener (2011) suggested that citizens of all countries exhibit a need for respect. Generally, higher status is associated with more material resources, more social and psychological benefits, such as more respect in the eyes of others (Sherif *et al.*, 1955), higher self-esteem (Barkow, 1975), more opportunities to access resources (Savin-Williams, 1979), and better mental and physical health (Adler *et al.*, 2000; Marmot, 2004).

Second, higher status is generally stable and fixed. That is, higher status generally cannot be easily purchased in an open market (Heffetz and Frank, 2008). Because of this, an individual's ability to obtain higher status is severely limited, especially when higher status is hereditary (e.g., nobility titles, higher Caste), stereotypical (e.g., white, male), or substituted (e.g., an elite university degree versus a lower-ranked university degree). Correspondingly, individuals befriend members of a higher status group than their own as a way of gaining higher social status for themselves or achieving a status "reach up" (Lin, 1999). In addition, higher status people have advantages in social capital in terms of both quality and quantity, since they usually have superior ability, wealth, power, and positions in the social hierarchy (Lin, 1999). Investing one's limited time and energy to befriend higher status individuals is thus a strategy to maximize the profit of spending one's limited resources in establishing a social network. Empirically, studies have found that children tend to befriend other children with higher peer-assessed likeability, i.e., to pursue the most "popular" students (Hardy *et al.*, 2002). Zeng and Xie (2008) also report that in adolescent friendships, students are most prone to befriend those of higher status in terms of age, grade point average (GPA), and socio-economic status (SES) relative to those of other students.

Third, higher status individuals tend to be more visible, attracting more attention than their lower status peers (e.g., Clark *et al.*, 2006). Status researchers argue that high status affects visible salience, which in turn leads to more power and influence (Anderson *et al.*, 2001; Berger *et al.*, 1972; Ridgeway and Correll, 2006). For example, neuroscientists find that among humans,

faces of higher social status individuals incite more gazing attention than those of lower status people (Dalmaso *et al.*, 2012). Research on fashion diffusion also suggests that new styles first adopted by higher status elites gradually diffuse to lower status people through imitation (Grabe *et al.*, 2008; Simmel, [1904:1957]).

For the above reasons, in friendship choice, individuals prefer friendship partners with higher status to those with lower status. Thus, to understand friendship choice, it is necessary to distinguish higher status preference from in-group identity preference, the former being based on socially hierarchical attributes such attributes can be either categorical or continuous. When they are categorical, group identity and higher status preferences may be confounded, as we will discuss below.

2. RESEARCH DESIGN

2.1. The Need for a Field Experiment

In the preceding two subsections, we reviewed the existing literature that motivated our focus on two dimensions---in-group identity preference and higher status preference---as factors that may affect friendship choice. However, due to the confounding effects of structural constraints, it is not possible to test the importance of these factors in observed friendship data (Zeng and Xie, 2008). In our study, we designed a field experiment to reveal the net preference effects on friendship choice.

The main advantage of a field experiment is that it enables us to equalize potential friend exposure and thus to free friendship choices from the confounding influence of exposure and reveal true preferences. As we discussed above, individuals in actual social settings are segregated into limited social circles by social structures, such as schools, neighborhoods, organizations, metropolitan areas (Feld, 1981; Kornrich, 2009; Kossinets and Watts, 2009; McPherson and Smith-Lovin, 1987; Mouw and Entwisle, 2006; Tilly, 1998; Wimmer and Lewis, 2010), in which their exposure to potential friends is constrained. Hence, observed friendship choices are subjected to the confounding of personal preferences and constrained exposure.

Furthermore, the balance reciprocity tendency in a triadic friendship network also changes individuals' exposure for friendship purely due to the existence of common friends (Goodreau, 2007; Goodreau *et al.*, 2009; Wimmer and Lewis, 2010). To eliminate the confounding influence of exposure, we designed a field experiment in which we equalized exposure across all participants and eliminated the possibility of balance reciprocity.

An additional advantage of a field experiment is the possibility for us to test, with an orthogonal design, the effects of the two dimensions of preferences in friendship choice that we discussed earlier. To test the two dimensions of preference, this study will focus on two key independent variables, one measuring in-group identity and other measuring higher status. When two independent variables are involved, the effects of the two variables are confounded if they are correlated. In a field experiment, we can randomly assign participants such conditions that their in-group identities and higher statuses are uncorrelated. The orthogonal design would allow us to conduct bivariate analyses separately for the two independent variables.

2.1 Social Network Sites and Renren.com

Social network sites (SNSs) such as Facebook, MySpace, Friendster, and CyWorld are some of the most popular online destinations in recent years (Young and Quan-Haase, 2009). Researchers find that in the United States, 80 to 90 percent of undergraduate students actively participate in such services (Strater and Richter, 2007). SNSs allow individuals to present themselves according to their preferred image, to maintain their pre-existing social networks, or to assist individuals in building new connections based on shared characteristics, interests, political views, or activities (Boyd and Ellison, 2007; Ellison *et al.*, 2007; Parks and Floyd, 1996; Wellman, 1996; Walther and Parks, 2002). SNSs likewise connect individuals in various arenas, such as romance (e.g., Friendster.com), business (e.g., LinkedIn.com), and shared interests (e.g., MySpace.com). The blossoming of SNSs has also triggered academic research in different fields, such as identity construction and expression (Boyd and Heer, 2006), friendship racial homogeneity (Mayer and Puller, 2008; Wimmer and Lewis, 2010), social capital building and

maintenance (Ellison *et al.*, 2007), social grooming (Tufekci, 2008), information disclosure (Gross and Acquisti, 2005), personal profile characteristics (Lampe *et al.*, 2007), privacy concerns (Gross and Acquisti, 2005; Hodge, 2006; Lewis *et al.*, 2008), user and non-user differences (Hargittai, 2007), and so on. In particular, friendship ties in SNSs, such as Facebook, are especially ideal for testing our two preference dimensions – in-group identity and higher status – on friendship choice. Previous studies point out that similar to offline friendships, homophily between users, such as language-based or shared racial-, sexual-, religious-, or nationality-based identities do influence the formation of friendships in these SNSs (e.g., Boyd and Ellison, 2007). Moreover, because technologies such as distribution lists, photo directories, and search capabilities easily support online linkages with others (Resnick, 2001), building friendship ties in SNSs is now a practical way to establish and maintain social capital (Ellison *et al.*, 2007). This means our study on online friendship has practical implications.

The SNS we used in this experiment, Renren.com, is known as the “Facebook of China.” Launched in December 2005, Renren.com is now the largest real name SNS Web site in the country. By March 31, 2011, Renren.com had over 117 million activated users across China, most of whom were Chinese college students, high school students, and young urban professionals. Users on Renren.com averaged approximately 7 hours per month on the site and collectively produced 40 million pieces of user-generated content per day, including approximately three million photos and 13 million status updates. According to the same 2011 report, Renren.com had accumulated a total of approximately 2.9 billion photos, 249 million blogs, and 20.8 billion comments or reviews (Renren.com, 2011).

Renren.com helps users to communicate and stay connected with their friends, classmates, family members, and co-workers. Similar to Facebook, users begin by creating a free account and a personal profile with their names, photos, information about schools and universities they attended, employment information, current locations, age, hometowns, lists of interests, and other personal data. After creating their initial profiles, users can then search other users’ profiles

to find and establish connections with potential friends. Each new user is encouraged to establish “friendship” relationships with other registered users by sending “adding friend” requests to them. If an “adding friend” request is accepted, the two users’ personal profiles, activities, and entire social networks are disclosed to one another. Among friends in a social network, a Renren.com user can easily communicate using many different tools and functions, including status updates, photo sharing and commenting, chatting, onsite e-mail, and mini-groups. In addition, functions such as news feed, Renren Like and Renren Share, as well as Renren Connect make it easy for users to share status updates, blogs, photos, and content that they recommend to friends. Our experiment capitalized on some of these features.

2.2 Hometown Identity and University Status in China

In Section 1, we discussed the importance of estimating the causal effect of preference on in-group identity and higher status on friendship choice. In this section, we explain our manipulation of in-group identity through place-of-origin identity and our manipulation of social status through university affiliation.

We chose place of origin for in-group identity for three reasons. First, place of origin is an important social identity in Chinese culture. Researchers have long known that Chinese tend to differentiate themselves in terms of place of origin (Honig, 1992). Persons from the same place of origin, or *laoxiang*, are culturally expected to have special affinity. Chinese often attain solidarity and maintain their localistic (or *laoxiang*) network, a social network based on a common place of origin. This has emerged as one of the most widespread and effective social structuring mechanisms in China today (Zhang and Xie, 2012). Localistic networks, especially dyadic *laoxiang* ties that involve two persons from the same place of origin, are believed to generate reciprocal favoritism (Lee, 1998; Wang and Tong, 2004; Wang *et al.*, 2002), such as job and resource opportunities (Zhang and Xie, 2012). The earliest assembly of *laoxiang* networks can be traced back to the Ming Dynasty. In contemporary China, thousands of *laoxiang* network associations continue to exist in different social spheres and in online communities.

Second, whether a person is from a particular place of origin constitutes an in-group versus out-group measure that does not indicate an obvious vertical status. That is, place of origin can be interpreted as a nominal social attribute that demarcates group boundaries but not status values. We operationalize place-of-origin identity at three geographic levels: province, city, and county.

Third, place-of-origin identity has a nested feature and enables us to investigate the monotonic effect of preference on identity overlaps, as has often been performed in recent friendship research (Joyner and Kao, 2000; Wimmer and Lewis, 2010). Note that the definition of having the same place of origin, or *laoxiang*, has a monotonic feature with the level of geography. Two people are said to be of the same *laoxiang* if they are from the same province, city, or county. In the current Chinese administrative system, a county is nested within a city (or prefecture), and a city is nested within a province. Thus, in our design, people coming from the same county (and thus, necessarily, the same city and the same province) indicates a tight *laoxiang* relationship, coming from the same province but different counties points to a looser *laoxiang* relationship, and coming from the same city but different counties signifies something in between. We expect that the overlapped place of origin identity should have a monotonic effect on in-group preference in friendship choice, with a tighter relationship being associated with a stronger in-group preference.

For our second dimension, higher status preference, we utilize the user's university affiliation to manipulate status hierarchy. Based on the importance of institutional prestige in China, university affiliation, as an institution affiliation, is commonly recognized as an important marker of an individual's social status in contemporary China (e.g., Lin and Bian, 1991; Xie and Wu, 2008; Xie *et al.*, 2009). Perhaps as a surprise to some readers, ordinary Chinese are keenly aware of a university's prestige. This awareness is related to Chinese college admission policies. Unlike in the United States, college admission in China is segmented into non-overlapping strata based on applicants' scores on the National College Entrance Examination. While applicants may

list multiple schools in order of preference in each stratum, each student is admitted by only one school in a stratum. This “one-chance deal” policy renders university status obvious in China, because there is a one-to-one correspondence between test scores and university stratum -- a university’s relative standing. It is universally believed that the higher status university one attends, the higher economic return one can gain from one’s education (Li *et al.*, 2011). This explains why ordinary Chinese are interested in and knowledgeable about university rankings.

In short, because of the awareness of university prestige in China, we use this fact to manipulate status asymmetry in our experiment. Like place-of-origin identity, university prestige is a feature that is relatively unique to China (i.e., status stratification among US universities, for example, is less apparent), which facilitates our investigation of the effect of higher status preference in interpersonal relationships.

3. METHODS

In this study, we test two hypotheses concerning friendship preferences for in-group identity and higher status. The first hypothesis predicts that overlapping places of origin enhance the acceptance rate for an “adding friend” request, and the effect of overlapping increases from the county to the city to the province level. The second hypothesis predicts that potential friends with higher-status university affiliations will be favored over those with lower-status affiliations.

We tested the two hypotheses with data from a field experiment in Renren.com. The subjects in the experiment were first-year and second-year college students at a well-known, relatively prestigious national university in Beijing. We randomly drew 868 students from a university database, with stratification by origin province to ensure sufficient numbers of subjects from different provinces. Of the sampled students, 180 were not included in the experiment because we could not identify them as active users on the Renren.com site. We used the remaining 688 students, or 79.26% of the original sample, as the target subjects. We retrieved the target subjects’ public information, including hometown (both province and city level), number of friends, and number of recent visits. Reflecting the general composition of student

population at the university, the target subjects included 405 females and 283 males, 410 in their first year, and 278 in their second year. They came from 21 provinces and 171 cities in various regions in China.

For experimental manipulations, we first generated fictitious applicant accounts on Renren.com. These fictitious accounts, or applicants, were all identical except for attributes we wished to manipulate. To make our fictitious accounts appear to be “real” users, we created for each account a credible number of blogs, photo albums, status pages, sharings, friends, and visit totals, based on the average target users’ activities in Renren.com. Then we set privacy restrictions so that personal pages were visible only to the target subjects. See the sample experimental account in Figure 1.

Figure1. Sample Fictitious Account



Second, we matched each target subject to a fictitious account and sent out an “adding friend” request from the applicant to the target. To each target subject, we sent only one “adding friend” request so as to avoid a learning effect. When sending the “adding friend” request, an applicant left a message for the target, with the applicant’s university affiliation shown following his or her name. In the message field, we randomly stated that the applicant came from a particular place-of-origin, so as to overlap or not overlap with that of the target, per manipulation. Thus, the target subjects observed the experimental manipulations on both place of origin and university status. See an example of the manipulation in Figure 2. For the two manipulation variables, place of origin and university status, we made an orthogonal design so that the two dimensions were uncorrelated across target subjects. In fact, we achieved the orthogonality as designed, as overlap in place-of-origin between applicant and subject is uncorrelated with relative university status ($\rho = -0.012$), with the two variables coded as an interval variables (for place-of-origin overlap, no overlap=1, same province=2, same city=3; for university status, lower status=1, similar status=2, same statue=3, higher status=4).

Figure 2. Sample Manipulations



Our experiment was continuously conducted throughout the months of June and July 2011. We sent out the “adding friend” requests around 10:00 a.m. every day, before the busiest hours at Renren.com in the late afternoon and evening. After our requests were sent out, we continuously monitored and recorded acceptances by target users. Once an applicant accepted our “adding

friend” request, we immediately deleted him or her from the friend list. In this way, we controlled the number of “common friends” as being constantly zero for all applicant-target dyads and thus blocked the effect of balancing reciprocity. In Table 1, we present summary statistics for the manipulation variables and target subjects’ basic characteristics.

Table 1 Statistical Summary of All Samples

	Sample Mean	Standard Deviation
<u>Places-of-origin Overlap Manipulation</u>		
No Overlap	0.331	(0.471)
Same Province	0.339	(0.474)
Same City	0.330	(0.471)
<u>University Status Manipulation</u>		
Lower Status	0.240	(0.427)
Similar Status	0.273	(0.446)
Same Status	0.237	(0.426)
Higher Status	0.250	(0.433)
<u>Gender Manipulation</u>		
Applicant Gender	0.509	(0.500)
<u>Subject's Background Characteristics</u>		
Self Gender	0.589	(0.492)
Year of Enrollment	2009.404	(0.491)
Hometown Geographic Region	2.164	(0.652)
Hometown City Population	2.783	(1.389)
Major Field	2.807	(1.022)
Number of Friends	445.029	(216.264)
Number of Visits	2347.333	(2770.422)
Privacy Setting	0.898	(0.303)
Sample Size	688	

4. RESULTS

Because our experiment achieved an orthogonal design so that the relative status and the place-of-origin overlap are uncorrelated across the target subjects, we only need to separately examine the influences of the two variables being manipulated—in-group identity and status asymmetry. We summarize the results for place-of-origin identity in Figure 3 and Table 2. Figure 3 shows a monotonic pattern of a higher success rate with a stronger places-of-origin overlap. We give more detailed statistical results for the pattern in Table 2. The success rate is 0.578 overall but varies substantially by places-of origin overlap: the success rate increases from 0.456 for applicants of *No Overlap* to 0.592 for applicants of *Same Province*, and further to 0.687 from applicants of *Same City*. Statistical tests for all pairwise differences are significant at $p=0.05$. These results reveal that in-group identity between an applicant and a target subject enhances the friendship preferences. The stronger the overlap in places of origin between applicant and target subject, the higher the chance for the target subject to accept the “add friend” request from an applicant. This finding suggests a monotonic effect of social identity overlap on friendship preference. Thus, our data support our hypothesis concerning in-group identity.

Figure 3. Success Rate of Applying by Places-of-origin Overlap

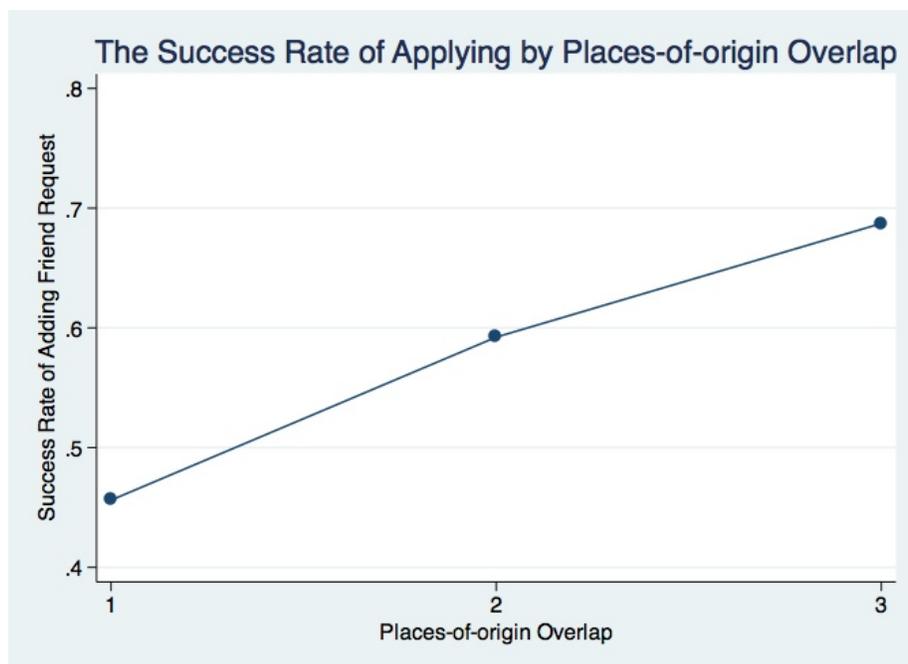


Table 2 Success Rate of Applying by Places-of-origin Overlap

	All Samples (1)	No Overlap (2)	Same Province (3)	Same City (4)	p-value of t-test (2) & (3)	p-value of t-test (3) & (4)
Success Rate	0.578 (0.494)	0.456 (0.499)	0.592 (0.492)	0.687 (0.465)	0.003	0.034
Sample Size	688	228	233	227		

We present the results on status asymmetry in Figure 4 and Table 3. Figure 4 shows a sharp and monotonic effect of the applicant's university status on the acceptance rate. In Table 3, we provide more detailed results on the success rate by the university status manipulations. When an applicant has a *Lower Status* university affiliation, the success rate is 0.436. When an applicant is from a *Similar Status* university, the success rate increases to 0.516, although the difference is not highly statistically significant ($p=0.136$). When the university status of applicants changes to *Same Status*, the success rate increases to 0.638, significantly larger than that in the *Similar Status* cases ($p=0.021$). Furthermore, the success rate increases further to 0.727 for *Higher Status* applicants, significantly higher than that for *Same Status* applicants ($p=0.081$). Taken together, these results demonstrate that university status positively and significantly influences friendship preference. This pattern supports our hypothesis regarding *Higher Status*: people prefer to form friendships with people with higher rather than lower status.

Figure 4. Success Rate of Applying by University Status

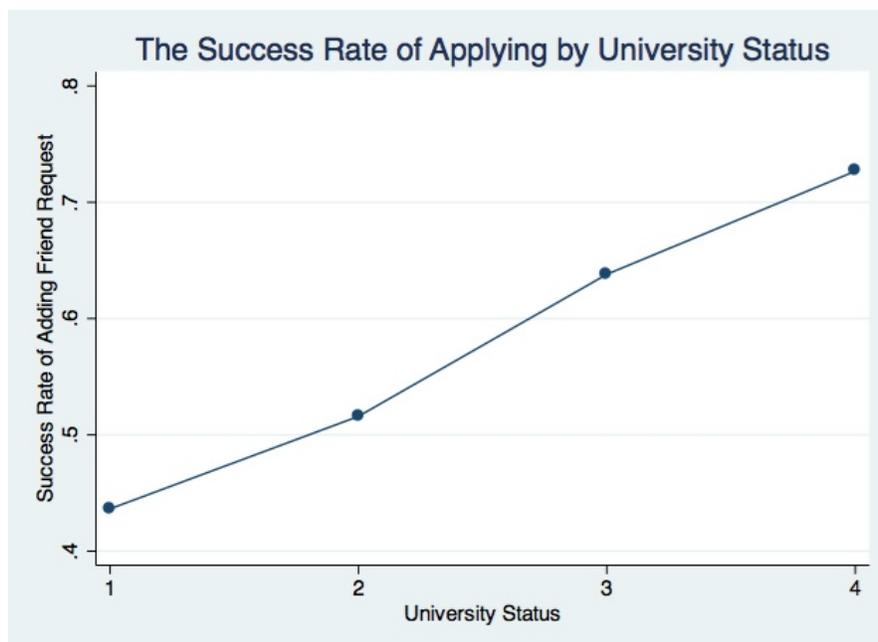


Table 3 Success Rate of Applying by University Status

	All Samples (1)	Lower Status (2)	Similar Status (3)	Same Sttatus (4)	Higher Status (5)	p-value of t-test (2) & (3)	p-value of t-test (3) & (4)	p-value of t-test (4) & (5)
Success Rate	0.578 (0.494)	0.436 (0.497)	0.516 (0.501)	0.638 (0.482)	0.727 (0.447)	0.136	0.021	0.081
Sample Size	688	165	188	163	172			

5. CONCLUSION

Friendship is one of the most socially significant interpersonal associations in modern society. Its personal nature makes it a good indicator for measuring social preferences. However, realized friendship choices result from the combined forces not only of personal preferences but also of opportunity structures. Thus, it is difficult to infer preferences from observed friendship data without invoking unrealistic assumptions about opportunity structures. Separating the effects of preference and opportunity on friendship choice has been a long-standing concern in friendship research. This separation has at least two main benefits, as Zeng and Xie (2008) pointed out:

First, given the significance attached to intergroup relations for social integration, it is important to know whether the high level of homogeneous association in friendship is due mainly to people's psychological predispositions or to the constraints of social structure. Second, the separation of preference and opportunity allows researchers to compare patterns of preference across social contexts and to predict choice behavior under a new set of conditions (Zeng and Xie, 2008, p. 616).

While the importance of separating the preference effects from those of opportunity structure on friendship choice has long been recognized, actually achieving the separation in empirical research remains a methodological challenge.

Our main objective in this paper is to illustrate a solution to this challenge with an experimental design. In our article, we report the results of an online field experiment study in one of the largest social network service (SNS) websites in China in demonstrating the role of preference in friendship choice. Specifically, we test preference effects in terms of two dimensions: in-group identity and higher status. Our findings indicate that (1) in-group identity enhances the likelihood of friendship request acceptance, the effect being monotonic with incrementally nested place-of-origin overlaps; and (2) higher social status also monotonically increases the likelihood of friendship request acceptance. These results confirm the pure preference effects of both dimensions tested on friendship choice.

This study has some wider implications. First, we use the field experiment method to solve a methodological difficulty in studying friendship choice: separating exposure from preference. The field experiment method provides unconstrained choices to subjects and thus facilitates the inference about the causal effects of preference on friendship, avoiding the potential confounding of structural constraints. Additionally, the field experiment measures people's real behavior in their social lives, which has more external validity than in laboratory experiment settings. In past sociological studies, the field experiment method has mainly been used to study discrimination (e.g., Correll *et al.*, 2007; Pager *et al.*, 2009; Tilcsik, 2011). We recommend that researchers may adapt the field experiment method to studying broader topics concerning different types of interpersonal relationships, such as friendship, dating, risk sharing, assistance, and so on.

Second, we conclude that in-group identity and higher status are two core dimensions of preference that affect friendship choice. In our experiment, we conceptualized the degree of in-group identity through a nested relationship. We successfully showed that the degree of in-group identity monotonically increases interpersonal relationship. Thus, our study treated in-group identity and higher status as two separate, continuous dimensions of preference and did not find interaction effects between them. However, interaction between the two dimensions may be present in specific contexts. For example, consider the role of race and social status in friendship choice. Both should matter. Yet, it is possible that racial identity may matter less for more highly educated persons than for less educated persons.

Finally, in contemporary society, online SNSs, such as Facebook, Twitter, MySpace, and Renren.com, are becoming ever more important in shaping people's lives. For researchers, these online communities not only provide opportunities for possible experiments, they are also becoming real settings in which social lives take place. While we used a particular SNS mainly to conduct a field experiment on friendship choice, the results we obtained from the experiment reflected real behaviors of real online users. Given the increasingly important role of SNS for actual friendship choices today and in the future, the conclusions from our study are highly

relevant to the real (non-artificial) world. As more and more users become connected in cyberspace, they may find it easier to exercise their preferences in choosing friends than in the past, when they were constrained by physical location. One possible outcome of this, as discussed by Cheng and Xie (2012), is that the enhanced role of preference may lead to more social segregation and less social integration across different social and ethnic groups.

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