

Forming, Losing, Renewing, and Replacing Friendships: Applying Temporal Parameters to the Assessment of Children's Friendship Experiences

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PARKER, JEFFREY G., and SEAL, JOHN. *Forming, Losing, and Renewing, and Replacing Friendships: Applying Temporal Parameters to the Assessment of Children's Friendship Experiences*. CHILD DEVELOPMENT, 1966, 67, 2248-2268. Friendship formation and dissolution were tracked over time in a summer camp to examine whether such events are valid indicators of individual differences in children's friendship adjustment. Subjects were 216 children ages 8-15 years. Sociometric nominations were used to determine the identities of reciprocal friends. Loneliness at camp was also tracked over time. In addition, data on group acceptance, behavioral reputations, social competence, and behavioral problems were gathered from peers and counselors. Analyses suggested that friendship formation and duration were coherent, independent dimensions of individual differences and distinct from the overall extensivity of involvement in friendships. Regression analyses indicated that the temporal parameters of participation in friendship enhanced the prediction of changes in loneliness at camp. Age and sex differences in temporal parameters were explored, and 4 discrete trajectories for friendship involvement were identified. Children with different trajectories differed in their behavioral profiles from one another and from children who were chronically friendless.

Because friendships offer children emotional support and promote social and cognitive skills (Berndt, in press; Hartup, 1992; Parker, Rubin, Price, & DeRosier, 1995), understanding the important and reliable ways in which children differ in their participation in friendships is critical to research on children's development and personal adjustment. Currently, our knowledge of children's involvement in friendships is based mainly on studies in which sociometric or other assessments are used to obtain "snapshots" of children's networks of friends at a single point in time (see Berndt, 1989; Bukowski & Hoza, 1989; Furman, 1989, in press; Hartup, 1992; Parker & Asher, 1993a). A snapshot of the friendships in a group can distinguish children who completely lack friends from children with one or more friends, and reveal variation among children in numbers of friends. In addition, it can

highlight individual differences in how friendship networks are organized, such as variations in the so-called density of children's networks (i.e., how many of a child's friends are friends with each other).

Research supports the use of all these distinctions as important ways of measuring children's friendship adjustment-maladjustment, although with varying degrees of consistency and confidence. Studies of friendless versus friended children consistently indicate that this distinction is critical. For example, children with friends are less lonely than children without friends (Bukowski, Hoza, & Boivin, 1993; Parker & Asher, 1993b), and other evidence suggests that friended and friendless children reason differently about social events and behave differently (see Parker & Asher, 1993a). On the other hand, studies of children with dif-

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fering numbers of friends present a more equivocal pattern of findings (see Berndt, 1989; Hartup, 1992). Although some studies report that children with many friends are better adjusted in specific ways than children with only one or two friends (e.g., Cauce, 1986; Ladd, 1990), other studies do not (e.g., Parker & Asher, 1993a). The existence of gender differences in the number of friendships children have is also a matter of controversy. Although the conventional view is that boys have larger numbers of friends than girls, the conclusion of several reviews has been that the empirical evidence for such differences has methodological limitations and is contradictory (Belle, 1989; Berndt & Hoyle, 1985; Epstein & Karweit, 1983; Parker & Asher, 1993a). Likewise, some studies (e.g., Gest, Graham-Bermann, & Hartup, 1991; Ladd, 1983) report relations between organizational features of children's friendship networks and other aspects of children's personal adjustment and behavior, whereas other studies do not (e.g., Garbarino, Burston, Raber, Russell, & Crouter, 1978; Oliveri & Reiss, 1987).

Children's friendship involvement also varies over time. That is, along with differences in numbers of friends and friendship network organization, children also differ in the rate at which they form new friendships as opportunities arise and in their proclivity to lose, renew, or replace old friendships over time. Friendship formation and loss are the source of fluctuations in the size of children's networks over time. Thus, networks expand in size when new friendships are added to a stable network of existing friendships and shrink in size when friendships dissolve and are not replaced or renewed at a later date. But networks can experience change without changing size—when new friendships displace existing friendships, for example, or when friendships that have dissolved are quickly replaced.

Unlike numbers of friends and network organization, differences in the temporal aspects of children's friendship involvement have received only limited empirical attention to date. On the assumption that cognitive developmental advancements increase children's loyalty to friends as well as the flexibility of children's reasoning about friendship, increases in the stability of children's friendships with age have been expected. However, only mixed or weak evidence for increases with age in the stability of children's friendships or friendship choices has been observed, and, except

where widely discrepant ages are compared, the contribution of cognitive developmental factors to stability appears minor relative to the role of environmental factors or differences in social skills among children of the same age (see Berndt & Hoyle, 1985).

Differences in the rates or ease with which children form new friendships have also been studied in a few instances, most often in relation to children's gender. Gender differences in friendship formation have been anticipated on the basis of stereotypes and data suggesting differences in the play styles and preferred size of boys' and girls' playgroups. Many writers have read this evidence as evidence that girls have more exclusive friendships and therefore have predicted that girls will be less likely than boys to welcome third parties or to form new friendships when old ones exist. In an early test of this hypothesis, Eder and Hallinan (1978) assessed the friendships of fifth- and sixth-grade children on several occasions during the school year. In comparison to friendships involving boys, friendships involving girls were less likely to be connected to other friendships through common members. Moreover, compared to boys, dyads of girl friends who did not already have mutual friendship ties to third parties were less likely to develop such ties over time. The behavior and motivations of individual children were not directly assessed in this study, but the findings are consistent with arguments that girls with friends are more reluctant to develop additional friendships than boys with friends.

More recently, Berndt and Hoyle (1985) examined changes from fall to spring in the friendship involvement of boys and girls in the first, fourth, and eighth grades. At most ages, children tended to gain more friends than they lost, increasing slightly the net size of their friendship network over time. However, eighth-grade children tended to finish the school year with somewhat fewer friends than they had at the start. A simple sex difference in friendship formation was not apparent; instead, a more complex relation between gender and temporal parameters of children's friendship involvement was suggested. First, as they entered school, girls were more likely than boys to replace friendships with children in other classrooms with friendships with classmates. Second, unlike boys, the temporal parameters of girls' friendship involvement seemed closely tied to the objective of limiting the overall size of their friendship network.

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Studies of the temporal features of children's friendship involvement have been especially rare for personal attributes of children other than age and sex, such as children's popularity, attitudes, or behavioral tendencies. Moreover, almost no research exists on the link between the temporal features of children's friendships involvement and other aspects of children's adjustment, such as children's school adjustment or levels of loneliness and social dissatisfaction. A study by Ladd (1990) appears to represent the single exception to date. Ladd (1990) assessed kindergarten children's classroom peer relationships on three occasions: at school entrance, after 2 months of school, and at the end of the school year. From these assessments, he calculated indices of the maintenance of old friendships and the formation of new friendships over time, along with more traditional indices of the size of children's friendship network across occasions. These measures were then used to forecast children's later school adjustment and changes in school adjustment.

Ladd (1990) reports that the tendency to maintain existing friendships over time was a relatively stable attribute of children, insofar as children who maintained many friends over the transition to school also tended to maintain many friendships from fall to spring of the school year. Likewise, children who made many new friends over the first 2 months of school also tended to make more new friends from fall to spring of the school year. It is important that the tendency to maintain friendships and the tendency to form new friendships were only modestly correlated with each other, and neither of these temporal parameters of children's friendship involvement was strongly correlated with the overall size of children's friendship networks at any point. There were no gender differences in either the tendency to form new or maintain old friendships over time, nor was either temporal variable related to children's mental age or amount of prior preschool experience. However, children who tended to make many new friends and, to a lesser extent, children who tended to maintain friendships over time, were better accepted by the peer group as a whole than other children. Although children's early attitudes toward school and early school adjustment were mostly unrelated to either the subsequent maintenance of friendships or the formation of new friendships, children with more favorable early perceptions of school main-

tained more of their friendships over time than children with less favorable initial attitudes. On the other hand, making new friendships at the transition to school was associated with gains in school performance from fall to spring, and children who maintained more of their friendships over the transition to school liked school better as the year progressed. These predictive relationships held even after controlling for children's age, gender, and prior preschool experience. Moreover, additional analyses indicated that the contributions of friendship formation and maintenance to school adjustment were largely nonredundant; that is, each continued to predict later outcomes when the other was controlled.

Taken together, the results of these studies provide a beginning understanding of the promise of utilizing temporal parameters when assessing children's friendship experiences. However, more systematic research is needed. Furthermore, the overall size of children's friendship network has seldom been simultaneously considered when examining the contributions of the temporal parameters of involvement. Thus, it is unclear at present whether attention to the patterns of children's friendship formation and losses provides any measurable advantage in predicting other measures beyond the level possible from knowledge of the children's overall network size. To the extent that the temporal features of children's friendship involvement do not enhance predictability over simpler, snapshot assessments, much of the justification for devoting the substantial additional effort necessary to track friendships over time is undermined. In addition, notwithstanding Ladd's (1990) promising initial results, more data are necessary to document that variations over time in children's friendship experiences represent coherent dimensions of individual differences among children—that is, that differences between children in the tendencies to form or sustain friendships are reliable and relate meaningfully to other attributes of these individuals, including their behavioral tendencies and attitudes.

Accordingly, the purpose of this investigation was to explore the value of applying temporal parameters to the assessment of children's friendship experiences. On the basis of the limited past research, we expected children to vary reliably in their tendencies to acquire, sustain, and renew friendships over time, and we expected these dimensions of individual differences

to be relatively independent of one another and of individual differences in the overall size of children's social networks. To test these proposals, we studied over time the friendship involvement of a sample of pre- and early adolescent children attending a 4-week "sleep-away" recreational summer camp. In particular, data on mutual friendships were gathered after the first week of camp and later, at the middle and end of camp, using standard sociometric assessments. Assessments of children's familiarity and friendliness prior to camp were also made. This design allowed us to chart the continuance, formation, dissolution, and renewal of almost all but the most short-lived of the friendships at camp. From these patterns, summary indices were derived for each child that reflected the extent to which friendship formation and stability were qualities that were characteristic of their social experience at camp. Indices of the extent to which children had many versus few friends were also derived, and change or stability in the density of children's networks of friends over time was also examined. A camp setting was chosen because we expected that its "around the clock" nature and recreational focus would provide children the widest possible latitude to develop or fail to develop friendships. In addition, unlike established classrooms, a substantial number of children's peers at camp are strangers initially, affording a unique opportunity to monitor friendships from their inception.

A related aim was to examine whether the pattern of change in children's friendship experiences relates in meaningful ways to children's subjective experience of loneliness in peer relationships. Friendship formation and loss are presumably salient social events for children, with implications for their emotions, self-perceptions, and social satisfaction. This relation is likely to be complex, however. For example, depending on the circumstance, children may be distressed or encouraged by the formation of a new friendship or the breakup of an old one. New friends can introduce novelty, innovation, and diversity to a personal network—but they also add stress and tension (Asher, Parker, & Walker, 1996). The involuntary dissolution of a friendship has been found to be distressing to children (Field, 1984; Park, 1992), but the decision to end a friendship can also mean relief from obligation and new opportunities for personal growth (Rawlins, 1992). When children form new friendships quickly, some of the distress of a

friendship breakup may be lessened. However, even if quickly and regularly replaced, short-lived friendships may be less satisfying than more enduring ones if this also means that they are less likely to be contexts in which enough time has passed for children to experience trust, affection, and closeness. In view of this, we assessed children's feelings of loneliness at multiple times and examined whether the temporal aspects of children's involvement in friendships predicted the change in children's loneliness over the course of camp. We were also interested in whether the temporal parameters of children's friendship participation enhanced prediction over nontemporal aspects alone, and whether children with distinct profiles of loss and formation differ in loneliness from one another and from chronically friendless children.

Finally, we examined possible age and sex differences in the temporal parameters of children's friendship participation, as well as the link between temporal parameters and children's social competence and behavioral reputations with peers. Among other things, it was of interest to learn whether the social skills that relate to having friends also relate to the typical temporal course of these relationships, or whether the temporal aspects of children's friendship involvement might have separate skills requirements. Over the past several years, researchers have targeted many social skills and competencies that may be linked to children's behavior and successful adjustment with peers (see Asher & Coie, 1990; Newcomb, Bukowski, & Pattee, 1993; Parker et al., 1995). However, few of these studies have investigated the correlates of children's involvement in friendships specifically (Asher et al., 1996; Bukowski & Hoza, 1989; Parker & Asher, 1993a). As a result, the field does not yet possess sufficient understanding of the social skills and behaviors that contribute to friendship's success. Accordingly, in this study data on children's acceptance by the peer group, social skills, and behavioral reputations were gathered from peers and counselors at the end of camp. These data allowed us to compare children involved in friendships with chronically friendless children. In addition, they permitted us to compare groups of children with distinctly different patterns of friendship involvement over time to each other and to children who were chronically friendless.

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Method

Subjects

Ninety-one girls and 125 boys participated as subjects. Subjects ranged in age from 8 to 15 years (mean = 11.50 years, $SD = 1.57$), and represented 92% of two successive cohorts of children attending a 4-week, "sleep-away" summer camp in rural northern Michigan.¹ Almost all subjects were European-American and according to the estimates of camp staff most were of upper-middle-class socioeconomic backgrounds. About a third of children who participated in the first 4-week session also stayed for the second 4-week session. Primary data collection for children who stayed for two sessions took place during the first session, although these children took part in a limited way in sociometric testing during the second session (see below).

Subjects slept in cabins of approximately 7–10 same-sex campers each. Cabin mates were about the same age, although in some cases children were as much as 1 year apart in age, and there was overlap in ages of children in different cabins in several instances. Two counselors also stayed in each cabin. Assignment to cabins was more or less random, although camp staff attempted to honor the requests of the small number of campers who expressed strong preferences for particular other children as cabin mates. Thus, cabins were quite heterogeneous initially in terms of the children's familiarity and closeness with one another.

Procedure and Assessment Time Points

On the first full day of camp a research assistant visited each cabin and conducted an assessment of children's familiarity with other campers before the start of camp. At three subsequent time points, sociometric assessments of friendships and acceptance by same-sex peers were conducted, and children completed a questionnaire on their social dissatisfaction and loneliness. The first of these assessments took place late in the first week or early in the second week of camp; the second assessment took place late in the second or early in the third week of camp; and the third assessment took place from 1 to 3 days prior to the final day of camp. With the exception of two subjects who had to be rescheduled on one occasion,

the shortest interval between any two administrations for any subject was 5 days. In addition, 50 randomly selected children participated in pairs during the third week of camp in an observational study on a separate topic. Finally, data on children's behavior and social skills were collected from peers and counselors at the end of camp. Children completed this measure as part of the final assessment. Counselors completed their questionnaires on or about the final day of camp.

Children completed the questionnaires individually (younger subjects) or in groups of 3–4 (older subjects), and under the supervision of a research assistant. The research assistant assured subjects that all responses would be kept strictly confidential and emphasized the importance of not sharing responses with other campers. The research assistant also instructed the children on how to complete the measures and assisted children with reading difficulties. Counselors completed their questionnaires individually, during their unstructured time.

Measures

Acquaintanceship prior to camp.—To ascertain which children were previously familiar with one another, each subject was given a roster of all same-sex campers and asked to circle the names of children they knew prior to arrival at camp. Children were next asked to review this set of circled names and place an asterisk beside the names of any of the circled children who were already one of their "very best friends in the world."² Because some children returned to camp year after year and others came to camp with children from their neighborhood, some children had substantial numbers of prior acquaintances. Specifically, children indicated that, including their siblings, they were already familiar with about 21 others at camp ($SD = 17.17$, range 0–79).

Identification and tracking of camp friendships.—To identify children's friendships, children were given a sheet of paper with the words "My closest friends at camp:" centered over three blank lines and asked to list their very best friends. Children were told to list only same-sex friends and not to include siblings. Although three blank lines were provided, children were told "the three lines are just a rough guide; put down

¹ Children who did not participate included the children of 19 parents who denied permission, the children of four parents for whom permission could not be ascertained, and four children who arrived at camp late or left camp early because of schedule conflicts.

² This wording was chosen after pilot testing suggested that it was important to remind the children to use the broadest possible frame of reference for this judgment.

as few or as many close friends as you have." Children who included one another among their list of friends at a given assessment were considered friends at that point.³

Based on these data, the temporal course of every friendship a child was involved in was charted for every child at camp. Given the three assessment points, seven temporal patterns were possible (i.e., the children could have been friends at the start of camp but not thereafter, friends at the end of camp but not before, friends throughout camp, etc.). Further, note was made of whether the children involved in the friendship had been strangers, acquaintances, or friends before camp began. These basic data served as the basis for the construction of nine summary variables, as outlined below. Finally, the overall sociogram of camp friendships were examined to calculate the density of the friendship network of each subject. Network density was defined as the proportion of children's friends who were friends with each other. Children with no friends or only one friend had missing values for this variable.

Acceptance-rejection by same-sex peers at camp.—A "roster-and-rating" sociometric rating scale procedure (Singleton & Asher, 1977) was used to assess children's acceptance-rejection by same-sex peers at camp. Children were given a partial list of the names of other same-sex campers and asked to rate how much they liked each child. A five-point rating scale was provided that ranged from 1 (not at all) to 5 (very much). Children were instructed to cross out the names of any campers with whom they were unacquainted. A computer program was used to customize each child's list in such a way that every child was rated by all of his or her cabin mates and by the 10 other same-sex children in camp closest to him or her in age. Thus, children were rated by 17–20 other same-sex children their age. A child's level of acceptance-rejection was determined from the average rating received from peers, standardized by gender. Although children's acceptance-rejection by peers was relatively stable from one assessment to the next (average $r = .81$), statistical analyses were based on ratings received only at the conclusion of camp to insure that they re-

flected children's judgements after the maximum amount of exposure to one another.

Loneliness and social dissatisfaction.—Children's feelings of loneliness and social dissatisfaction at camp were assessed using a questionnaire developed by Williams and Asher (1992). This loneliness questionnaire included 10 primary items and 10 distractor items concerning hobbies and interests. Two modifications to the original version were made. First, whenever it appeared, the word "school" was replaced by "camp." Second, at the request of the camp administration, a portion of the original distractor items were replaced by new distractor items to survey children's opinions concerning camp practices or activities (e.g., the frequency of parental visits, overnight hikes, etc). Both primary and distractor items were phrased as questions (e.g., "Do you feel left out of things at camp?") to which children responded using a three-point (yes/sometimes/no) scale. Total scores could range from 10 to 30 (with higher scores indicating greater loneliness) and showed good internal consistency at all three assessment points (alphas .80, .78, and .82). Loneliness was relatively stable across the three assessment points (r s from .74 to .79).

Behavioral assessment by peers.—A peer nomination behavioral assessment was conducted at the end of camp to determine children's reputation for several significant behaviors. Children nominated peers who matched each of 21 behavioral descriptions, posed as questions (e.g., "Who hits and pushes other kids around?"). Each question appeared at the top of a separate sheet of paper and above a list containing the names that appeared on the child's sociometric rating scale. Children were asked to circle the names of any and all children who met the behavioral description at the top of the page.

The selection of the 21 targeted behaviors was guided in part by Asher and Williams's (1987) conceptualization of children's interpersonal concerns. According to Asher and Williams (1987), children's attraction to another child is based on five broad social judgments: whether they perceive the child to be a stimulating, participating, and resourceful playmate; whether

³ Children who participated in the study during the first 4-week session but remained in camp during the second session completed only this one-page friendship nomination measure during the second session. This was done so that the reciprocity of other children's choices could be verified, as other children were free to include these children among their lists of friends.

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they judge that the child is trustworthy and predictable; whether they like the child's style of managing conflict and influencing others; whether they find the child to be supportive and personally validating of others; and whether they perceive that the child shares their concerns and is similar to them. Thus, behaviors addressing each of these issues were included among the targeted behaviors. The complete list of 21 behaviors is shown in Table 3. As can be seen in this table, to the extent possible, items representing both positive (i.e., skilled) and negative (i.e., unskilled) manifestations of each core issue were included. However, Asher and Williams's conceptual framework was employed strictly as a heuristic, and no formal attempt was made in this study to validate the putative alignment of items with issues. A child's reputation for each of the 21 behaviors was computed as the proportion of nominations received. Proportions were subjected to arcsine-square root transformation and standardized within gender before analyses.

Counselor behavioral adjustment ratings.—Children's behavior adjustment was assessed by counselors using Cowan and Cowan's (1990) modification of the Child Adaptive Behavior Inventory (CABI).⁴ This questionnaire consists of 91 items tapping 21 adaptive and maladaptive behaviors: (1) negative engagement, (2) hostility, (3) hyperactivity, (4) antisocial behavior, (5) tension, (6) fairness/responsibility, (7) kindness/empathy, (8) calm response, (9) intelligence, (10) creativity/curiosity, (11) task orientation, (12) distractibility, (13) immaturity, (14) introversion, (15) extroversion, (16) depression, (17) victimization by others, (18) fantasizing, (19) somatic complaints, (20) low physical skill, and (21) apathy. Each item is rated on a four-point scale from 1 (Not at all like the child) to 4 (Very much like the child). Where feasible ($n = 166$), data were collected from two counselors and averaged. Counselors showed moderate agreement in their perceptions (average r across subscales = .52). Cronbach alphas for the 21 subscales ranged from .67 to .93.

In an effort to reduce the number of variables for analyses, principal components analysis was used to examine the relations among the 21 scales. This analysis suggested

four components, which accounted for 47.4%, 15.6%, 8.7%, and 5.4% of the variance in the total measure. Respectively, these four scales were labeled aggressive/antisocial behavior (scales 1, 2, 3, 4, 12, and, negatively, 6, 7, 8), withdrawn/anxious behavior (scales 5, 14, 16, 17, 19, 21, and, negatively, 15) intelligence and creativity (scales 9, 10, and 18), and immaturity (scales 13 and 20). Accordingly, factor scores representing each of these constructs were derived and used in subsequent analyses.

Counselor social competence ratings.—Finally, counselors completed two short questionnaires designed to assess children's social skills and success with peers. Again, where feasible ($n = 166$), data were collected from two counselors and averaged. The first questionnaire focused on children's social problem-solving skills. Using a five-point rating scale that ranged from "very good" to "very poor," counselors rated each child in terms of his or her ability to understand others' feelings, read and interpret social cues, and generate appropriate solutions to interpersonal dilemmas. Children's social skills rating was the sum of the seven items on this scale. Counselors' ratings were positively, but moderately correlated, $r = .41$; Cronbach's alpha for the measures was .91.

The second questionnaire included six items and focused on children's adjustment with same- and opposite-sex peers. Each item was phrased as a statement (e.g., "This child is accepted by the peer group," "This child isolates him- or herself from the peer group") and counselors were asked to indicate their agreement on a five-point response scale that ranged from "never" to "always." Again, total scores were obtained by summing the individual items (after reverse scoring in two instances). Counselors' ratings were moderately related, $r = .60$; Cronbach's alpha for the measure was .92.

Summary Variables of the Temporal and Nontemporal Parameters of Children's Friendship Involvement

Using the data on the identities, number, and temporal histories of each of the children's friendships, nine variables were created that summarized several temporal (i.e., formation, dissolution, renewal, and replacement) and nontemporal (i.e., network size or extensivity) parameters of the chil-

⁴ We are indebted to Phillip Cowen and Carolyn Pape Cowen for sharing their measure and advice.

dren's friendship experiences at camp. An initial set of three variables conveyed information about children's tendencies to make new friends or replace old ones, regardless of whether these friendships tended to last over time. These variables included the (1) *number of friendships formed with previously unfamiliar children*, the (2) *number of friendships formed with familiar children or former friends*, and the (3) *proportion of all friendships the child had that were formed first at camp*. These, then, were temporal variables that could only be ascertained by identifying instances where friendships formed between two children who were not friends at an earlier occasion. Friendships carried over from home did not add to these tallies.

A second set of four related variables conveyed information about whether children's friendships were characteristically short-lived, regardless of how readily they were formed or, if they ended, how quickly they were replaced. These included: the (4) *number of friendship breakups experienced* (even if these friendships were renewed at a later point, and not including friendships from home that were not carried over to camp in the first place), the (5) *average duration of all friendships*, the (6) *proportion of all friendships that child had that ended before the end of camp*, and the (7) *proportion of all friendships that were "durable" friendships* (i.e., never ended once formed). These, then, were also temporal variables, marking either high or low experience with the termination of once-existing friendships.

Finally, the (8) *average number of friends* across occasions, and the (9) *number of unique friendships* during the course of camp (i.e., number of different children the child was friends with during camp) were calculated for each child. Thus, unlike the other seven variables, these two variables did not index changes in children's friendship networks over time. Instead, these final two variables provided an index of how extensively children were involved in friendships, regardless of the temporal features of that involvement.

Results

Changes over Time in Children's Participation in Friendship

Children had, on average, more reciprocal friends at the start of camp (mean = 2.53, SD = 1.08) than in the middle (mean =

2.42, SD = 1.12) and end (mean = 2.41, SD = 1.21) of camp. A sex \times time repeated-measures ANOVA revealed a significant effect for time, $F(2, 212) = 3.09, p < .05$, but no significant sex effect, $F(2, 212) = .91, N.S.$ or sex \times time interaction, $F(2, 212) = 1.03, N.S.$ The proportion of children without any friends also increased slightly after the start of camp, from .17 to .28, repeated-measures $\chi^2(1) = 13.00, p < .01$. Notably, 33 (15.3%) children were friendless for the duration of camp. The proportion of children who were chronically friendless was similar for the two sexes.

Changes over Time in the Density of Children's Friendship Networks

A sex \times time repeated-measures ANOVA for network density yielded a significant main effect for sex, $F(1, 64) = 5.58, p < .05$, no significant time effect, and a significant sex \times time interaction, $F(2, 128) = 9.08, p < .001$. The sex \times time interaction is shown in Figure 1. Simple effects follow-up analyses revealed that, for boys, density tended to increase over time, $F(2, 128) = 2.43, p < .06$. For girls, density decreased over time, $F(2, 128) = 7.06, p < .001$. As a result, sex differences were present for density by the end of camp, $F(1, 64) = 22.59, p < .001$.

Individual Differences in Temporal Patterning

A principal-components analysis with VARIMAX rotation was conducted on the nine friendship summary indices to confirm whether friendship formation and stability would emerge as coherent and separate dimensions of individual differences between children within this set of derived variables. The two size-related variables (i.e., average number of friends and number of different friends) were included, and, for both mathematical and conceptual reasons, were expected to form a third factor. That is, we expected reliable individual differences in children's tendencies to make and keep friends regardless of whether children had many or few friends.

The results of this analysis are shown in Table 1. The analyses identified three principal components, corresponding to the expected dimension of formation, stability, and extensivity. Combined, these components accounted for 91.6% of the covariance among the measures. More important, as evident from the factor loadings, variables designed to index the same dimension showed high loadings on those factors and negligible cross-loadings on other factors.

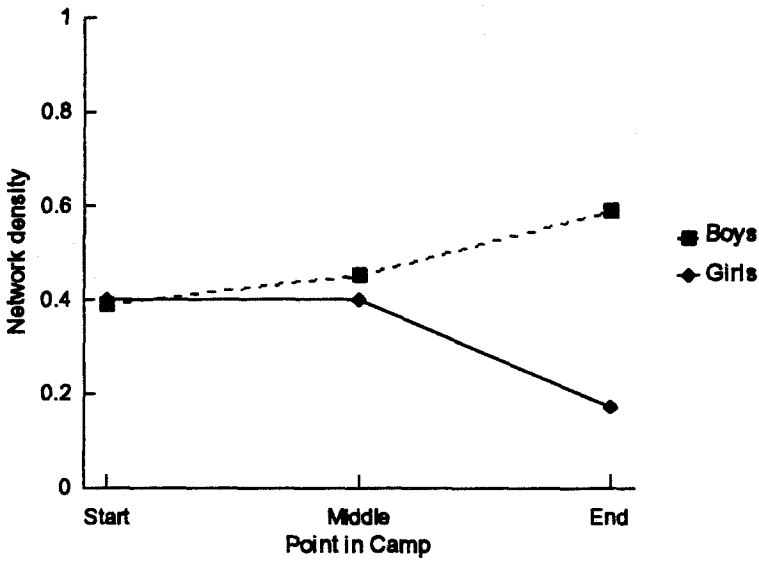


FIG. 1.—Girls' and boys' friendship network density at the start, middle, and end of camp

Based on these results, composite scores of friendship extensivity, formation, and durability were formed for each child from the variables corresponding to each factor in Table 1. These scores were formed by first standardizing and summing the relevant variables (after multiplying by -1 in the case of the two variables with negative loadings) and then restandardizing the resultant variables.

Friendship Adjustment, Age, and Acceptance-Rejection by Peers

Table 2 shows the intercorrelations among age, acceptance by the peer group, and the various temporally based and non-

temporally based measures of friendship adjustment. Entries for girls are above the diagonal; entries for boys are below the diagonal. As Table 2 shows, older children of both sexes knew more children prior to the start of camp, probably because more older than younger children were veteran campers. In addition, several friendship variables showed age differences for one or both sexes (see Table 2). Among boys, older children had more friends at every point in camp than younger children. Reflecting this, older boys had higher extensivity scores than younger boys. Density was also positively related to age at all three time points for boys. In addition, older boys had higher

TABLE 1
RESULTS OF FACTOR ANALYSIS OF NINE INDICES OF FRIENDSHIP CHANGES

VARIABLE	FACTOR		
	1	2	3
<i>Formation:</i>			
Number of friendships formed with previously unfamiliar children .....	.12	.91	.19
Number of friendships formed with familiar children/former friends ....	.25	.89	.30
Proportion of all friendships formed first at camp .....	.18	.88	-.28
<i>Durability:</i>			
Friendship breakups experienced	-.88	-.24	.23
Proportion of all friendships that were durable friendships .....	.96	.14	-.13
Average duration of all friendships .....	.90	.25	-.14
Proportion of all friendships that ended before the end of camp	-.91	-.07	.16
<i>Extensivity:</i>			
Average number of friends across occasions	-.33	-.04	.92
Number of unique friendships .....	.11	.20	.96

TABLE 2
 INTERCORRELATIONS FOR GIRLS AND BOYS AMONG MEASURES OF FRIENDSHIP PARTICIPATION, AGE, ACCEPTANCE BY THE PEER GROUP,
 AND LONELINESS

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Age .....	...	.17	.35	.12	.16	.17	-.15	-.10	.01	.33	.15	-.27	-.29
2. Acceptance by peers (T3) ..	.04	...	.20	.41	.41	.50	-.15	-.36	-.45	.05	.53	.15	-.25
3. Prior acquaintances .....	.24	.11	...	.41	.50	.35	-.12	-.04	.08	.11	.44	.25	-.19
4. Number of friends (T1) .....	.25	.33	-.09	...	.74	.68	-.30	.02	.03	.12	.87	.05	-.11
5. Number of friends (T2) .....	.34	.36	-.06	.79	...	.69	-.19	-.15	.06	.30	.85	.10	-.21
6. Number of friends (T3) .....	.49	.38	-.05	.72	.87	...	.30	-.07	-.18	.54	.86	.24	-.09
7. Density (T1) .....	.24	-.14	-.01	.19	.32	.36	...	.50	.31	.40	-.14	-.11	.28
8. Density (T2) .....	.31	-.27	-.29	.13	.13	.32	.58	...	.62	.06	-.15	-.20	.16
9. Density (T3) .....	.33	-.33	-.18	.21	.21	.05	.58	.78	...	.26	-.22	-.23	.07
10. Durability .....	.26	.05	.12	-.05	.40	.51	.51	.53	.36	...	.13	-.23	.09
11. Extensivity	-.27	.40	-.10	.92	.92	.89	.22	.12	.12	.16	...	.34	-.17
12. Formation	-.38	.03	-.21	-.06	-.19	-.10	-.36	-.27	-.28	-.36	.01	...	.01
13. Loneliness (T3)		-.30	-.22	-.23	-.19	-.30	-.06	-.03	-.05	-.12	-.24	-.01	...

NOTE.—Correlations for girls and boys appear above and below the diagonal, respectively. Underlined entries are significant at or beyond $p < .05$. Sample sizes for entries vary from 41 to 124. T1, T2, and T3 indicate beginning, middle, and end of camp, respectively.

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durability and lower formation scores than younger boys. That is, it was more characteristic of younger boys than of older boys to experience additions and subtractions in their friendship network during camp.

Among girls, age was unrelated to the number of friends children had at every point, and, consequently, also unrelated to extensivity (see Table 2). However, older girls had higher durability and lower formation than younger girls. That is, similar to the pattern for boys, older girls had more overall constancy in their friendship network over time.

Table 2 also shows that, for both sexes, eventual acceptance-rejection by same-sex peers was unrelated to how many other campers children knew before camp began. However, for both sexes, children who were better accepted by peers by the end of camp had more friends at the start, middle, and end of camp than children who were eventually more rejected. As a result, better accepted children had higher extensivity scores than poorly accepted, rejected children. Acceptance-rejection was unrelated for both sexes to network density early in camp. At the middle and end of camp, however, children who were more accepted by their peers had less dense friendship networks. Finally, acceptance-rejection by peers was not related to either formation or durability for either sex.

Temporal Parameters of Friendship Involvement and Children's Loneliness

Table 2 also gives the correlations for boys and girls between loneliness by the end of camp and age, acceptance by the peer group, and the various temporal and non-temporal measures of friendship adjustment. Older and better accepted children were less lonely at the end of camp. And among boys, children with more friends at every point were less lonely at the end of camp. The relation between number of friends and loneliness was weaker for girls, although in the same direction. Extensivity scores were not significantly related to end-of-camp loneliness. Because children without friends have missing values for this variable, this pattern points to the distinction between friendlessness and variability in the size of

the network among children with at least one friend. Finally, among boys, the density of the friendship network was unrelated to end-of-camp loneliness; density at the start of camp showed a modest (but nonsignificant) positive relation to end-of-camp loneliness among girls, but this relation diminished over time.

Hierarchical multiple regression analysis was used to examine how the temporal parameters of children's friendship experiences at camp related to their reports of loneliness at the end of camp. Children's loneliness at the start of camp served as a covariate in this analysis; thus, the focus of this analysis was on how the two temporal variables, durability and formation, predicted *changes* in children's loneliness from the start to the end of camp. Because age was associated with loneliness as well as with the formation and durability scores (see Table 2), age was also used as a covariate in this analysis. Finally, extensivity scores were included to establish the benchmark for predictability based on a measure of friendship involvement that did not incorporate information on changes over time. Specifically, the order of entry of variables was as follows: First, the two covariates (age, initial loneliness) were simultaneously entered. Next, children's extensivity scores were entered. The formation and durability scores were then simultaneously entered. Finally, the two-way interaction term involving formation and durability was entered. The latter interaction was included because it seemed likely that forming many versus few friendships might have different significance for changes in loneliness depending on whether or not the child's friendships were characteristically enduring. Separate regression were run for boys and girls, but because these results were nearly identical only the result of the combined analyses are reported here.⁵

Collectively, the two control variables accounted for 51% of the variance in end-of-camp loneliness, $R = .71$, $F(2, 177) = 90.73$, $p < .001$. With prior loneliness and age controlled, the extensivity of children's friendship network did not add significantly to the prediction of later loneliness, $F(1, 176) =$

⁵ Although the direction and relative size of the regression coefficients in this analysis were similar for boys and girls, most of the individual coefficients that were statistically significant for boys did not reach significance for girls. This was because there were somewhat fewer girls than boys in the sample and because loneliness was more stable over time for girls than for boys. Thus, controlling for early loneliness more sharply reduced the variance of girls' later loneliness scores.

.34, N.S. However, the addition of the two temporal variables, formation and durability, resulted in a marginally ($p < .06$) significant increase in R^2 , $F(1, 174) = 2.85$. In particular, friendship formation was significantly negatively related to later loneliness at this step, $F(1, 176) = 5.71$, $p < .05$. Thus, children at camp who developed more new friendships or renewed more old friendships had lower loneliness over time than children who did not. It is important to note that the overall size of the children's network was controlled in this case; thus, it is the budding of new relationships and not presence of many friends per se that seemed to reduce children's loneliness.

However, this trend was qualified by a significant formation by durability interaction at the next step, $F(1, 173) = 4.37$, $p < .05$. The nature of this interaction is shown in Figure 2. Following Cohen and Cohen (1975), Figure 2 was generated by obtaining estimates of the unstandardized regression coefficients from the final step of the model. Means were substituted for the variables uninvolved in the interaction (i.e., age, initial loneliness, extensivity). Two regression lines were then plotted: one for children with a very low level of durability in their friendships (-1 SD) and one for children with a high level of durability in their friendships ($+1$ SD). For comparison purposes, the level of loneliness of the group of chroni-

cally friendless children is also indicated in Figure 2.

As apparent in Figure 2, the negative relation between forming friendships and eventual loneliness held only for children who tended to maintain the relationships they formed. When children had difficulty maintaining friendships, forming new relationships did not reduce loneliness. It should be noted, however, that the level of loneliness of even the most problematic pattern (low formation with high stability) is lower than the level of chronically friendless children.

Taxonomy of Temporal Patterns of Friendship Adjustment

Mean splits were used to assign children with friends to one of four categories, reflecting their pattern of friendship experiences over time: A *Rotation* group (28 girls, 31 boys) included children who readily form new relationships but had little stability to their relationships (i.e., high formation and low durability); a *Growth* group (21 girls, 22 boys) included children who added new relationships to a stable pool of existing ones (i.e., high formation and high durability); a *Decline* group (12 girls, 11 boys) included children who experienced the breakup of many friendships without replacing them (i.e., low formation and low durability); and a *Stasis* group (17 girls, 41 boys) included

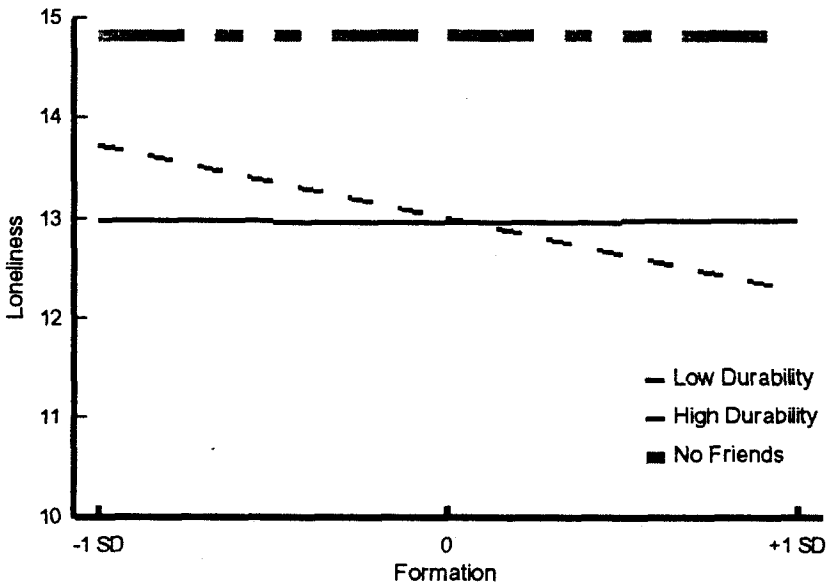


FIG. 2.—The relation between loneliness and friendship formation for children with low (-1 SD) versus high ($+1$ SD) friendship durability.

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children who maintaining a stable pool of existing friendships without adding any new ones (i.e., low formation and high durability). A fifth group, *Friendless*, included the 33 children (13 girls, 20 boys) who were chronically friendless throughout camp. Despite relatively large disparities in the representation of boys and girls in some groups (e.g., Stasis), these differences were within the range of those expected by chance, $\chi^2(4, N = 216) = 6.44, p > .10$.

Temporal Pattern, Age, Prior Acquaintances, and Acceptance-Rejection by Peers

The temporal pattern of children's friendship adjustment at camp was studied in relation to children's age, familiarity with other campers when camp began, and eventual acceptance-rejection by peers. This analysis was done in two stages. First, children who were chronically friendless were compared to all children with friends using a series of 2 (sex) \times 2 (friended/friendless) ANOVAs. Next within the pool of children who had friends, children in the four temporal pattern groups were compared using a series of 2 (sex) \times 4 (pattern) ANCOVAs. Extensivity served as the covariate in this second analysis in accordance with the formation that the temporal pattern of children's friendship adjustment supplements rather than replaces information on differences in the typical size of children's friendship networks.

The set of ANOVAs comparing chronically friendless with friended children revealed a friendship status effect for acceptance-rejection by peers, $F(1, 210) = 35.42, p < .001$, and a sex \times friendship status effect for number of prior acquaintances, $F(1, 210) = 4.43, p < .05$. Children who were chronically friendless were markedly less well liked by peers at the end of camp than children with friends (means = $-.87$ and $.16$, respectively). With respect to prior acquaintances, simple effects follow-up analyses indicated a significant difference for girls, $F(1, 210) = 4.45, p < .05$, but not for boys, $F(1, 210) = .54, N.S.$ Compared to girls who had friends at camp, chronically friendless girls knew fewer other girls as they began camp (means = 25.53 and 14.00 , respectively). There were no age differences between the two friendship groups.

Within the pool of children involved in friendships, temporal pattern was unrelated for both sexes to children's acceptance-rejection by peers and to the number of

other campers children were familiar with as camp began. However, there were age differences among children who showed different temporal patterns, $F(3, 173) = 7.90, p < .001$. In particular, children who rotated through friendships (adjusted mean = 10.81) were notably younger than children who showed growth, stasis, or decline in their friendships over time (adjusted means = $11.91, 12.06$, and 11.68 , respectively). The covariate, extensivity, was unrelated to age and prior acquaintances (betas $< .14$); however, extensivity was strongly positively related to eventual acceptance/rejection, beta = $.34, t(1, 173) = 4.65, p < .001$.

Behavioral and Social Competence Correlates of Temporal Patterns

The various behavioral and social competence data were analyzed in a similar manner; that is, first, children who were chronically friendless were compared to all children with friends using 2 (sex) \times 2 (friended/friendless) ANOVAs. Next children in the four temporal groups were compared in a series of 2 (sex) \times 4 (pattern) ANCOVAs controlling for extensivity scores.

Reputations with peers.—Table 3 presents the means for the 21 peer behavioral items for the four temporal pattern groups and for the comparison between children who were chronically friendless and all other children. Table 3 also presents F values resulting from these ANOVAs and ANCOVAs. In three instances, a significant ($p < .05$) interaction between sex and either friendship status or temporal pattern was present. The means for these variables are presented separately for each gender, along with the results of simple effects analyses within gender.

Table 3 shows that a number of variables showed significant differences between chronically friendless children and children with friends. These differences uniformly favored children with friends and occurred most often for behaviors that, according to Asher and Williams (1987), are likely to lead other children to conclude that the child is entertaining, is pleasant to interact with, and desires social interaction. Thus, compared to chronically friendless children, children with friends were perceived by other children as having a good sense of humor, engaging in playful teasing, and knowing interesting gossip. On the other hand, friendless children were perceived by other children as shy, timid, preferring to play alone, not being able to take

TABLE 3

BEHAVIORAL REPUTATIONS OF CHILDREN WITH AND WITHOUT FRIENDS AND CHILDREN WITH VARYING PATTERNS OF FRIENDSHIP ADJUSTMENT OVER TIME

BEHAVIOR	NO FRIENDS	FRIENDS	F(1, 209)	EXTENSIVITY (Beta)	TEMPORAL PATTERN				F(3, 172)
					Growth	Stasis	Rotation	Decline	
Participating/stimulating:									
Knows funny jokes and stories	-.89	.16	33.18***	.24***	-.08	-.23	-.85	-.33	26.16***
Males .....	...	...	...	...	.05	-.01	.12	.57	19.44***
Females .....	...	...	...	...	-.01	-.24	.46	.61	8.10***
Kids around with others	-.71	.13	20.81***	.20***	-.01	-.24	.36	.41	3.93**
Knows all the interesting gossip	-.51	.09	10.31***	.14	-.23	-.03	-.03	-.55	2.12
Is shy .....	.48	-.09	8.60***	.08	.03	-.02	-.03	-.38	1.39
Is timid and hangs back .....	.32	-.06	5.60*	-.03	.01	-.13	.09	.04	.10
Prefers to be alone .....	.32	-.06	4.97*	-.01	-.01	-.05	.04	-.12	1.71
Can't take teasing .....	.61	-.11	15.41***	-.23**	-.19	-.24	.11	-.22	1.71
Gets mad too easily .....	.34	-.06	4.12*	-.13	-.17	-.24	.19	-.20	2.18
Trustworthiness:									
Is honest	-.52	.09	11.63***	.27***	...	...	...	...	...
Males .....	...	...	...	...	.13	.19	.01	-.28	.30
Females .....	...	...	...	...	.01	.56	-.25	.52	3.09*
Tells on others .....	.13	-.02	.93	-.16*	-.37	-.26	.50	-.04	9.01***
Can't keep a secret .....	.11	-.01	1.09	-.14*	-.21	-.37	.55	-.28	11.09***
Gossips behind people's back	-.12	-.02	.29	.07	-.13	-.12	.18	.33	1.81
Validating/supportive:									
Cares about others	-.58	.10	13.54***	.19***	.22	-.21	.10	.75	6.21***
Shows off all the time	-.15	.03	1.04	-.11	-.13	-.05	-.03	.55	2.69*
Puts other people down	-.19	.03	1.23	-.14	-.25	-.12	.48	-.26	6.29***
Conflict style:									
Shares and is cooperative	-.60	.11	12.97***	.24***	-.18	.26	-.01	.47	3.30*
Bosses others around	-.28	.05	1.55	-.05	-.55	.07	.43	-.13	9.40***
Hits and starts fights .....	.18	-.03	1.41	-.19**	-.28	-.22	.49	-.44	9.45***
Is easily pushed around .....	...	...	...	-.06	...	...	...	...	...
Males .....	.25	-.05	5.91*	...	-.47	.18	.03	-.24	3.07*
Females	1.24	-.19	18.90***	...	.13	-.27	-.25	-.49	1.35
Shared values:									
Is 'just weird' .....	.14	-.02	1.15	-.02	-.22	-.17	.25	-.04	2.10
Says things that don't make sense .....	.53	-.09	13.07***	-.17*	-.23	-.11	.00	-.13	.47

NOTE.—Means and simple effects F ratios are given separately for males and females where significant sex \times group interactions were present. Beta for extensivity is that associated with use of this variable as a covariate in the respective ANCOVA.

* $p < .05$.** $p < .01$.*** $p < .001$.

teasing, and easily angered. In addition, friendless children were perceived as saying more nonsensical things than other children and being less assertive during conflict (easily pushed around, especially girls), less caring, less honest, and less likely to share than other children.

To understand the complex pattern of means for the four temporal pattern groups, contrast analyses (Rosenthal & Rosnow, 1988) were run. In these analyses, a set of nonorthogonal contrasts were run on each behavioral variable that showed significant omnibus temporal pattern effects for one or both sexes. These contrasts pitted each temporal group against the average of all remaining groups, including the chronically friendless. These analyses therefore highlighted the behaviors, if any, that were distinctively high or low for a particular temporal group relative to the typical child in the data set. Extensivity was included in the model for these contrasts (i.e., contrasts were conducted on scores adjusted for the covariate), and to be conservative, the level of significance of these contrasts was set at .01.

The contrast analyses indicated that children who showed a pattern of rotation through friendships were the most distinctive behaviorally. This group showed a contrasting pattern of negative and positive attributes. Compared to other children, rotation children had notably high reputations for engaging in playful teasing and for knowing interesting gossip. Boys with this pattern were also known for their sense of humor. On the other hand, compared to other children, this group also was known for being bossy, for hitting, for telling on others, for ridiculing others, and for not keeping secrets.

Children who showed a decline pattern had mostly positive reputations and were known particularly as children who engaged in playful teasing, knew interesting gossip, were not aggressive, were caring, shared, and, for girls, were honest. At the same time, they were distinct from the other groups in terms of being likely to show off.

Children who showed very little change in their friendships over time, the stasis group, were mostly not distinct from other children. Specifically, compared to other children, these children engaged in less playful teasing and did not appear caring. However, girls with this pattern were known as more honest than most other girls.

Finally, the group that showed a pattern of growth in the number of friends over time was also not distinctive in most respects from other children. However, children with this pattern were especially unlikely to be seen as bossy, and males with this pattern were especially unlikely to be viewed as someone who was easy to push around.

Counselor social competence ratings.—Counselors rated chronically friendless children lower than children with friends in adjustment with peers (means = 19.24 vs. 23.22, respectively) and in terms of social problem-solving skill (means = 20.15 vs. 23.18). These differences were significant, $F_s(1, 209) = 21.51$ and 12.56 , respectively, $p < .001$. There were no significant differences among the four temporal pattern groups in counselor ratings of social problem-solving skill and adjustment with peers.

Counselor behavioral adjustment ratings.—Counselor aggressive/antisocial factor scores did not discriminate between chronically friendless children and children with friends. Chronically friendless children had significantly lower intelligence and creativity factor scores, $F(1, 194) = 14.76$, $p < .001$, and significantly higher immaturity factor scores, $F(1, 194) = 6.29$, $p < .05$, than children with friends (means = $-.64$ vs. $.11$ and $.42$ vs. $-.07$). Chronically friendless children also differed from friendless children in withdrawn/anxious factor scores, $F(1, 194) = 9.05$, $p < .01$. However, this difference was qualified by sex, $F(1, 194) = 4.06$, $p < .05$. There were no significant differences between friendless and chronically friendless boys; chronically friendless girls (mean = $.84$) were much higher in withdrawn/anxious than friendless girls (mean = $-.18$).

Analyses of covariance of the counselor factor scores of the four temporal pattern groups indicated a significant difference for withdrawn/anxious behavior, $F(3, 160) = 3.18$, $p < .05$. The unadjusted means for this behavior for the children who showed growth, stasis, rotation, and decline were $.23$, $-.02$, $-.21$, and $-.42$, respectively (adjusted means were very similar). Contrast analyses parallel to those conducted for the peer behavioral reputation variables indicated that their low ratings for this behavior made the group of children who showed decline distinctive from other children. The covariate, extensivity, was negatively, but not significantly, related to withdrawn/anxious behavior, $\beta = -.11$, $t(1, 164) = -1.41$. The four groups did not differ sig-

nificantly in aggressive/antisocial behavior, intelligence and creativity, and immaturity.

Temporal Pattern and Friendship Network Density

A sex \times time \times temporal pattern ANCOVA (controlling for extensivity) replicated the previously discussed (see Fig. 1) sex difference in the pattern of network density over time, $F(2, 116) = 5.54, p < .01$. However, no main effect of temporal pattern on network density was present, nor were interactions between temporal pattern and either sex or time. The covariate, extensivity, was negatively related to density in this analysis (beta = $-.24$), although this relation fell just short of a conventional level of significance, $t(1, 57) = -1.834, p < .06$.

Discussion

Historically, researchers have relied heavily on static counts of the size of an individual's friendship network to compare one child's experience to that of another. Therefore, except as they influence the net size of a network, events such as the formation of a new friendship or the dissolution of an existing friendship have not often been a direct part of researchers' strategies for evaluating children's friendship adjustment. Ignoring the temporal parameters of children's participation in friendship is justified if change in friendship networks is infrequent, occurs more or less randomly, or is mostly dependent on exogenous environmental factors. Under such circumstances, snapshots of the size of children's friendship networks should be sufficient to capture the important and reliable individual variation in children's participation in friendship over most functional time frames. However, in this study we found that it was more likely for some children than others to have new reciprocal friends each time they were polled. Likewise some children characteristically had more durable friendships than other children. Furthermore, these tendencies were not necessarily related across children; for example, some children with characteristically durable friendships formed many new friendships, whereas others did not. Likewise, some children whose friendships did not last replaced or renewed these relationships, whereas others did not. Moreover, the individual differences we observed in the formation and duration of children's friendships did not appear random, insofar as they were associated with other characteristics of these children, including their behavioral reputation among peers.

Even if change is more characteristic of the friendship experiences of some children than others, is there a payoff to devoting the additional effort necessary to incorporate change directly into the assessment of individual differences? Although further research is needed, our analyses of children's loneliness provided affirmative initial data on this point. As others have found (see Bukowski et al., 1993), we found that the average size of children's networks was related to their level of loneliness. Importantly, however, attention to how the network changed significantly improved the accuracy of our predictions of the magnitude and course of children's loneliness at camp. In fact, discounting children who were chronically friendless, it was the temporal parameters and not the size of children's networks that was critical to predicting their loneliness. However, it should be noted that these effects were modest in magnitude, even though they were statistically robust and consistent across sexes.

Interestingly, friendship formation and durability were not independent in this regard. Although intuition might suggest that the formation of new friendships at camp will incrementally reduce children's loneliness, this proved true only when friendships tended to last. When friendships did not typically last, new friendships did not confer any particular advantage or disadvantage on the direction of children's loneliness over time. To understand these relations, it will be necessary in future research to gain a fuller understanding of how the formation and breakup of friendships contribute to social satisfaction and loneliness. In the context of a stable existing network, new friendships may add welcomed variety and novelty to children's experiences, with commensurate positive changes in loneliness. Indeed, this was probably precisely the pattern of social events that most children, parents, and counselors anticipated as the children left for camp. But, when children participate in a succession of friendships that do not last, this experience, as suggested earlier, may not be fully satisfying because such relationships are less likely to be contexts in which enough time has passed for children to experience emotional support. Further, the patterns of loneliness we observed may also depend on the reasons why friendships end and their emotional ramifications. We currently know very little about these issues. As noted, past research has confirmed that children experience acute feelings of loss

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and loneliness when their friendships end (Field, 1984; Park, 1992), but this work does not indicate how quickly children rebound from this experience and what role new relationships play in this process. Further, this work so far has been limited to breakups that occur for external, uncontrollable reasons, such as the geographic relocation of one child's family. The voluntary end of a friendship undoubtedly means something quite different to children, as does, presumably, a breakup that is instigated by the partner.

In the present study, children's social skills, behavioral problems, and reputations among their peers in five global areas were assessed. As such, we were in a position to extend our knowledge of the characteristics of children involved in friendships, as well as the correlates of the course of children's friendship involvement over time. Considering simultaneously the durability of children's existing friendships and the proclivities of children to form new friendships, four distinct trajectories of friendship adjustment over time at camp were noted: some children's networks expanded, some children's networks contracted, some children's networks showed stable membership and size, and some children's networks showed little net change in size but high membership turnover. Because to a large extent this taxonomy was imposed on rather than suggested by the data, we should be cautious not to reify these patterns or overinterpret their significance. Nevertheless, these patterns make sense conceptually, and their validity is suggested by the behavioral and other differences that were evident between children with different trajectories. One particularly distinctive and intriguing group that merits attention in the future were the children who rotated through friendships over time. This group had several attractive personal qualities. For example, they were playful teasers, knew interesting gossip, and males with this pattern were known for their sense of humor. But they were also younger than most other children at camp and had off-setting negative qualities—most notably problems of aggressiveness, unreliability, and untrustworthiness. Given this configuration of traits, it may not be surprising that these children appeared able to attract others to them but had difficulty sustaining these relationships. In future research it would be fruitful to learn more about the social motivations and friendship conceptions of children with this pattern and to compare these views with those of other

children with patterns of growth, decline, or stasis over time.

As another example, a subset of children experienced the break-up of several friendships which they did not replace. As a result, their networks declined in size. At first blush, a decline in the size of one's network of friends might seem worrisome. However, there was very little evidence in our data that this pattern was problematic. Behaviorally, children whose networks contracted shared some of the positive aspects of the reputations of rotation children, but they did not have that group's reputation for aggressiveness and untrustworthiness. Indeed, they were distinctively high on some prosocial characteristics, such as caring, sharing, and (for girls) being honest. Counselors rated these children as comparable to most other children with friends in terms of social skills, behavioral competence, and peer adjustment. It is possible that future research will document that behavioral and other difficulties underlie this pattern. However, it is also possible that this pattern reflects a more benign preference of some children to winnow their networks, perhaps to assist with managing conflict between friends or to enhance the level of intimacy in the specific relationships (Asher et al., 1996; Berndt & Hoyle, 1985). Again, it would be useful in the future to compare the social motivations and friendship conceptions of these children to those of other children.

Friendlessness was not unusual at some point in camp, and in fact grew slightly more prevalent over time. For many children, this state was only temporary, however. But chronic or continuous friendlessness was characteristic of a small subset of boys and girls, and by all indications being chronically friendless was unpleasant for these children: no group of children with friends—regardless of the typical temporal course of these relationships—were as lonely as this group of children. This finding is consistent with past research (Bukowski et al., 1993; Parker & Asher, 1993b). Past research has also documented behavioral differences between friended and friendless children (see Parker & Asher, 1993a). However, so far, the search for the behavioral correlates of friendlessness has not been especially systematic or thorough. In the present study, chronically friendless children were perceived by other children as shy, timid, preferring to play alone, not being able to take teasing, and easily angered. In addition, friendless children were perceived as saying

more nonsensical things than other children and as being less assertive during conflict (easily pushed around, especially girls), less caring, less honest, and less likely to share than other children. Counselors also reported that chronically friendless children were less socially competent, had more behavioral problems, and were less mature and creative/intelligent than other children.

Concerning these reputations, it is interesting that some of the behaviors that discriminate friendless and friended children also discriminate among the children who showed different temporal patterns of participation in friendships. This suggests that these behaviors are very basic to children's repertoire of friendship skills. These include engaging in playful teasing, knowing interesting gossip, being caring, sharing, having a sense of humor, not being easily pushed around (for boys), and being honest (for girls). However, several behaviors that did not relate to having a friend did relate to the temporal pattern of this involvement. These differences were most consistent with respect to issues that Asher and Williams (1987) classify as issues of validation, trustworthiness, and conflict style (e.g., telling on others, not keeping secrets, showing off, ridiculing others, being bossy, and hitting). To a certain extent, one would not expect children to become familiar with these attributes of other children without some experience with these children in a close relationship (i.e., it is difficult to know someone's trustworthiness at keeping secrets without having first grown close enough to them to trust them with confidential information). Thus, our data suggested that a temporal perspective can be helpful not only in *describing* a child's friendship experiences but for *diagnosing* the basis of such changes as well.

We noted that some authors have sometimes expected gender differences in the size of children's friendship networks or in children's willingness to form new friendships while old friendships exist. These expectations are based on assumptions about differences in boys' and girls' motives for participating in friendships. Sex differences in the features of children's friendships have been reported on a regular basis (Belle, 1989; Berndt, 1996; Buhrmester, 1996; Furman, 1996). However, sex differences in size of boys' and girls' networks of reciprocal

friendships have not often been observed. In the present study, too, boys and girls had similar numbers of reciprocal friends at every time point. Further, the temporal parameters of friendship involvement predicted loneliness in similar ways for boys and girls, and the behavior and popularity correlates of friendship involvement were mostly similar for the two sexes.

However, sex differences were observed in one feature of children's friendship involvement that has not often been studied in past research—the organization of children's friendships with respect to one another over time. Boys' friendship networks grew more interconnected over time, such that a boy's friends were likely to become friends with each other over time. On the other hand, girls' networks were progressively less fully interconnected as camp progressed. As such, a girl at the end of camp was more likely than a boy to find herself at the hub of a network of friends who were not friends with each other (though presumably not necessarily enemies either). This pattern is consistent with the findings of Eder and Hallinan (1978) and Berndt and Hoyle (1985), and merits further attention. As Asher et al. (1996) have argued, because friendship interaction is conducted within a network of such relationships, friends probably face special tensions that would not be present if these relationships occurred in isolation. Jealousy, rivalry, and envy are examples of tensions that can be produced within a specific relationship as a result of members' relationships with third parties. Our data do not address directly the motives of individual children. However, one interpretation of the present finding is that, when girls as opposed to boys are involved, difficulties such as jealousy and rivalry are more intense or more difficult to resolve. To help with these issues, girls may therefore either intentionally or unintentionally manage their networks of friends in such a way as to make clashes over the borders between relationships less likely. However, just the opposite interpretation may also be offered: Because girls' friendship networks are less fully interconnected, they may be more difficult to manage and feelings of jealousy, rivalry, and envy may be exacerbated.⁶

Thus far, we have discussed temporal changes in children's friendship experience

⁶ We are indebted to an anonymous reviewer for providing this provocative, complementary interpretation.

without reference, except by implication, to the features of these relationships. As our discussion of the possible basis for changes over time in the organization of girls' friendships illustrates, the temporal parameters of children's involvement in friendship are probably not truly separable from the question of the typical features of children's friendships. Studies of the supportive and other features of children's specific friendships have been somewhat separate from studies of the patterns of children's involvement in friendships. Eventually, these two traditions will have to be carefully integrated to achieve a comprehensive assessment strategy. In the meantime, our data suggest that as they approach this problem it will benefit researchers to consider how time and change reflect and affect the features of children's friendship relations (see Berndt, Hawkins, & Hoyle, 1986, for related discussion and findings).

Future research should also consider more closely the link between children's general acceptance-rejection by the peer group and the temporal and other parameters of their participation in dyadic friendships. Past research has shown that, while acceptance-rejection and friendship are distinct facets of adjustment with peers, there are also important connections between these spheres (Bukowski et al., 1993; Parker & Asher, 1993b). In the present study, better accepted children had somewhat more friends than other children at every point in camp, a pattern that is consistent with other research (e.g., Bukowski et al., 1993; Gest et al., 1991; Parker & Asher, 1993b). Acceptance-rejection was mostly unrelated to changes in friendships however. Thus, although acceptance by peers was related to the extensivity of children's involvement in friendship, it did not predict the temporal parameters of this involvement. Thus, our data lend qualified support to the suggestions of Asher et al. (1996) and others (Bukowski & Hoza, 1989; Furman & Robbins, 1985) that friendship success and group acceptance rest on somewhat different sets of social skills. It would appear that some social skills may contribute to the extensivity of children's involvement in friendship and to children's acceptance by the peer group, whereas other social skills help dictate the course of friendship involvement more specifically. Interestingly, from the middle of camp on, better-accepted children had less

dense networks than rejected children. This pattern suggests that it is having friends in many "social circles" rather than simply having many friends that contributes to high acceptance by peers.

Finally, one methodological aspect of the present study—namely, the collection of data in a sleep-away camp setting—merits discussion. Researchers who have studied children's social adjustment at camp (e.g., Savin-Williams, 1980; Sherif, Harvey, White, Hood, & Sherif, 1961; Wright, Giammarino, & Parad, 1986) have often done so because these field settings offer special advantages, such as captive subject pool, the ability to control how and when children are introduced to one another, and the ability to observe children more intensely than in other settings. It should be recognized, however, that, while we assume that the camp context offers a concentrated glimpse into subtle processes that take place over a longer period of time in other settings, we do not have direct evidence of this at present. It is possible that the camp context has unique features and social parameters, and that the processes we observed over time would not ordinarily operate in other settings. Indeed, a feature of the camp setting is that a substantial proportion of children begin camp unfamiliar to one another. Thus, children at camp are presented with many opportunities to begin new friendships, and this process of friendship formation is taking place for many individuals simultaneously. By contrast, friendship changes in classrooms or school most often involve the realignment or redefinition of relationships with familiar ones.⁷ Distinctly different interpersonal processes and skills may underpin changes in these separate circumstances.

Likewise, the fact that the camp operated for a finite period of time may also have played a role in the patterns we observed. For example, we observed a group of children with networks that slowly declined in size. The fact that these children were distinctive behaviorally from other children encourages the interpretation that these children's social skills and motives were distinct from those of other children. However, we must allow that this pattern is unique to the camp context. That is, although we speculate that these children were motivated to win-

⁷ We are indebted to an anonymous reviewer for pointing out this feature.

now their networks for various reasons, it is possible that what we observed was a group of children who were reluctant to replace friendships as the end of camp grew nearer and the opportunity for sustained involvement elapsed. Our data demonstrate the utility of attention to the temporal parameters of children's friendship participation, but the specific interpretations of the patterns we observed must remain tentative until such work is extended to more traditional assessment settings.

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