

THE FRIENDS THEY HAVE AND THE FRIENDS THEY WANT:
DESIRED FRIENDSHIP ACROSS THE TRANSITION INTO ADOLESCENCE

by

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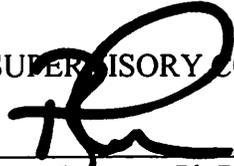
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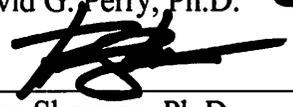
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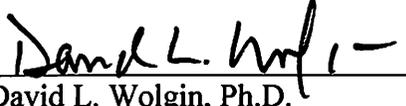
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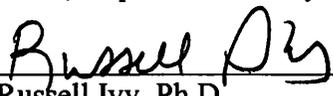
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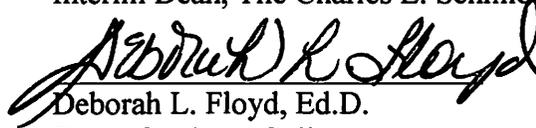

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ABSTRACT

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Previous studies of desired friendship have assessed desired friends with unilateral nominations (when one child chooses another child as a friend, but that friend nomination is not reciprocated). This calls into question the validity of findings suggesting that children want to be friends with others who differ from themselves, but befriend similar others by default (Sijtsema, Lindenberg, & Veenstra, 2010). The current study concerns desired friendships among 195 girls and 147 boys in Grades 4 through 6. Two hypotheses were tested. The first hypothesis was that children will not choose the same unilateral and desired friends. The second hypothesis was that children will be more similar to their reciprocal friends than to their unilateral and desired friends. Questionnaires measured desired friendship, friendship, and child characteristics. Both hypotheses were supported. However, there were group-level differences. The importance of using desired friend nominations to measure desired friends is discussed.

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INTRODUCTION

In sociometry, there are three types of researchers: (1) those who stand on one foot (the “socius,” characterized by their sole emphasis on theory), (2) those who stand on the other foot (the “metrum,” characterized by their sole emphasis on measurement), and (3) those who stand on both feet (those who combine theory and measurement) (Moreno, 1946, as cited in Terry, 2000). Friends are important contributors to child and adolescent outcomes (Bukowski & Hoza, 1989; Hartup & Moore, 1990). It is important to study friendship. But, the study of friendship is limited without valid measures. It is necessary that friendship researchers stand on both feet by using valid measures that are theoretically and empirically supported.

Friendship is defined by mutuality (Berndt & McCandless, 2009). Children are typically considered friends if they reciprocally nominate one another as friends. However, friend nominations also lead to a category of friendship that is not well understood. Unilateral friendships describe instances when one child nominates another child as a friend, but that nomination is not returned. Views on unilateral friendships vary. Some researchers have considered unilateral friends to be friends, whereas others have considered them to be non-friends (see Furman, 1996). Unilateral friendships have also been used as designation for a desired friendship, individuals with whom others want to become friends (e.g., Sijtsema et al., 2010). Thus, unreciprocated friendships have been treated as friends, non-friends, and desired friends. It does not seem possible that all

three are correct. The present study will focus on unilateral friendship as an index of desired friendship. I will test the widespread assumption that children unilaterally nominate other children with whom they want to become friends. To this end, I will directly ask children who they are friends with and who they would like to become friends with in order to compare desired friend nominations to unilateral friend nominations. I will also test the assumption that children befriend similar others by default, and not by design (Sijtsema et al., 2010). The default-selection hypothesis suggests that children want friends who are characteristically different from themselves, but befriend similar others by default. Previous studies testing the default-selection hypothesis have relied on unilateral nominations to measure desired friends. In the present study, I will compare children with their desired friends, their unilateral friends, and their reciprocal friends on 11 different characteristics in order to determine whether children are more similar to their reciprocal friends than to their unilateral and desired friends.

Defining and Describing Reciprocal Friends and Unilateral Friends

“Friendship” is not a construct that is explicitly defined for participants who are asked to nominate their friends. Moreno (1943) argued against asking individuals, “Who are your friends?” because the question can be considered vague (as cited in Terry, 2000). What is a friend? According to Moreno (1943), friendship “varies in definition from individual to individual and is often a fusion of multiple criteria” (as cited in Terry, 2000, p. 30). Other researchers define friendship in terms of knowing and liking (Berndt & McCandless, 2009; Newcomb & Bagwell, 1995). Although we tend to think of

friendship in categorical terms, some had argued that friendship should be placed on a continuum of relationships ranging from *strangers* to *the best of friends* (Berndt & McCandless, 2009). The extent to which partners know and like each other determines whether a relationship should be classified as *strangers*, *acquaintances*, *just friends*, *good friends*, *best/close friends*, or *the best of friends*. The positive extreme of the continuum is represented by high liking and high knowing and the negative extreme of the continuum is represented by neither like nor dislike and low knowing (Berndt & McCandless, 2009). Others have suggested that knowing and liking are perpendicular axes that define different types of relationships (Newcomb & Bagwell, 1995, p. 311). Reciprocal friends, unilateral friends, and acquaintances all differ in the degree of knowing and liking, and as a result, may form separate relationship categories (Newcomb & Bagwell, 1995).

There is widespread agreement that if children reciprocally nominate one another as friends, both know and like one another, and therefore ought to be considered friends (Berndt & McCandless, 2009). Reciprocal friend nominations are the gold standard for the assessment of friendship (Berndt & McCandless, 2009). When reciprocity is used as a criterion for friendship, then some who are nominated as friends are not actually friends because the nomination was not reciprocated. Unreciprocated friend nominations are often labeled unilateral friendships (e.g., Newcomb & Bagwell, 1995).

In the friendship literature, a common question is: Who are unilateral associates (Hartup, Laursen, Stewart, & Eastenson, 1988, p. 1,599)? A few possibilities have been raised. The first possibility is that unilateral friends are real friends. Researchers have argued that in a way, unilateral friends *are* friends, “at least from the point of view of the

child doing the nominating” (Furman, 1996, p. 52). A second possibility is that unilateral friends represent a unique form of friends that differs from reciprocal friends. Unilateral friendship has been distinguished as a different kind of friendship with its own unique psychological significance (Hundley & Cohen, 1999). Because unilateral friends were nominated as friends, their relationships and interactions with their nominators are likely to be neither negative nor neutral (Hundley & Cohen, 1999). Unilateral friends could also include future or past friends. Unilateral friends can either foreshadow the beginning of a reciprocal friendship or reveal the dissolution of a reciprocal friendship (Hundley & Cohen, 1999). Finally, unilateral nominations can include fanciful or desired friendships, or friendships that children would like to form in the future (Furman, 1996). However, some have argued that there is no evidence to suggest that fanciful or desired friendships exist, and that they would need to be “extremely common to explain the number of friend nominations that are not reciprocated” (Berndt & McCandless, 2009, p. 70). I discuss the distinction between reciprocal and unilateral friends, and then turn to desired friends in a later section.

Past findings have clearly shown differences between unilateral and reciprocal friends in terms of interactions, knowledge, and liking. Unilateral and reciprocal friends differ in terms of knowledge. Ladd and Emerson (1984) asked first and fourth graders to nominate their friends and to describe their friends’ characteristics with a picture-sort procedure. They found that for both younger and older children, reciprocal friends knew more about each other than unilateral friends. Furthermore, children who unilaterally nominated other children knew more about their unilateral friends than their unilateral

friends knew about them. Liking also distinguishes reciprocal friends from unilateral friends. Hundley and Cohen (1999) asked children in Grades 1 through 6 how much they liked classmates rated as reciprocal friends, unilateral-given friends, unilateral-received friends, or non-friends. Children liked their reciprocal friends the most, followed by unilateral-given friends, followed by unilateral-received friends, followed by non-friends. Finally, interactions between reciprocal and unilateral friends differ. In a meta-analysis, Newcomb and Bagwell (1995) compared reciprocal friends and unilateral friends on various broadband and narrowband categories of behavioral and affective aspects of friendship. Children tended to engage more positively with their reciprocal friends (they had more social contact, talked and cooperated more, and displayed more positive affect) than with their unilateral friends. The relationship properties of reciprocal friends also differed from those of unilateral friends. Compared to unilateral friends, reciprocal friends were more similar, had more of a balanced relationship, displayed mutual liking, felt closer to each other, and displayed more loyalty. Another study showed that conflicts between unilateral friends are more coercive than those between reciprocal friends (Hartup et al., 1988).

Unilateral friendships are not inconsequential. Studies have found that unilateral friends exert more influence than reciprocal friends over aggression (Adams, Bukowski, & Bagwell, 2005), drinking (Bot, Engels, Knibbe, & Meeus, 2005), and smoking (Aloise-Young, Graham, & Hansen, 1994; Mercken, Candel, Willems, & de Vries, 2009). However, other studies have found that reciprocal friends are more influential than unilateral friends (e.g., Altermatt & Pomerantz, 2003; Nijhof, Scholte, Overbeek, &

Engels, 2010). Nevertheless, it is clear that both types of friends shape adjustment outcomes.

Defining and Describing Desired Friends

Desired friends are a third category of friendship different from reciprocal friends. There is disagreement, however, as to whether desired friends are different from unilateral friends. One stream of thought views desired friends as synonymous with unilateral friends. One stream of thought views desired friends as synonymous with unilateral friends. For example, Aloise-Young et al. (1994) defined desired friends as “*unilateral friends*” (p. 281), and Scholte et al. (2009) defined desired friends as “[adolescents who are] unilaterally nominated by a target adolescent” (p. 89). In these studies, investigators who were interested in desired friends used unreciprocated friend nominations as a proxy for desired friendships on the theory that they are synonymous.

Another stream of thought views desired friends as distinct from unilateral friends. In the first direct investigation of desired friendship, Thomas and Bowker (2013) defined desired friendships as “friendships that adolescents indicate they would like to form in the future” (p. 2). In this study, investigators who were interested in desired friendship explicitly measured desired friends separately from reciprocal and unilateral friends. Participants were instructed to nominate someone they “are not friends with, but would like to have as a friend” (p. 873). The instructions explicitly precluded any overlap between desired friend nominations and friend nominations. With this definition, 55% of participants nominated at least one desired friend.

Desired friends have characteristics that set them apart from other friends. In one of the only studies to directly ask children whom they would like to be friends with,

Thomas and Bowker (2013) found that in comparison to early adolescents who were not nominated as desired friends, early adolescents who were nominated as desired friends were accepted, popular, relationally aggressive, and overtly aggressive, but not necessarily prosocial. Thus, high-status adolescents were more apt to be nominated as desired friends. Another study examined the characteristics of the peer group that adolescents were striving to join (Coleman, 1961). Coleman found that adolescents strived to identify with the popular crowd even when their beliefs and behaviors were different. LaFontana and Cillessen (2002) found that adolescents described popular peers as both prosocial and antisocial. Additionally, adolescents who were popular displayed both relational and overt aggression. Recent findings on the characteristics of desired friends suggest that there is considerable overlap between the characteristics of desired friends and those of popular adolescents (Thomas & Bowker, 2013).

Measuring Desired Friends

Unilateral nominations can occur for three different reasons: (a) a child nominated another child as a friend because he or she thought that the nominated person was a friend, (b) a child was faced with limited nomination possibilities (a fixed number of spaces) so he or she did not have enough space to include the person who picked him or her, or (c) a child wanted to become friends with the person whom he or she unilaterally nominated. Therefore, unilateral friends may be a pooled group of individuals who ended up in the group for one of three reasons.

Most studies that purport to address desired friendship actually measure the construct with unilateral nominations (Aloise-Young et al., 1994; Mercken, Candel, van

Osch, & de Vries, 2011; Mercken et al., 2009). Therefore, desired friendship is commonly assessed by asking children and adolescents, “Who are your friends?” and then extracting those nominations that were not reciprocated. But, the question, “Who are your friends?” may produce different answers from the question, “Who would you like to become friends with?” (Terry, 2000). Moreno argued that it is better to present participants with questions that are more concrete than abstract (Terry, 2000). It follows that if researchers aim to study desired friendship, directly asking participants to nominate who they would like to become friends with is less ambiguous than asking participants to nominate their friends and using their unilateral nominations as a proxy for desired friendship.

Similarity in Desired Friendship

Homophily-selection hypothesis. “Homophily” refers to the tendency of individuals to associate with similar others (Lazarsfeld & Merton, 1954). Several studies have found that adolescent friends tend to be similar to each other on attributes such as sex, race, age, aggression, delinquency, achievement motivation, and internalizing problems (Deptula & Cohen, 2004; Espelage, Holt, & Henkel, 2003; Hafen, Laursen, Burk, Kerr, & Stattin, 2011; Hogue & Steinberg, 1995; Kandel, 1978b; Rubin, Wojslawowicz, Rose-Krasnor, Booth-LaForce, & Burgess, 2006).

Homophily can be explained by two distinct mechanisms: selection (individuals tend to choose friends who are similar to them) and socialization (participants in a friendship tend to influence each other over time so that they become more similar) (Kandel, 1978a). These processes contribute to the formation, stability, and dissolution of

a friendship. Although selection, socialization, and dissolution are all related to similarity between peers, research suggests that most similarity springs from selection (Cohen, 1977). For example, research on peer influence of alcohol consumption has shown that selection effects are responsible for more similarity than influence effects (see Bot et al., 2005 for a review).

The selection part of the homophily hypothesis holds that children choose friends who are similar to them because they prefer the company of similar others. Selection-similarity is captured by the slogan, “birds of a feather flock together;” however, it is unclear to what extent birds of a feather actually prefer to flock together. It follows that if children actively seek friends who are similar to them, their reciprocal and desired friends should both be similar to them. However, if children want friends who are different, but have similar friends, this would indicate that children end up with similar others through a passive selection process.

Default-selection hypothesis. The homophily-selection hypothesis implies that children prefer the company of similar others. Alternatively, it may be the case that although children affiliate with similar others, these affiliates may not necessarily represent their preferences for friends (Schaefer, Kornienko, & Fox; 2011; Sijtsema et al., 2010). The default-selection hypothesis states that individuals would prefer to be friends with others who are different from them, but end up “getting stuck” with similar others (Sijtsema et al., 2010). Default-selection may arise because of avoidance (others actively reject the individual due to unattractive characteristics) or withdrawal (individuals withdraw from society, and as a result have no choice but to befriend other marginalized

individuals) (Schaefer et al., 2011). Therefore, marginalized individuals may at first resemble “isolates” (Moreno, 1934) who eventually form pairs through a default selection process. Default-selection may not equally apply to all children. Sijtsema et al. (2010) and Scholte et al. (2009) emphasize that low-adjusted children are especially likely to prefer to be friends with others who are well-adjusted but end up befriending others who are similarly poorly adjusted. Scholte et al. (2009) describe the normalcy hypothesis, which states that children, regardless of their own characteristics, strive to be friends with others who are normally adjusted. Although the current study does not directly assess factors that may moderate default-selection, it does examine the general prediction that there are differences in similarity between children, their reciprocal friends, and their desired friends.

To date, tests of the default-selection hypothesis and the homophily-selection hypothesis have involved comparisons of unilateral nominations (as preferred or desired friendships) to reciprocal friendships. The findings suggest that children and adolescents unilaterally nominate others who are well-adjusted, but have reciprocal friendships with others who are similar to them, regardless of their own level of adjustment. For example, Sijtsema et al. (2010) found that high-aggressive/low-prosocial boys, low-aggressive/high-prosocial boys, and bi-strategic (high-aggressive/high-prosocial) boys all unilaterally nominated highly-supportive boys, but had friends with similar levels of support. This indicates that generally children and adolescents try to reach up when they choose friends, but often need to settle for others who are similar to them. Studies have also found that children are more similar to their reciprocal friends than to their unilateral

friends. For example, children are more similar to their reciprocal friends on aggressive behavior (Adams et al., 2005), delinquent behavior (Nijhof et al., 2010), academic performance and attributions (Altermatt & Pomerantz, 2003), and a variety of other characteristics including abilities and achievements, interests and hobbies, social factors, personality attributes, preferences, and appearance (Ladd & Emerson, 1984).

The homophily-selection hypothesis and the default-selection hypothesis have only been compared using unilateral nominations to measure desired friends. This is problematic because unilateral nominations may not be the right measure to address these hypotheses. Therefore, it is important to determine whether comparisons of similarity between children, their reciprocal friends, and their desired friends will support the default-selection hypothesis with desired friend nominations.

The Current Study

The purpose of this study is to: (a) determine whether unilateral and desired friend nominations are distinct and (b) test the default-selection hypothesis examining similarity comparisons between children, their reciprocal friends, their unilateral friends, and their desired friends.

Are desired friend nominations distinct from unilateral friend nominations? Although no study has assessed this question, theory suggests that presenting children with different types of questions is likely to produce different answers (Terry, 2000). Therefore, I hypothesized that children and early adolescents will not have the same unilateral and desired friends. However, the ability to discriminate between the two

questions may increase with age, so it is also probable that the distinction will be stronger for older participants.

Are children and early adolescents more similar to reciprocal friends than to desired and unilateral friends? Past research with unilateral nominations comparing the default-selection and homophily-selection hypothesis has found support for only the default-selection hypothesis (e.g., Scholte et al., 2009; Sijtsema et al., 2010). Because unilateral nominations are likely to include some desired friends (Furman, 1996), I hypothesized that children and early adolescents will be more similar to their reciprocal friends than to their desired friends, supporting the default-selection hypothesis.

METHOD

Participants

Participants included 342 (195 girls and 147 boys) students in Grades 4 through 6 who were enrolled in one of two research schools in South Florida. Of the 342 participants, 166 identified themselves as white (49%), 65 as African-American/Afro-Caribbean (19%), 5 as Asian-American (2%), and 98 as “other” (29%). The remaining eight (2%) did not report on family background. Additionally, 103 (30%) participants indicated that Spanish was spoken in their home. There were 67 fourth-grade girls (20%), 62 fourth-grade boys (18%), 68 fifth-grade girls (20%), 50 fifth-grade boys (15%), 60 sixth-grade girls (18%), and 35 sixth-grade boys (10%). Fourth graders ranged in age from 9 to 11 ($M = 9.43$, $SD = 0.51$), fifth graders ranged in age from 10 to 12 ($M = 10.53$, $SD = 0.55$), and sixth graders ranged in age from 11 to 13 ($M = 11.47$, $SD = 0.54$).

Measures

Desired friend nominations. Participants in Grades 4 and 5 were presented with a roster of same-gender, same-class participants. Participants in Grade 6 were presented with a roster of same-gender, same-grade participants. In each case, participants were instructed to circle the names of classmates whom they would “like to become friends with.” Participants then rank-ordered their selections. The current questionnaire differs from a recently published measure of desired friendship (Thomas & Bowker, 2013) in that participants in the latter were explicitly instructed to identify classmates with whom

they were not currently friends, but with whom they wanted to become friends. Participants in the present study received no instructions about whether or not to nominate current friends as desired friends in order to determine the degree of overlap between those nominated in each category.

Participants in Grades 4 and 5 (who were limited to same-class nominations) were given the option to indicate that there were students in other same-grade classrooms with whom they would like to become friends. All participants were given the option to indicate that there was no one with whom they would like to become friends (see Appendix A). Of the 342 participants, 288 (84.21%) chose at least one desired friend (76.87% of boys had at least one desired friend and 89.74% of girls had at least one desired friend).

Friend nominations. Participants in Grades 4 and 5 were presented with a roster of same-gender, same-class participants. Participants in Grade 6 were presented with a roster of same-gender, same-grade participants. In each case, participants were instructed to circle the names of their friends. Participants then rank-ordered their selections.

Reciprocal friends were operationalized as dyads in which a child nominated another child as his or her number one friend and the chosen child reciprocated that nomination (regardless of rank) (Bot et al., 2005). *Unilateral friends* were operationalized as dyads in which a child nominated another as a friend, but the nomination was not returned.

Participants were given the option to indicate that they were not friends with anyone on the list. Participants were also asked if they had one or more friends outside of the class (for Grades 4 and 5) or grade (for Grade 6) at school (see Appendix B). All participants nominated at least one friend. Of the 342 participants, 299 (87.43%) had a reciprocal friend (87.18% of girls had a reciprocal friend and 87.76% of boys had a reciprocal friend) and 246 (71.93%) had at least one unilateral friend (73.85% of girls had at least one unilateral friend and 69.39% of boys had at least one unilateral friend).

Sociometric status. Sociometric status was assessed with a roster and rating measure (Singleton & Asher, 1977). Participants were given a list of same-gender classmates and were instructed, “Check the box that shows how much you like each person” (1 = *do not like this person*; 5 = *like this person very much*) (see Appendix C).

Acceptance was measured by summing the number of times others rated a child as 5 on the liking measure (Bukowski, Sippola, Hoza, & Newcomb, 2000). *Rejection* was measured by summing the number of times others rated a child as 1 on the liking measure (Bukowski et al., 2000). To adjust for group-size, scores were *z*-standardized within class (Grades 4 and 5) or grade (Grade 6) and within sex.

Peer nomination inventory. Participants in Grades 4 and 5 were presented with a roster of same-gender, same-class participants and a list of behavioral descriptors. Participants in Grade 6 were presented with a roster of same-gender, same-grade participants and a list of 14 behavioral descriptors. In each case, participants were instructed to check a box next to the name of each person who fits the behavioral descriptor.

Academic adjustment was assessed with two items (adapted from Graham, Taylor, & Hudley, 1998): *someone who does well in school* and *someone who knows the right answer*. Internal reliability was good ($\alpha = .83$). *Popular* was assessed with one item (LaFontana & Cillessen, 2002): *someone who is popular*. *Unpopular* was assessed with one item: *someone who is not popular* (LaFontana & Cillessen, 2002). Relational aggression was assessed with two items (Bukowski, Schwartzman, Santo, Bagwell, & Adams, 2009; Velasquez, Santo, Saldariagga, Lopez, & Bukowski, 2010): *someone who talks bad about others behind their backs to hurt them* and *someone who tries to keep others out of the group*. Internal reliability was good ($\alpha = .84$). *Overt aggression* was assessed with two items (Bukowski et al., 2009): *someone who hits, pushes, or shoves people* and *someone who hurts others physically*. Internal reliability was good ($\alpha = .83$). *Fun* was assessed with two items (adapted from Hawley, Little, & Card, 2007): *someone who is fun to be around* and *someone who is easy to joke around with*. Internal reliability was good ($\alpha = .95$). *Prosocial behavior* was assessed with two items (Masten, Morison, & Pellegrini, 1985): *someone who makes sure everyone is treated equally* and *someone who helps others with their problems*. Internal reliability was good ($\alpha = .87$). *Social reticence* was assessed with one item (Burgess, Wojslawowicz, Rubin, Rose-Krasnor, & Booth, 2003): *someone who is shy*. *Preference for solitude* was assessed with one item (Burgess et al., 2003): *someone who prefers to be alone*. Single-item peer nomination assessments are considered valid and reliable indicators because they are based on objective collective perceptions of others. Therefore, they have higher consensus than self-report (Cillessen, 2009).

Incoming nominations for each student were summed for each behavioral descriptor. For variables with one item, raw scores were *z*-standardized within group to account for group size. For variables with two items, mean scores were created. Mean scores were *z*-standardized within sex and class (Grades 4 and 5) or grade (Grade 6) to account for group size (see Appendix D).

Procedure

Parent consent and child assent were required for participation. The data were drawn from a larger group consisting of 455 children and adolescents. A 70% participation rate within sex and class (Grades 4 and 5) or within sex and grade (Grade 6) was required for data to be included in the analyses, a level that ensures valid and reliable assessments of peer perceptions (Cillessen, 2009). Of the 46 (within sex and class or within sex and grade) groups in both schools, 14 ($n = 113$) did not reach a 70% participation rate. Participation rates of the excluded group ranged from 37% to 67% ($M = 57.71\%$). These groups were excluded from analyses, resulting in 32 groups with 342 participants. Participation rates of the included group ranged from 70% to 100% ($M = 79.89\%$).

Trained research assistants distributed questionnaires in classrooms and read instructions aloud to participants. Children were spaced with an empty desk and barriers between them. Questionnaires took approximately 40 minutes to complete. Questionnaires were presented in the following order: (1) demographics, (2) desired friend nominations, (3) sociometric status, (4) peer nomination inventory, and (6) friend

nominations. Desired friend nominations were completed before friend nominations to determine if children would spontaneously nominate unilateral friends as desired friends.

Plan of Analysis

Are desired friend nominations distinct from unilateral friend nominations?

Two chi square tests were conducted. A 1 (desired) x 2 (unilateral/not unilateral) chi square test determined whether desired friends were also nominated as unilateral friends. Support for the hypothesis that desired and unilateral friends are not the same would be provided by a significant chi square, which indicates that desired friends were not equally distributed across unilateral friendship conditions.

A 1 (unilateral) x 2 (desired/not desired) chi square test determined whether unilateral friends were also nominated as desired friends. Support for the hypothesis that desired and unilateral friends are not the same would be provided by a significant chi square, which indicates that unilateral friends were not equally distributed across desired friendship conditions.

Additional chi square analyses examined sex, school, and grade as moderators. A 2 (unilateral and desired friend status) x 2 (sex) chi square examined sex as a moderator. A 2 (unilateral and desired friend status) x 2 (school) chi square examined school as a moderator. A 2 (unilateral and desired friend status) x 3 (grade) chi square examined grade as a moderator. If a moderator was significant, follow-up exact cell tests specified frequencies that occurred at levels higher or lower than expected by chance.

Follow-up chi square analyses in which each participant was randomly assigned one nomination (for desired friends and unilateral friends) determined whether results

were maintained after limiting each participant to one nomination. This was to ensure that analyses were not over-representing children with several desired friends.

Are children and early adolescents more similar to reciprocal friends than to desired and unilateral friends? To test the default-selection hypothesis, two sets of analyses were conducted in R v3.1.0. The goal of these analyses was to test the hypothesis that individuals are more similar to their reciprocal friends than to their unilateral and desired friends.

In the first set of analyses, profile analyses were conducted to determine whether participants were more similar to their reciprocal friends than to their desired and unilateral friends. Each participant's profile includes scores for multiple characteristics. Profiles are described in terms of their shape, elevation, and scatter. *Shape* describes the pattern of scores across variables. *Elevation* describes the mean of all variables. *Scatter* describes the variability of variable scores (Furr, 2010). In the present study, profiles included 11 variables: prosocial behavior, academic adjustment, relational aggression, overt aggression, popular, unpopular, acceptance, rejection, fun, social reticence, and preference for solitude. Profiles of respondents, their reciprocal friends, their desired friends, and their unilateral friends were calculated. Profile correlations were calculated between the profiles of respondents, reciprocal friends, desired friends, and unilateral friends. Profile correlations are used as an index of similarity (Furr, 2010). Three sets of profile correlations were conducted: *respondent-reciprocal friend profile similarity* describes the correlation between a respondent's profile and his or her reciprocal friend's profile, *respondent-desired friend profile similarity* describes the correlation between a

respondent's profile and his or her desired friend's profile, and *respondent-unilateral friend profile similarity* describes the correlation between a respondent's profile and his or her unilateral friend's profile. Some participants had more than one desired and/or more than one unilateral friend. In these instances, respondent-desired friend profile similarity scores were averaged across all desired friends nominated and respondent-unilateral friend profile similarity scores were averaged across all unilateral friends nominated.

A 3 (grade) x 2 (sex) x 2 (school) repeated measures ANOVA was conducted with 3 (profile similarity: respondent-desired friend profile similarity, respondent-unilateral friend profile similarity, and respondent-reciprocal friend profile similarity) repeated measures factors. Profile similarity was the dependent variable. These analyses were conducted to determine whether there was a difference between the respondent-reciprocal friend profile similarity scores, the respondent-desired friend profile similarity scores, and the respondent-unilateral friend profile similarity scores. A statistically significant difference between profile similarity scores indicates that respondents are more similar to some partners than others. Profile similarity correlation coefficients were standardized prior to conducting the repeated measures ANOVA in order to normalize the distribution of scores.

Three paired samples *t* tests were conducted to follow up statistically significant ANOVA results. The first paired samples *t* test compared respondent-reciprocal friend profile similarity to respondent-unilateral friend profile similarity in order to replicate past findings suggesting that children and early adolescents are more similar to their

reciprocal friends than to their unilateral friends. The second paired samples *t* test compared respondent-reciprocal friend profile similarity to respondent-desired friend profile similarity in order to determine whether children and early adolescents are more similar to their reciprocal friends than to their desired friends. The third paired samples *t* test compared respondent-desired friend profile similarity to respondent-unilateral friend profile similarity.

In the second set of analyses, correlation comparisons (Meng, Rosenthal, & Rubin, 1992) were conducted as a follow-up to the profile analyses in order to identify the specific variables responsible for differences in profile similarities. These analyses were conducted separately for each variable included in profiles (prosocial behavior, academic adjustment, relational aggression, overt aggression, popular, unpopular, acceptance, rejection, fun, social reticence, and preference for solitude). For each variable, three sets of correlation comparisons were conducted. First, I compared the *respondent-reciprocal friend correlation* on each behavior to the *respondent-unilateral friend correlation* on each behavior (controlling for the reciprocal friend-unilateral friend correlation) in order to replicate past findings suggesting that children and early adolescents are more similar to their reciprocal friends than to their unilateral friends. Second, I compared the *respondent-reciprocal friend correlation* to the *respondent-desired friend correlation* on each behavior (controlling for the reciprocal friend-desired friend correlation) in order to determine whether children and early adolescents are more similar to their reciprocal friends than to their desired friends. Third, I compared the *respondent-unilateral friend correlation* to the *respondent-desired friend correlation* on

each behavior (controlling for the unilateral friend-desired friend correlation). Correlation coefficients were weighted by sample sizes before averaging them. The result was a weighted average of similarity between the respondent and his or her unilateral and desired friends on each characteristic.

RESULTS

Bivariate Correlations

Bivariate correlations between characteristics are presented in Table 1.

Statistically significant positive associations emerged between prosocial behavior and academic adjustment, prosocial behavior and popular, prosocial behavior and acceptance, prosocial behavior and fun, academic adjustment and popular, academic adjustment and acceptance, academic adjustment and fun, relational aggression and overt aggression, relational aggression and unpopular, relational aggression and rejection, overt aggression and unpopular, overt aggression and rejection, popular and acceptance, popular and fun, unpopular and rejection, unpopular and social reticence, unpopular and preference for solitude, acceptance and fun, rejection and preference for solitude, and social reticence and preference for solitude.

Statistically significant negative associations emerged between prosocial behavior and relational aggression, prosocial behavior and overt aggression, prosocial behavior and unpopular, prosocial behavior and rejection, prosocial behavior and preference for solitude, academic adjustment and relational aggression, academic adjustment and overt aggression, academic adjustment and unpopular, academic adjustment and rejection, academic adjustment and preference for solitude, relational aggression and acceptance, relational aggression and fun, relational aggression and social reticence, overt aggression

and popular, overt aggression and acceptance, overt aggression and fun, overt aggression and social reticence, popular and unpopular, popular and rejection, popular and social reticence, popular and preference for solitude, unpopular and acceptance, unpopular and fun, acceptance and rejection, acceptance and preference for solitude, rejection and fun, fun and social reticence, and fun and preference for solitude.

Assessing the Overlap between Unilateral Friend Nominations and Desired Friend Nominations

A one-way chi square goodness of fit test described the proportion of desired friend nominations that were also unilateral friend nominations (see Table 2). A statistically significant difference emerged, $\chi^2(1, N = 1,506) = 562.02, p < .001$. *Desired and unilateral* nominations were lower than expected by chance and *desired, but not unilateral* nominations were higher than expected by chance. Of the 1,506 desired friend nominations, 293 (19.46%) were unilateral and 1,213 (80.54%) were not unilateral. Separate chi square analyses examined whether the distribution of desired friend nominations across unilateral friendship differed as a function of sex, school, and grade. Neither sex, school, nor grade was a significant moderator.

A one-way chi square goodness of fit test described the proportion of unilateral friend nominations that were also desired friend nominations (see Table 3). A statistically significant difference emerged, $\chi^2(1, N = 672) = 11.01, p < .001$. *Desired and unilateral* nominations were lower than expected by chance and *unilateral, but not desired* nominations were higher than expected by chance. Of the 672 unilateral friend nominations, 293 (43.60%) were also desired and 379 (56.40%) were not.

Separate chi square analyses examined whether the distribution of unilateral friend nominations across desired friendship differed as a function of sex, school, and grade. A statistically significant chi square emerged for sex ($\chi^2(1, N = 672) = 3.90, p = .05$) and grade ($\chi^2(1, N = 672) = 78.91, p < .001$).

Exact cell tests showed that *desired and unilateral* nominations were lower than expected by chance for girls (see Table 4), fourth graders, and fifth graders (see Table 5). Conversely, *unilateral, but not desired* nominations were higher than expected by chance for boys and sixth graders. Therefore, girls and younger participants were more likely to have overlap between unilateral and desired friend nominations than boys and older participants.

Follow-up chi square analyses in which each participant was randomly assigned one nomination (for desired friends and unilateral friends) displayed the same results. Overall, there were more *desired, but not unilateral* choices than *desired and unilateral* choices and more *unilateral, but not desired* choices than *desired and unilateral* choices. Also, girls, fourth, and fifth graders tended to have overlap between desired and unilateral choices, whereas boys tended not to have overlap between desired and unilateral choices.

Profile Analyses Comparing Children to Their Reciprocal Friends, Unilateral Friends, and Desired Friends

Descriptive statistics for the three profile similarity variables are presented in Table 6. Figure 1 depicts mean-level profiles of respondents, reciprocal friends, desired friends, and unilateral friends. A repeated measures ANOVA with sex and grade (Grade 4 vs. Grade 5 vs. Grade 6) as between subjects factors and profile similarity (respondent-

reciprocal friend profile similarity vs. respondent-unilateral friend profile similarity vs. respondent-desired friend profile similarity) as the within subjects factor was conducted. Mauchly's test of sphericity was significant ($p < .001$), so the Greenhouse-Geisser correction was used. There was a statistically significant main effect for profile similarity ($F(1.81, 312.03) = 39.19, p < .001, \eta^2 = .19$). Respondents were most similar to their reciprocal friends ($M = .34, SD = 0.62$), followed by their desired friends ($M = -.01, SD = 0.42$), followed by their unilateral friends ($M = -.11, SD = 0.50$). There was also a statistically significant grade X profile similarity interaction ($F(3.63, 312.03) = 5.52, p < .001, \eta^2 = .06$). The sex X profile similarity interaction ($F(1.81, 312.03) = .82, p = .43, \eta^2 = .01$) and the sex X grade X profile similarity interaction ($F(3.63, 312.03) = 1.68, p = .16, \eta^2 = .02$) were nonsignificant.

Follow-up t tests were conducted to identify differences between profile similarity. There was a statistically significant difference between respondent-reciprocal friend profile similarity and respondent-unilateral friend profile similarity, $t(208) = 8.36, p < .001, d = 1.16$. Respondents' profiles were more similar to their reciprocal friends' profiles ($M = .33, SD = 0.62$) than to their unilateral friends' profiles ($M = -.10, SD = 0.50$). There was also a statistically significant difference between respondent-reciprocal friend profile similarity and respondent-desired friend profile similarity, $t(251) = 8.06, p < .001, d = 1.02$. Respondents' profiles were more similar to their reciprocal friends' profiles ($M = .32, SD = 0.63$) than to their desired friends' profiles ($M = -.02, SD = 0.43$). Furthermore, there was a statistically significant difference between respondent-unilateral friend profile similarity and respondent-desired friend profile similarity, $t(207) = 2.79, p$

= .01, $d = .39$. Respondents' profiles were more similar to their desired friends' profiles ($M = -.03$, $SD = 0.41$) than to their unilateral friends' profiles ($M = -.13$, $SD = 0.49$).

To follow up the grade X profile similarity interaction, follow-up t tests were conducted comparing respondent-reciprocal friend profile similarity, respondent-unilateral friend profile similarity, and respondent-desired friend profile similarity separately for each grade. The same pattern of results emerged for Grade 4. For Grade 4, there was a statistically significant difference between respondent-reciprocal friend profile similarity and respondent-unilateral friend profile similarity, $t(63) = 2.98$, $p < .001$, $d = .75$. Respondents' profiles were more similar to their reciprocal friends' profiles ($M = .08$, $SD = 0.59$) than to their unilateral friends' profiles ($M = -.19$, $SD = 0.41$). There was also a statistically significant difference between respondent-reciprocal friend profile similarity and respondent-desired friend profile similarity, $t(84) = 2.12$, $p = .04$, $d = .46$. Respondents' profiles were more similar to their reciprocal friends' profiles ($M = .06$, $SD = 0.58$) than to their desired friends' profiles ($M = -.09$, $SD = 0.36$). Furthermore, there was a statistically significant difference between respondent-unilateral friend profile similarity and respondent-desired friend profile similarity, $t(63) = 2.45$, $p = .02$, $d = .62$. Respondents' profiles were more similar to their desired friends' profiles ($M = -.13$, $SD = 0.31$) than to their unilateral friends' profiles ($M = -.28$, $SD = 0.37$).

The same pattern of results emerged for Grade 5. For Grade 5, there was a statistically significant difference between respondent-reciprocal friend profile similarity and respondent-unilateral friend profile similarity, $t(65) = 6.95$, $p < .001$, $d = 1.72$. Respondents' profiles were more similar to their reciprocal friends' profiles ($M = .33$, SD

= 0.55) than to their unilateral friends' profiles ($M = -.32$, $SD = 0.48$). There was also a statistically significant difference between respondent-reciprocal friend profile similarity and respondent-desired friend profile similarity, $t(89) = 6.83$, $p < .001$, $d = 1.45$.

Respondents' profiles were more similar to their reciprocal friends' profiles ($M = .32$, $SD = 0.59$) than to their desired friends' profiles ($M = -.05$, $SD = 0.38$). Furthermore, there was a statistically significant difference between respondent-unilateral friend profile similarity and respondent-desired friend profile similarity, $t(61) = -4.28$, $p < .001$, $d = 1.10$. Respondents' profiles were more similar to their desired friends' profiles ($M = -.03$, $SD = 0.35$) than to their unilateral friends' profiles ($M = -.31$, $SD = 0.49$).

Results differed for Grade 6. For Grade 6, there was a statistically significant difference between respondent-reciprocal friend profile similarity and respondent-unilateral friend profile similarity, $t(78) = 4.70$, $p < .001$, $d = 1.07$. Respondents' profiles were more similar to their reciprocal friends' profiles ($M = .54$, $SD = 0.62$) than to their unilateral friends' profiles ($M = .17$, $SD = 0.47$). There was also a statistically significant difference between respondent-reciprocal friend profile similarity and respondent-desired friend profile similarity, $t(76) = 5.62$, $p < .001$, $d = 1.29$. Respondents' profiles were more similar to their reciprocal friends' profiles ($M = .59$, $SD = 0.61$) than to their desired friends' profiles ($M = .10$, $SD = 0.53$). However, there was not a statistically significant difference between respondent-unilateral friend profile similarity and respondent-desired friend profile similarity, $t(81) = .95$, $p = .35$, $d = .21$.

Supplemental analyses were conducted with a subsample of all participants in order to ensure that the same participants were included in each analysis. After

conducting these analyses with the same participants in each analysis ($n = 178$), the same pattern of statistically significant results emerged. Taken together, the results suggest that, overall, respondents were most similar to reciprocal friends, followed by desired friends, followed by unilateral friends.

Item-Level Correlation Comparisons between the Respondent and Each Type of Friend

To identify the specific variables that were responsible for statistically significant profile similarity differences, bivariate correlations were conducted between the respondent and the reciprocal friend, the respondent and the unilateral friend, and the respondent and the desired friend on each of the 11 characteristics that were included in profile analyses (see Table 7). There were positive statistically significant associations between respondents and reciprocal friends on 7 of 11 variables: prosocial behavior, academic adjustment, popular nominations, unpopular nominations, acceptance, rejection, and fun. There were no statistically significant associations between respondents' characteristics and those of their desired friends nor were there statistically significant associations between respondents' characteristics and those of their unilateral friends.

Correlation comparisons were conducted to compare the correlations of respondents and their reciprocal, desired, and unilateral friends on each variable. For each characteristic, the respondent-desired friend correlation and respondent-unilateral friend correlation significantly differed from the respondent-reciprocal friend correlation. Participants were significantly more similar to their reciprocal friends than they were to

their unilateral and desired friends on prosocial behavior, academic adjustment, relational aggression, overt aggression, popular, unpopular, acceptance, rejection, fun, social reticence, and preference for solitude. However, the respondent-unilateral friend correlations did not significantly differ from the respondent-desired friend correlations on any characteristic.

DISCUSSION

The goal of this study was to test two hypotheses. The first was that unilateral and desired friend nominations are distinct. Past researchers have assumed that unilateral and desired friends are synonymous (e.g., Sijtsema et al., 2010). This was the first study to directly compare desired and unilateral friend nominations to determine whether unilateral nominations measure desired friendship. The second hypothesis was that children and early adolescents are more similar to their reciprocal friends than to their unilateral and desired friends. Hypotheses concerning similarities between respondents, desired friends, and reciprocal friends have only been tested with unilateral nominations. Past findings have suggested that children and adolescents befriend similar others, but want friends who are characteristically different (the default-selection hypothesis) (Scholte et al., 2009; Sijtsema et al., 2010). Several other studies have also shown that children are more similar to their reciprocal friends than to their unilateral friends (e.g., Adams et al., 2005; Altermatt & Pomerantz, 2003; Newcomb & Bagwell, 1995). This is the first study to directly test the hypothesis that children are more similar to their reciprocal friends than to their desired and unilateral friends. A major strength of this study is that it included both profile correlations and item-level correlation comparisons to analyze the data. It also included a variety of adaptive and maladaptive characteristics (e.g., withdrawn behavior, prosocial behavior, popular, unpopular, acceptance, rejection, and fun) that have not been examined in the context of similarity between children and

their desired friends. Both hypotheses were supported. Findings indicated that, generally, unilateral and desired friend nominations are distinct. Findings also indicated that children are more similar to their reciprocal friends than to their desired and unilateral friends. However, there were sex and grade differences.

Distinction between Unilateral and Desired Friend Nominations

To test the hypothesis that unilateral and desired friend nominations are distinct, two analytical questions were asked. The first question was, “Are desired friends equally distributed across unilateral friendship?” The second question was, “Are unilateral friends equally distributed across desired friendship?” Both of these questions evaluate the degree of overlap between unilateral and desired friend nominations and test unilateral nominations as a valid measure of desired friendship.

My hypothesis that, generally, participants will not have the same unilateral and desired friends was supported. I found that for the whole group, desired friends were not equally distributed across unilateral friendship. Children and early adolescents had more choices that were desired, but not unilateral than choices that were desired and unilateral. Similarly, for the whole group, unilateral friends were not equally distributed across desired friendship. Children and early adolescents had more choices that were unilateral, but not desired than choices that were unilateral and desired.

The results suggest that overall, children and early adolescents respond to distinct questions differently, especially when one question is concrete and the other is abstract (Terry, 2000). Asking children and early adolescents to nominate their friends and asking them to choose who they would like to become friends with are likely to produce

different responses. This is an important indication to researchers that peer nomination measures increase in validity as their questions become more specific (Terry, 2000).

The results also suggest that unilateral nominations are both over-inclusive and under-inclusive. They are over-inclusive because there are many unilateral nominations that are not desired friends. Whereas 44% of choices were unilateral and desired, the majority of choices (56%) were unilateral, but not desired. This supports Furman's (1996) argument that "some unilateral relationships are friendships—at least from the point of view of the child doing the nominating" (p. 52). Unilateral friends are a mixed group of individuals. Although unilateral nominations include some desired friends, they also include children with other ties to the nominator. Additionally, unilateral nominations are under-inclusive because many desired friends were not captured by unilateral nominations. There was a drastic distinction between children chosen as desired and unilateral (20%) and those chosen as desired, but not unilateral (80%). These percentages show that using unilateral nominations to measure desired friendship excludes a substantial number of desired friends.

The finding that desired and unilateral friend nominations are distinct is important because it suggests that past researchers who studied desired friendship with unilateral nominations may have been studying a different type of friendship, unilateral friendship. The findings from this study suggest that desired friendship researchers should revisit their hypotheses about desired friendship and use desired friend nominations to determine whether their hypotheses about *desired friendship* are actually supported. Retesting hypotheses with desired friend nominations is especially important because of the

significant implications of past findings that purportedly address desired friendship. For example, the only research available on desired friends' influence on children's problem-behavior was conducted with unilateral nominations (e.g., Aloise-Young et al., 1994; Mercken et al., 2009). It would be important to determine whether desired friends really are more influential on smoking and other behaviors than reciprocal friends.

Finally, if more researchers use desired friend nominations to measure desired friendship, there will be more consistency in the operationalization of desired friendship in the literature. As of now, desired friends are defined as either "friendships that adolescents indicate they would like to form in the future" (Thomas & Bowker, 2013, p. 2) or as unilateral friends (e.g., Aloise-Young et al., 1994; Scholte et al., 2009). The current study showed that children and early adolescents do not choose the same unilateral and desired friends. It is likely that a desired friendship exists when one individual wants to become friends with another individual. Meta-analyses and theoretical models will be difficult to construct before researchers define desired friendship consistently.

Sex differences. Sex was a significant moderator of the unilateral and desired vs. unilateral, but not desired comparison. Although boys had many unilateral friends who were not desired, girls tended to choose the same unilateral and desired friends. It is unclear why sex moderated the degree of desired-unilateral overlap. It is possible that girls nominated desired friends who they also thought were their friends because they believed these existing friendships had room for improvement. It is also possible that boys were more attentive than girls to the distinction between the two questions.

However, it is important to note that the difference between the percentage of girls' overlapping choices (47%) and the percentage of boys' overlapping choices (39%) was borderline non-significant. Future researchers should further explore sex differences in unilateral and desired friend nominations to determine whether these results replicate in other samples.

Grade differences. Grade was also a significant moderator of the unilateral and desired vs. unilateral, but not desired comparison. Although sixth graders had many unilateral friends who were not desired, fourth and fifth graders tended to choose the same unilateral and desired friends. One probable explanation is that younger participants had a more difficult time understanding the question, "Who would you like to become friends with?" This is especially likely because participants were presented with desired friend nominations before they were asked to nominate their friends, leaving them without a form of comparison while they were nominating desired friends. Also, in contrast to another desired friendship study (Thomas & Bowker, 2013), children were not explicitly instructed to exclude their friends from desired friend nominations. Maybe younger children require this explicit instruction in order to comprehend the question.

A second possible explanation of the grade difference in desired-unilateral overlap is that with increasing age, children become better at understanding social relationships and better at understanding and predicting their place in the social world (Furman & Rose, in press; Hartup & Moore, 1990). Emphasis on mutuality, loyalty, and trust in friendship increases across the transition into adolescence (Berndt, Hawkins, & Hoyle, 1986, as cited in Laursen & Hartup, 2002). Sixth graders conceptualize friendship

differently from fourth and fifth graders and are more adept at distinguishing between different relationships. Therefore, it is likely that the sixth graders in this study were better able to distinguish between friends and desired friends.

Comparing Children to Their Reciprocal, Unilateral, and Desired Friends

To test the hypothesis that children and early adolescents are more similar to their reciprocal friends than to their unilateral and desired friends, two sets of analyses were conducted. For the first set of analyses, profiles of children, their reciprocal friends, their desired friends, and their unilateral friends were retrieved. Then, correlations were conducted between the profiles of respondents, reciprocal friends, desired friends, and unilateral friends. Profile correlations give an index of similarity across multiple variables (Furr, 2010).

Profile analyses showed that my hypothesis was supported. Children and early adolescents had behavior profiles that were more similar to the behavior profiles of their reciprocal friends than to those of their desired or unilateral friends. These results support the default-selection hypothesis, which states that children want friends who are characteristically different, but befriend similar others by default. However, past studies supporting the default-selection hypothesis have only focused on specific behaviors and only used item-level analyses. Using profile analyses allows for a more global assessment of similarity between children and their friends. Therefore, a major strength of this study was that it was able to show that children are more similar to their reciprocal friends than to their unilateral and desired friends across 11 different behaviors.

Follow-up item-level analyses also supported my hypothesis that children would be more similar to their reciprocal friends than to their desired and unilateral friends. In line with past findings, children were more similar to unilateral friends than reciprocal friends on aggression (Adams et al., 2005) and academic adjustment (Altermatt & Pomerantz, 2003). The findings also revealed that children are more similar to their reciprocal friends than their unilateral friends on prosocial behavior, fun, acceptance, rejection, popularity, and social withdrawal. The same findings applied to desired friends. Children were more similar to reciprocal friends than desired friends on every characteristic, supporting the notion that children have similar friends, but want something different.

There are a few reasons why children would want friends who are characteristically different. First, since children are constantly exposed to similar friends, novel characteristics may seem more interesting to them. Another possibility is that not all children encounter default-selection. All children are motivated to form positive relationships (Baumeister & Leary, 1995), all children seek friends who are normally adjusted (Scholte et al., 2009), and all children want to help others who they perceive as high-status (Schaefer, 2012). But, not all children are normally adjusted and not all children have high peer status. Inevitably, those who are maladjusted desire friends who differ from themselves and from their current friends.

Finally, follow-up comparisons between the respondent-desired friend similarity and the respondent-unilateral friend similarity differed between person-centered and variable-centered analyses. With profile correlation comparisons, participants were more

similar to their desired friends than their unilateral friends (for Grades 4 and 5, but not Grade 6). However, with item-level correlation comparisons, there were no significant differences between the respondent-desired friend similarity and the respondent-unilateral friend similarity on any variable. These findings suggest that the type of analysis that is used to compare children to their reciprocal, unilateral, and desired friends matters. This is not the first study to find a difference between the results of profile analyses and item-level analyses (Shoda, Mischel, & Wright, 1994). It is important that future researchers test hypotheses with both global and specific methods to ensure that results do not differ between the two.

Limitations

Although this study has several strengths including the large diverse sample size and its novel contributions to the desired friendship literature, it is important to note its limitations. Some minor limitations of this study include its limited age-range and its reliance on peer nominations. The findings from this study suggest that children start to distinguish between unilateral and desired friends in sixth grade. However, it is important to study the distinction between unilateral and desired friend nominations in children younger than 9 and older than 13 to show that this trend is maintained in older and younger age-groups. The reliance on peer nominations is another limitation. Although peer nominations are reliable with at least a 60% participation rate, peer nominations are not always positively correlated with self-report, especially for children with low levels of adjustment (Kauten & Barry, 2014). It would be important to determine whether results differ with self-reported characteristics.

A major limitation of this study is that it does not determine whether children's adjustment moderates default-selection. It is unclear to what extent all children face default-selection. Past findings have suggested that poorly adjusted children are particularly likely to face default-selection. In their explanation of the default-selection of depressed individuals, Schaefer et al. (2011) emphasized that misery does not love miserable company. They suggested that although depressed adolescents end up as friends, they do not prefer to be friends with others who are depressed, and instead end up as friends through withdrawal from the larger peer group. Similarly, Sijtsema et al. (2010) emphasized that children who are aggressive are especially likely to face default-selection because "their [behavior might] scare off the potential friends they would prefer" (p. 803). Therefore, children with emotional and behavior problems are likely to "get stuck with what they can get" in terms of friendship (Sijtsema et al., 2010, p. 803). Conversely, children who are well-adjusted with high peer status may be less likely to encounter default-selection. In an experiment that attributed different "values" to participants, Schaefer (2012) found that initially, all participants chose to give tokens (that could be cashed at the end of the study) to higher-value participants. However, this effect dwindled as lower-value helpers realized that their efforts were not being reciprocated. Therefore, high-value participants ended up helping and partnering up (exchanging equally) with other high-value participants. Together, these findings suggest that some children (particularly poorly adjusted children) are more likely to want different friends than others.

A second limitation of this study is the interdependent nature of the data. Because the data involved a round-robin design, some children had the same desired, unilateral, and reciprocal friends. To account for some of the interdependence in the data, repeated measures analyses were conducted. However, a multilevel model would have been a better analytic strategy to account for interdependence.

A third limitation involves the nature of profile correlations. Although profile correlations are one way to compare global behavior similarities between two people, they only assess similarities between shapes of profiles and disregard scatter (variability) and elevation (overall mean differences) (Furr, 2010). Future researchers should determine whether similar results emerge with other techniques (such as the double-entry intraclass correlation) that do take these details into consideration.

Finally, although researchers can infer that children are dissatisfied with their friendships if they are more similar to their reciprocal friends than to their desired and unilateral friends, this study does not directly assess how satisfied children are with their friendships. An important next step would be to ask children how satisfied they are with their current friendships and why they chose certain desired friends.

Conclusion

This study was the first to show that desired and unilateral nominations are distinct. This was also the first study to test the hypothesis that children are more similar to their reciprocal friends than to their desired and unilateral friends. To test these hypotheses, chi square analyses, profile analyses, and correlation comparisons were conducted. Results showed that, overall, desired and unilateral friend nominations were

distinct and that children were more similar to their reciprocal friends than to their unilateral and desired friends.

The findings from this study suggest that friendship truly is an umbrella term that encompasses different types of relationships assessed through nominations. It is important that future researchers who study desired friendship consider that approximately 80% of desired friends are not unilateral and 56% of unilateral friends are not desired. Because unilateral nominations exclude a substantial number of desired friends and include a substantial number of other children, directly asking participants to nominate who they would like to become friends with is a more valid measure of desired friendship.

Additionally, findings supporting the default-selection hypothesis suggest that several children and early adolescents are potentially dissatisfied with their friendships. Children and early adolescents were more similar to their reciprocal friends than to their unilateral and desired friends. Because past research has shown that having desired friends is associated with loneliness (Thomas & Bowker, 2013), the findings from this study hold important implications for prevention and intervention. Desired friend nominations can be used as a tool to learn about the discrepancies between children's current friendships and the friendships they strive to achieve. Desired friend nominations are especially useful considering the clear distinction between the friends they have and the friends they want.

APPENDICES

Table 1

Bivariate Correlations between Characteristics

Measure	1	2	3	4	5	6	7	8	9	10	11
1. Prosocial Behavior	-										
2. Academic Adjustment	.69**	-									
3. Relational Aggression	-.51**	-.34**	-								
4. Overt Aggression	-.48**	-.41**	.54**	-							
5. Popular	.27**	.30**	.00	-.23**	-						
6. Unpopular	-.32**	-.38**	.13*	.27**	-.72**	-					
7. Acceptance	.58**	.50**	-.34**	-.39**	.52**	-.62**	-				
8. Rejection	-.47**	-.40**	.51**	.52**	-.36**	.45**	-.50**	-			
9. Fun	.47**	.40**	-.33**	-.34**	.52**	-.57**	.73**	-.54**	-		
10. Social Reticence	.08	-.02	-.25**	-.16**	-.30**	.26**	-.11	-.01	-.25**	-	
11. Preference for Solitude	-.47**	-.18**	.06	.11	-.33**	.37**	-.37**	.32**	-.47**	.35**	-

Note. * $p < .05$, ** $p < .01$

Table 2

Chi Square Test with Whole Sample: Are Desired Friend Nominations Equally Distributed across Unilateral Friendship?

Chosen as:	Observed N	Expected N	Residual
Desired and Unilateral	293	753	-460
Desired, but Not Unilateral	1,213	753	460

Note. $\chi^2(1, N = 1,506) = 562.02, p < .001$

Table 3

Chi Square Test with Whole Sample: Are Unilateral Friend Nominations Equally Distributed across Desired Friendship?

Chosen as:	Observed N	Expected N	Residual
Desired and Unilateral	293	336	-43
Unilateral, but Not Desired	379	336	43

Note. $\chi^2(1, N = 672) = 11.01, p < .001$

Table 4

Chi Square with Gender Comparison: Are Unilateral Friend Nominations Equally Distributed across Desired Friendship?

	Boys		Girls	
	<i>Residual</i> (Expected Frequency)	N	<i>Residual</i> (Expected Frequency)	N
Desired and Unilateral	-2* (119.50)	107	2* (173.50)	186
Unilateral, but Not Desired	2* (154.50)	167	-2* (224.50)	212

Note. $\chi^2(1, N = 672) = 3.90, p = .05$

Table 5

Chi Square with Grade Comparison: Are Unilateral Friend Nominations Equally Distributed across Desired Friendship?

	Grade 4		Grade 5		Grade 6	
	<i>Residual</i> (Expected Frequency)	N	<i>Residual</i> (Expected Frequency)	N	<i>Residual</i> (Expected Frequency)	N
Desired and Unilateral	2.50* (68.50)	82	7.50* (58.40)	97	-8.20* (166.10)	114
Unilateral, but Not Desired	-2.50* (88.50)	75	-7.50* (75.60)	37	8.20* (214.90)	267

Note. $\chi^2(1, N = 672) = 78.91, p < .001$

Table 6

Profile Similarity Scores: Descriptive Statistics

Variable	<i>n</i>	Mean	<i>SD</i>	Min.	Max.
Respondent-Unilateral Friend Profile Similarity	244	-.11 _a	0.47	-0.87	0.90
Respondent-Desired Friend Profile Similarity	287	-.04 _b	0.40	-0.81	0.90
Respondent-Reciprocal Friend Profile Similarity	297	.30 _c	0.55	-0.86	0.94

Note. Means with different subscripts are significantly different at $p < .05$.

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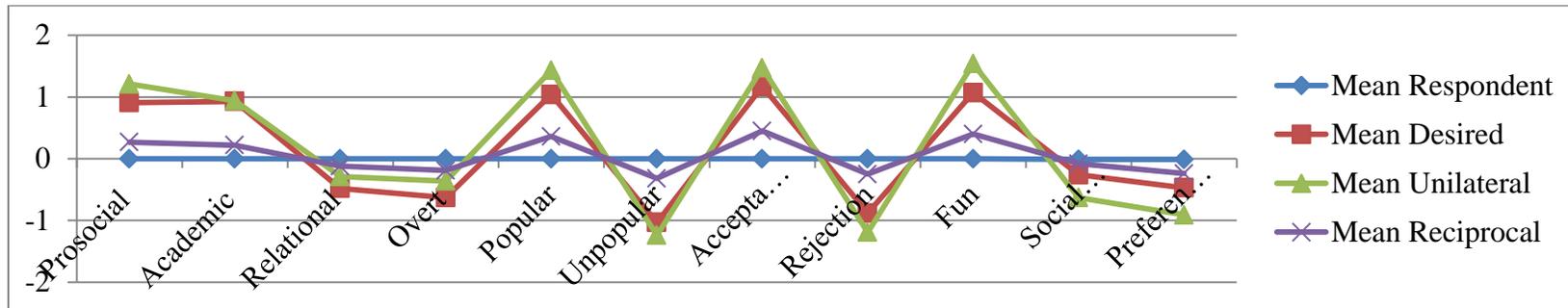


Figure 1. Mean-level profiles of respondents, reciprocal friends, desired friends, and unilateral friends.

Table 7
Correlations between Characteristics of the Respondent and Each Type of Friend

Measure	Unilateral Friend	[CIs]	Desired Friend	[CIs]	Reciprocal Friend	[CIs]
Prosocial Behavior	-.04a	[-.21, .14]	-.05a	[-.18, .08]	.16**b	[.05, .27]
Academic Adjustment	-.06a	[-.23, .12]	-.05a	[-.18, .08]	.27**b	[.16, .37]
Relational Aggression	-.05a	[-.22, .12]	-.02a	[-.15, .11]	.11b	[-.01, .22]
Overt Aggression	-.05a	[-.23, .14]	-.03a	[-.17, .11]	.05b	[-.08, .17]
Popular Nominations	-.05a	[-.22, .12]	.01a	[-.12, .14]	.30**b	[.19, .40]
Unpopular Nominations	-.03a	[-.20, .14]	-.01a	[-.14, .12]	.30**b	[.19, .40]
Acceptance	-.10a	[-.27, .07]	-.03a	[-.16, .10]	.21**b	[.10, .31]
Rejection	-.08a	[-.26, .10]	-.05a	[-.19, .09]	.16**b	[.04, .28]
Fun	-.01a	[-.18, .16]	-.04a	[-.17, .09]	.21**b	[.10, .32]
Social Reticence	-.10a	[-.27, .08]	-.08a	[-.21, .06]	.06b	[-.06, .18]
Preference for Solitude	-.07a	[-.24, .11]	-.08a	[-.21, .06]	.07b	[-.05, .18]

Note. Confidence intervals are reported to the right of correlations. Across rows, correlation coefficients not sharing a subscript are significantly different from each other.

* $p < .05$, ** $p < .01$

Appendix A

Who would you like to become friends with?

1. Circle the names of the students in your class who you want to become friends with. You can circle as many as you want.
2. Rank the boys you circled in order of how much you want to become friends with them. **No ties!**
Put "1" next to the name of the boy you **most** want to become friends with.
Put "2" next to the boy you **second most** want to become friends with.
Give numbers for as many boys as you circled.

EXAMPLE:

Rank	Name
2	Donald Duck
	Mickey Mouse
1	Goofy

Rank	Name
	Name

I do not want to become friends with any of these people:

There are boys in other classes who I want to become friends with:

Appendix B

Who are your friends?

1. Circle the names of your friends.
2. Rank your friends:

Put "1" next to the name of your 1st best friend.

Put "2" next to your 2nd best friend.

Keep going for as many friends as you have.

Make sure you give numbers for as many friends as you circled. **No ties!**

EXAMPLE:

When did you become friends?			Rank	Name
this school-year	last school-year	before	2	Donald Duck
this school-year	last school-year	before		Mickey Mouse
this school-year	last school-year	before	1	Goofy

When did you become friends?			Rank	Name
this school-year	last school-year	before		Name
this school-year	last school-year	before		Name
this school-year	last school-year	before		Name
this school-year	last school-year	before		Name
this school-year	last school-year	before		Name
this school-year	last school-year	before		Name
this school-year	last school-year	before		Name

Check this box if you don't have any friends in your grade: #1

Check this box if you have 1 or more friends outside of your grade at school: #2

Appendix C

Roster and Rating

We would like to know how much you like the other people in your class.

Check **only one** box that best shows how much you like each person.

If you don't know or don't want to answer, then check only that box and not any other.

	Do not like this person 1	Usually do not like this person 2	Sort of like this person 3	Usually like this person 4	Like this person very much 5	Don't Know/ Don't want to answer
Name	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Name	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Name	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Name	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Name	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Name	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Name	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix D

Peer Nominations

Directions: Each statement describes people. Check the box for all of the people each statement describes. Pick the people that best fit each description. If no one fits the description, check the box that says NONE, and do not check any other box. Do not pick yourself for any of the descriptions. You can check as many names as you think fit.

Academic Adjustment

Someone who does well in school

Someone who knows the right answer

Popular

Someone who is popular

Unpopular

Someone who is not popular

Relational Aggression

Someone who talks bad about others behind their backs to hurt them

Someone who tries to keep others out of the group

Overt Aggression

Someone who hits, pushes, or shoves people

Someone who hurts others physically

Fun

Someone who is easy to joke around with

Someone who is fun to be around

Social Reticence

Someone who is shy

Preference for Solitude

Someone who prefers to be alone

Prosocial Behavior

Someone who helps others with their problems

Someone who makes sure everyone is treated equally

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