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Childhood Cross-Sex Friendships:
An Investigation of Trends and Possible Explanatory Theories

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Abstract

There is very little known about the cross-sex friendships of children. A survey of the parents of 87 children ranging in age from 3 to 8 years was undertaken to investigate this type of relationship. Survey questions were designed to discover the frequency of best friendships that were cross-sex and same-sex in three different age levels: 3-4 years; 5-6 years; and 7-8 years. Friendship quality was also measured and compared between same-sex and cross-sex friendships. Chi-square analysis showed a significant difference among the frequencies of cross-sex friendships found in the three age levels. The Freeman-Tukey deviate test for the 7-8 year-olds showed that it is at this age level that cross-sex friendships terminate. T-tests revealed that same-sex female friendships were significantly higher in quality than both cross-sex and same-sex male friendships, but that no significant difference existed between same-sex male and cross-sex friendships. Three hypotheses relating to these data were considered, and suggestions for further research were offered.
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Childhood Cross-sex Friendships:

An Investigation of Trends and Possible Explanatory Theories

The purpose of this paper is to investigate developmental changes in childhood friendships. In particular, developmental changes in cross-sex friendships are hypothesized. Also, the quality of friendships among males will be compared to the quality of friendships among females. Both of these types of friendships will be compared to the quality of cross-sex friendships.

Cross-sex friendships are simply friendships between two people of the opposite sex. Although they clearly exist among adults, not much is known about them among children. This paper will document the trend of childhood participation in cross-sex friendships from 3 to 8 years of age. It will also differentiate between the quality of friendships at different age levels.

Knowing if a general pattern exists in the development of friendships between children of the opposite sex could have important implications. Data has shown that childhood friendships have an important influence on development (Bonney, 1943a; Kuhlen & Lee, 1943; Northway, 1944). For example, Cowen, Pederson, Babigian, Izzo, and Trost (1973) found that unpopular children are more likely to be clients of a community psychiatric clinic than are popular children, as exhibited by their disproportionate representation in such clinics. Roff (1961) has shown that in later life unpopular children receive a greater proportion of bad conduct discharges from the armed forces than popular
children receive. Children designated as social isolates on a socio-
metric test later comprised about one-third of all adult schizo-
phrenics and manic depressives in a random survey, while a control
group of children later comprised only slightly more than zero percent
of an adult psychiatric group (Kohn & Clausen, 1955). Stengel (1971)
obtained a high positive correlation between social isolation and a
number of factors related to a high suicide rate. Similarly, Roff,
Sells, and Golden (1972) found a high positive correlation between low
peer acceptance scores among children and incidence of juvenile de-
linquency four years later. This longitudinal study focused on 4,000
children in twenty-one different cities, and the finding held true
for all but the lowest socioeconomic class. Therefore, a child who
lacks friends will be at a greater risk for social dysfunction in later
life. Even if children escape from psychiatric problems, suicide, and
juvenile delinquency, they are still likely to manifest socially inept
behavioral patterns or retreat from social interaction all together
(Bonney, 1943b; Kuhlen & Lee, 1943; Northway, 1944).

Since childhood friendships can have an impact on development,
clearly it is important to know more about them. This paper will focus
on cross-sex friendships. Just what is considered to be a "normal"
developmental pattern for cross-sex friendships in children has not
yet been documented. If one accepts the evidence that a lack of nor-
mal childhood friendships produces later maladaptive behavior, then one
must also consider what effects a lack of "normal" childhood cross-sex
friendships produces.
By first documenting the existence of a normal pattern in childhood cross-sex friendships, and then by discovering what abnormalities might exist and what effects these abnormalities could have on the later social well-being of the child, one can come closer to understanding the complete developmental process of the child. This in time could lead all those concerned with the general health and well-being of children to discover and to detect the warning signs in children's behavior which could be symptomatic of later maladaptive behavior.

Up until this date, childhood cross-sex friendships have not been studied directly. Sociometry, a technique developed by Moreno (1934), has been the most basic tool available to describe the existence or nonexistence of childhood cross-sex friendships. Sociometric data is collected by interviewing children or by distributing questionnaires about peer preferences to them. For example, these questionnaires may require the child to nominate the three classmates he/she would most like to "play with" or "sit by". After all children in a classroom have made nominations one can determine such things as which children choose each other, who was chosen most often, and w.o was not chosen at all.

Criswell (1939) used such a sociometric technique and found that a "sex cleavage" existed. In other words, it seemed that boys mainly nominated only boys and that girls mainly nominated only girls. Thus a cleavage existed between the two sexes. Criswell studied elementary school children and his findings were replicated more recently by Asher (Note 1) on fourth and fifth graders, by Singleton (Note 3) on third
graders, by Singleton and Asher (1977) on third graders, and by Bron- 
lund (1959) on third graders and older children. These studies support 
the idea that cross-sex friendships do not exist in elementary grades 
three through five.

A problem with using sociometry to describe childhood cross-sex 
friendship patterns is that although it is proven to be reliable in 
elementary school studies (Bonney, 1943; Busk, Ford, & Schulman, 1973; 
Roff et. al., 1972), it has not been shown to be reliable in preschool 
studies (Bronfenbrenner, 1944; Busk et al., 1973) until just recently.

Asher (1979) has developed a new sociometric technique that uses ratings 
instead of nominations, and it has been proven to be reliable at the 
.preschool level. However, due to the unreliability of sociometric 
.studies at the preschool level up until this time, conclusions cannot 
.be made about childhood cross-sex friendships from data before the 
Asher study.

The major problem in using sociometry to evaluate the presence of 
cross-sex friendships is not its reliability, but rather the fact that 
sociometry cannot give an accurate description of friendships per se.
The reason for its invalidity is that sociometry assesses popularity 
and not friendship. Questioning children on whom they would most like 
to "sit by" or "play with" is in essence a measure of how popular each 
child is. It does not measure how many friends one has because re-
ciprocal nominations are usually not employed by researchers in tab-
ulating a child's total score of "friends". Also, any friend a child 
has outside of the classroom will not be counted. Sociometric measures
do not assess the quality of any friendship; they merely count how many times a child was chosen by his/her classmates.

Due to the poor reliability found in most sociometric studies at the preschool level, and due to the invalidity of sociometry as a measure of friendship, sociometry has not been a good indicator of trends in childhood cross-sex friendships. One must therefore look at the results of other studies to find evidence of the existence of cross-sex friendships at different ages.

Some studies on preschoolers find that preschool children mostly choose friends of the same sex. Researching 3-year-olds, Fagot and Patterson (1969) documented the existence of distinct sex-typed behaviors, and perhaps more importantly they have shown that each sex reinforces the traditional stereotypic behaviors for their sex, as they see them produced by their peers. This indicates that males were mainly reinforcing males, and thus interacting mainly with males, and that females were mainly reinforcing females, and thus interacting mainly with females.

Observing subjects ranging in age from 27 to 45 months of age, Challman (1932) found that children exclude members of the opposite sex from play. In this study he noticed that only one cross-sex friendship existed amongst the 33 nursery school children observed. Similarly, Omark and Edelman (Note 2), after having observed kindergartners (along with first and second graders) found that these children, too, play mainly with children of the same sex.

Hutt (1972) has found that preschool boys are mainly interested in
objects and that preschool girls are mainly interested in people. He has also observed that there are differences in the type of interaction between males and females. Females interact socially more often and are more docile, while males interact socially less often, but with a greater number of aggressive encounters. Shure (1963), studying 4 year-olds, also reported a segregation in the play behavior of males and females, with males playing mostly in the block area of the nursery school, and with females playing mostly in the art and book area.

Conversely, one major study has shown that preschoolers do not exhibit any or much sex bias in behavior or in choice of friends. Asher, Singleton, Tinsley, and Hymel (1979) had observed children who ranged in ages from 4 years 2 months, to 4 years 10 months and did not find evidence of a sex bias. In this study ten males and nine females were asked to rate their peers on a scale of one to three on how well they liked to play with them. Both sexes received similar ratings from the entire class. This seems to suggest that preschoolers do not necessarily perceive sex as a major determining factor in evaluating peers, and thus possibly not as a major determining factor in choosing their friends.

There is evidence to support both the existence and nonexistence of cross-sex friendships in childhood. The problem, however, is that the major technique used to gather this evidence is sociometry, which has problems as a measure for the study of cross-sex friendships (see above). Other studies are weak at best in that they do not directly attack the question of the existence of cross-sex friendships. Such
evidence can only be inferred indirectly from these studies. Another problem is that the age range covered for each technique is limited; very few if any techniques are used consistently from preschool level throughout elementary school level. Conclusions about trends in cross-sex friendships therefore cannot be made.

The first step is to determine if there is a developmental pattern in cross-sex friendships. If one exists, the next step would be to explain why the pattern exists. To explain why a pattern might exist in choosing same-sex as opposed to cross-sex friends, one must realize what differences exist or potentially exist between males and females. Then one must discover how these differences are perceived by children and how these perceptions influence their choice of a same-sex or a cross-sex friend. It has already been hypothesized by Koch (1944) that children "who have achieved a sex identification tend to prefer members of their own sex". Perceptions of sex differences are more commonly referred to as "gender identification". This paper will briefly look at three theories of gender identification which could explain trends in childhood cross-sex friendships.

**Potential Theoretical Predictions**

This section will briefly discuss three broad theoretical approaches and extrapolate the predictions each theory might make about cross-sex friendships in children. These theories were not designed to explain cross-sex friendships. Rather, these theories are being used to give possible insights into potential patterns of childhood cross-sex friendships. I will be using my own interpretation of these theories
to offer possible explanations of the trend that I found in this study of childhood cross-sex friendships. The three theories are: psychoanalytic; social learning; and what will be called a "developmental theory".

**Psychoanalytic theory.** The psychoanalytic theory of gender identification is based on the works of Sigmund Freud. Freud attributed personality traits to differences in sex and the consequential differences in development. He believed that these traits are formed in the child's first few years of life during the process of gender identification. This process evolves around what Freud considered to be the most important stage for the child's development of sexual differentiation - the Oedipal complex (Freud, 1923). Although the Oedipal complex mainly focuses on the male's traumatic process of identification with the father, it also explains the female's identification with the mother, which is sometimes referred to as the Electra complex. Formation of the superego, which is comprised of one's conscience and ego ideal, is the most important occurrence during this time for both males and females. The conscience is the set of values one uses to determine right from wrong. The ego ideal is a similar set of values, but these values are in the form of a model image, an image based mainly on what the child sees as appropriate masculine and feminine traits. Freud believed that the child develops this ideal image through the process of identifying with an emotionally close person, which is usually the child's same-sex parent.
Freud stated that the Oedipal complex, and thus the process of identification, should be resolved very early in life. He hypothesized that children pass through five stages of psychosexual development: the oral-dependent stage, age 0-6 months; the anal-sadistic stage, age 6 months to 3 years; the phallic stage, age 3 to 6 years (it is here that the Oedipal complex occurs and is resolved); the latency stage, age 6 to 12 years, and the genital stage, age 12 years and up (Costin, 1976). Costin notes that these age periods are only approximations as Freud did not cite exact ages.

During the phallic stage boys and girls experience castration complex and penis envy, respectively. These traumatic conflicts are ultimately resolved in the Oedipal and Electra complexes through children identifying with the same sex parent. The latency period is characterized by a repression of the libidinal attachments to the opposite sex parent and a continuation of identification with the same sex parent. Active expression of sexual feelings is not displayed again until the genital stage. Termination of cross-sex friendships could be explained with reference to this theory by showing that as children identify with the same sex parent during the end of the phallic and at the beginning of the latent stage, they also terminate their cross-sex friendships as a defense mechanism to protect their fragile new-found identity. Thus termination should occur approximately at age 6, according to the age estimates that Costin provided for the various sexual stages. Psychoanalytic theory would thus posit an abrupt end to cross-sex friendships after age 6.
**Social learning theory.** Social learning theory is based in part on the concept that children learn what their society dictates. Its view on gender identification is based on the assumption that society teaches children that a sex difference is social as well as biological in nature. Through reinforcement of sex appropriate behavior and through differentiated gender models, the society would be teaching children that, due to these differences in sex, each sex should behave differently, enjoy different things, and therefore not be too interested in playing with each other. This theory could explain the termination of cross-sex friendships by suggesting that children who engaged in cross-sex friendships had not previously assimilated society's view of sex differences, at least in a social context, and that they would terminate these relations after they received sufficient reinforcement of, or exposure to, sex appropriate behavior. This view is supported by Asher, Oden, and Gottman's (1975) review which suggests that the development of cross-sex friendships depends on the absence of rigid sex roles. They based this hypothesis on research that finds a high degree of masculine and feminine stereotypic behaviors present in children.

Social learning theory would predict a gradual decline in the number of children engaged in cross-sex friendships as children mature. This decline would be the result of older children having increased exposure to stereotypic gender roles through reinforcement and modeling. The social learning theory could also be used to predict that children in more socialized environments would be engaged in cross-sex
friendships less often than children in less socialized environments.

**Developmental theory.** The developmental theory of gender identification (Kohlberg, 1966) is based on the view that as children mature, they change their attitudes about life, which in turn affects their view of gender identity. This theory assumes that both biological development and social influences contribute to the various stages of the child's conception of gender identification. Ullian (1976) hypothesized that these developmental stages can be accounted for by the fact that at different age levels one interprets the biological and social differences between males and females differently, and that it is this interpretation which affects how one perceives masculinity and femininity.

Kohlberg (1966) thus believes that children's social view of the world changes with age. Stressing the role of cognitive development, Kohlberg hypothesized that different views of gender identification at different stages are not the sole result of socialization, but rather that these perceptions evolve naturally with the child's development. Kohlberg's theory differs from the social learning theory in that he believes children first perceive what sex they are, and then want to behave in sex-appropriate ways as they recognize them at each stage. Social learning theorists believe the opposite; they hypothesize that children are first reinforced for behaving in sex-appropriate ways and then identify with the gender that they are being reinforced for imitating.
The developmental theory could also be used to predict a gradual decline in cross-sex friendships as children mature. However, this theory would attribute the gradual decline to children's increased cognitive awareness of gender differences as they mature and not to increased socialization. It would emphasize that different children terminate cross-sex friendships at different ages due to the fact that some children reach the various developmental stages earlier than others.

Another difference between the social learning and developmental theories of gender identification is seen in their predictions of the effects that school would have on cross-sex friendships. The social learning theory would predict that since schools and daycares offer a more socialized environment, children would be exposed to stereotypic gender models more than their non-attending peers, and thus they would terminate their cross-sex friendships sooner. The developmental theory would predict that merely attending school or daycare would not have a significant effect on cross-sex friendships, especially for the younger children, age 3 to 5 years. The developmental theory would argue against school having a significant effect because this theory emphasizes that the child must be old enough to cognitively be aware of gender differences. Even though children who attend daycare would be exposed more to stereotypic gender models than children who do not attend daycare, they would not be cognitively mature enough to realize the true differences in gender, and thus would not terminate cross-sex friendships any earlier.
The Present Study

Although weak, evidence does support the possible existence of a trend in children choosing cross-sex friends only at early ages and choosing same-sex friends at all ages. Therefore, as a first necessary step in research, this study is concerned with determining what factors could account for children choosing cross-sex friends in early ages and what factors could account for their not choosing cross-sex friends at later ages.

Based on the evidence to date, it is hypothesized that children do have cross-sex friends at the preschool level, but not at the elementary school level.

Method

Subjects. The subjects were families living in Orchard Downs, which is the married student housing division at the University of Illinois, Urbana. Originally 200 families were chosen to be subjects from the total 800 households in Orchard Downs. These 200 families were chosen because the Orchard Down's office had census material which had shown that these homes contained children in the desired age range of three to eight years. Parents in these 200 households were then contacted by door to door interviews made by the author and four student volunteers. This sample was further narrowed to include the parents of approximately 95 children for the following reasons: difficulty in contacting all parents; families moving before the study was completed; children designated as being in the proper age range according to the census material and not actually being in the correct age range; and nonacceptable data due to language barriers.
The social and cultural backgrounds of these families vary greatly as approximately 80-85% of all students in the Orchard Downs complex are foreign students. Those interviewed represent many parts of the world including Russia, the Far East, the Middle East, Europe, Africa, Central and South America, and North America.

All data is based on children who are between the ages of three and eight years. If the friendship being questioned is between children of different ages, the data was recorded in the age range of the child of the interviewed parent, not of the best friend. Also data from parents who responded that their child’s best friend was more than two years different from their own child were disregarded. These friendships were not used in analyzing the data because a friendship between two children of such varying ages could not give an accurate reflection of the normal give and take between children. It seems that such friendships would be more likely to reflect a relationship in which one person is more of a caretaker than an equal partner in friendship. This narrowed the sample down to the final count of 87.

Procedure. After determining which households in the Orchard Downs area contained families with children between the ages of 3 and 8 years, the area was divided into six regions consisting of 30 to 40 designated households, and a region was assigned to the author and five volunteers. One volunteer resigned from the project and her area was never covered due to a lack of time. Interviewers then proceeded to go door to door to the designated apartments and introduce themselves as either the senior working on her undergraduate thesis in psychology or
as an aide to this person and her project. They then introduced the project as being concerned with patterns in childhood friendships as supervised by Dr. John Gottman. Subjects were then asked if they would agree to answer a few questions about their children's friendships.

If the parent agreed to the interview, the interviewer proceeded to ask the parent to list the ages and sex of all their children. Then with reference only to the children between 3 and 8 years of age, the parent was asked to tell each of these children's best friends' name, age, and sex. With this best friend in mind, the parent was asked 31 questions concerning the quality of this friendship. All questions were answered with reference to the continuum, "often, rarely, or somewhere in between". Examples of these questions are: "These children share", "These children want to be together", and "These children eat over at each other's homes". This set of 31 questions was taken from an unpublished study by Gottman. (Appendix 1)

All of these questions were then scored with five points being recorded for an answer of "often", three points for "somewhere in between", and one point for "rarely". However, several questions were aimed at determining if negative aspects existed in the relationship. Examples of such questions are: "These children hit one another or fight physically", and "These children hurt each other's feelings". These negative questions were numbered 8, 12, 20, 23, and 25. These questions were scored oppositely with an answer of "often" being recorded with one point, and an answer of "rarely" being recorded with
five points. The total for friendship quality ranges from 31 to 155 points.

The next three questions (#35, 36, 37) were aimed at finding if the child does now or in the past did partake in any type of cross-sex friendship, be it a "best friend" or merely a friend encountered through group play. If such cross-sex friendships did occur in the past, the parents were asked to tell both the age of the child at the time of the friendship and the age of the child's friend at that time. Also, if such a cross-sex friendship existed in the past and not in the present, the parent was asked to account for the termination of this friendship.

Question 38 was straightforward as it aimed at determining which, if any, school or daycare center the child attended. This question's purpose is to see if attending such an institution could have an effect on children's choice of a same-sex or cross-sex friend.

Questions 39 and 40 were directed at discovering the nationality of the parents and how long they had lived in the United States. Knowing the length of their residency in the United States is important for determining how long they had been exposed to the American culture. The purpose of these questions is to discover if the influence of different cultures could affect children's choice of a same-sex or a cross-sex friend.

The last question was of an entirely procedural nature. Parents were asked if they would not mind being contacted again in the event that more information would be necessary to complete the project.
After all these questions were asked, the interviewer thanked the subject for his/her time, elaborated on the project itself, and answered any questions the subject might have.

Results

Results of this study show the following: cross-sex friendships terminate by the age of 7 years; attending school or a daycare center has no effect on a child’s choice of a same-sex as opposed to a cross-sex friend; parent’s length of residency in the United States has no effect on a child’s choice of a same-sex as opposed to a cross-sex friend; girl/girl friendships generally exhibit a higher quality than boy/boy or boy/girl friendships; boy/girl and boy/boy friendships are similar in quality; and no significant difference exists between the quality of friendships at different age levels.

Chi-square, Freeman-Tukey deviations, the odds ratio, and T-tests for two independent means were the analyses performed on the data.

All 87 friendships were first divided into three subgroups according to the age of the chi’l of the parent interviewed. The three age groups were: 3 and 4 year-olds, 5 and 6 year-olds; and 7 and 8 year-olds. Each of these three groups was furthered divided into two groups consisting of the frequencies of cross-sex friendships and same-sex friendships found at each age level. A chi-square analysis was then completed on the 2 by 3 matrix. This analysis shows that a significant difference in choosing same-sex as opposed to cross-sex friends does exist amongst the different age groups at the p < .025 level, where df = 2, and $X^2 = 8.4$. 
Freeman-Tukey deviates (FTD) are used to determine which cells in a chi-square analysis were responsible for the significant chi-square. The equation for the Freeman-Tukey deviate is:

$$\text{FTD} = \sqrt{\text{OB}} + \sqrt{\text{OB}} + 1 - \sqrt{\frac{1}{4} (\text{EX}) + 1}$$

with OB = observed and EX = expected values. These observed and expected values are the same as the observed and expected values found in the chi-square analysis. Freeman-Tukey deviates were performed on the three cross-sex friendship cells found in the 2 by 3 matrix in Table 1 to determine which age group was responsible for the significant chi-square. Only the 7-8 year-olds' cell showed a significant value. This value, FTD = 3.17, is significant at the p < .05 level.

Two chi-square analyses were completed on the age by sex choice friendships. These tests were done on two different 2 by 2 matrices to again detect which age level was contributing to the significant effect found in the first chi-square analysis. Analysis on a same-sex/cross-sex by 3-4/5-6 year age chi-square does not show a significant difference. However, a similar analysis between the 5-6 and the 7-8 year age levels does show a significant difference in choosing same-sex as opposed to cross-sex friends. This difference is significant at the p < .01 level with $\chi^2 = 4.49$. 

Insert Table 1 about here

Insert Tables 2 and 3 about here
As a control, two chi-square analyses were completed. The first was a male/female by same-sex/cross-sex chi-square (2x2 matrix). The second was a male/female by 3-4/5-6/7-8 year ages chi-square (2x3 matrix). These two tests both proved not to be significant at the p < .05 level. The 2x2 matrix shows that there was not a tendency for parents to report more same-sex or cross-sex friendships for their sons than for their daughters, and vice versa. The second analysis shows that there is not a disproportionate number of males or females in any of the age groups. Thus any significant difference found is not affected by a disproportionate representation of either sex.

Insert Tables 4 and 5 about here

A chi-square analysis was also completed on a 2x2 matrix of same-sex/cross-sex by attending daycare/not attending daycare. This analysis proved not to be significant at p < .05 for both the entire n of 87 and for just the 3-4 year olds. These results show that attending a school or daycare center does not have significant influence on whether a child chooses a same-sex or a cross-sex friend.

Insert Tables 6 and 7 about here

An odds ratio was also graphed on a cartesian coordinate. The plots represent the proportion of cross-sex friendships in relation to total number of friendships for each of the three age levels.
At the 3-4 year age level 36% of the friendships were cross-sex friendships. At the 5-6 year age level 23% of the friendships were cross-sex friendships. No cross-sex friendships existed at the 7-8 year age level. This shows that proportionally, cross-sex friendships do decrease as children's age increases, even though chi-square analysis has shown that a significant difference does not exist between the 3-4 and 5-6 year age levels.

A chi-square analysis was completed on the foreign subjects to see if length of residency in the United States would influence a person's choice of a same-sex or a cross-sex friend. Subjects whose parents were both foreigners were divided into two groups based on the length of residency in the United States. The first group was defined as "short term residents" and consisted of families who had been in the United States 18 months or less. The second group was defined as "long term residents" and consisted of families who had been in the United States longer than 18 months. Each of these groups was then subdivided into two more groups based on the child's best friend being either same-sex or cross-sex. Analysis shows no significant difference is present. Thus length of residency in the United States by foreigners is not a significant factor in a child's choosing a same-sex best friend as opposed to a cross-sex best friend.
T-tests for two independent means were used to determine if the friendship quality of certain subgroups were significantly different. Sex proved to be a significant variable in the quality of friendships. A significant difference between same-sex male and same-sex female friendship quality, as measured by scores obtained in questions 4 through 34, over all age groups was found at the $p < .05$ level, $t = 3.17$, $df = 64$. In this comparison, same-sex female friendships proved to be of higher quality ($\bar{x} = 125.44$) than same-sex male friendships ($\bar{y} = 115.38$).

Next, tests were performed comparing same-sex female and same-sex male friends for each individual age group. In the 3-4 year age range a significant difference existed between same-sex female and same-sex male friendships with the same-sex female friendships again having a stronger quality ($\bar{x} = 124.2$, $\bar{y} = 113.13$). This difference was significant at the $p < .05$ level, where $t = 2.35$, and $df = 23$. The difference in quality of same-sex female and same-sex male friendships in the 7-8 year age range is also statistically significant at the $p < .05$ level, $t = 2.22$, $df = 15$. Again the same-sex female friendships prove to be stronger ($\bar{x} = 131.67$, $\bar{y} = 120.88$). However, at the 5-6 year age level there was no significant difference in the quality of friendships between same-sex female and same-sex male friendships. Nonetheless, in this analysis, the mean of the quality of same-sex female friendships
(\bar{x} = 122.53) was higher than that of same-sex male friendships
(\bar{y} = 114.22). In general one can speculate that these differences
are likely to be found in a replication of this study for each age
group.

T-tests were also used to determine if a difference exists be-
tween the quality of cross-sex friendships and the quality of same-
sex friendships. Since cross-sex friendships were only found in the
3-4 and 5-6 year age levels, analysis was limited to these two ranges.
A significant difference does exist between cross-sex friendships and
same-sex female friendships in the 3-6 year age range. This difference
is significant at the p < .05 level, t = 2.10, df = 44, with same-sex
female friendships exhibiting a higher quality (\bar{x} = 123.2) than cross-
sex friendships in this age range (\bar{y} = 114.81). However, no signifi-
cant difference in friendship quality was found between cross-sex
friendships (\bar{x} = 114.81) and same-sex male friendships in the 3-6
year age range (\bar{y} = 113.54).

Differences in quality of friendships at different age levels were
also analyzed, with no statistically significant results. The first
of these t-tests was completed on same-sex female friendships between
the 5-6 and the 7-8 year age ranges. Although the older group did
have a higher mean (\bar{x} = 131.67) than did the younger group (\bar{y} = 122.53),
this difference was not statistically significant.

The t-test on same-sex male friendships between the 5-6 and 7-8
year age ranges likewise showed similar results with the older group
exhibiting a higher mean (\bar{x} = 120.88) than the younger group (\bar{y} = 114.22),
but this difference was not statistically different.

Two t-tests between the age levels of 3-4 and 5-6 also failed to show a statistically significant difference. These tests were performed between same-sex female friendships at both age levels and between same-sex male friendships at both levels.

Discussion

Chi-square analysis has shown that in the age range studied, as children mature, they essentially cease to choose members of the opposite sex as close friends. The age level where this change occurs has been determined to be in the 7-8 years of age range. Thus something is influencing children as they mature to cause them to stop choosing friends of the opposite sex and to select only friends of the same sex.

This "influence" seems to begin affecting children at an early age even though the total break-off of cross-sex friendships does not occur until age 7. This build-up effect is exhibited in the odds ratio graph (See Figure 1). Although a statistically significant difference does not exist between the proportion of cross-sex friendships in the 3-4 and 5-6 year age ranges, a trend toward less cross-sex friendships in the older age range is seen. It can be inferred that whatever is causing children to stop choosing cross-sex friendships by the age of 7 has begun to influence children before this time.

A theory to explain this trend in cross-sex friendships cannot be positively identified from the results in this study. All three previously discussed theories - psychoanalytic, social learning, and
developmental - offer plausible explanations that in essence can be neither fully supported nor fully refuted based on the results of this study.

**Potential Theoretical Predictions**

**Psychoanalytic theory.** The psychoanalytic theory could be correct in its view of gender identification being acquired through the child's resolution of the Oedipal complex. During this phase it is hypothesized that children will identify with their same-sex parent and then terminate any cross-sex friendship as a defense mechanism to protect their fragile new identity. Freud believed the Oedipal complex was a universal phenomenon occurring at about the same age for all children. The results support this belief in that a definite abrupt change in cross-sex friendships occurs between ages 6 and 7 (See Tables 2 and 3 and Freeman-Tukey deviate).

Thus a definite point is shown to exist for the termination of cross-sex friendships. This age where termination occurs closely coincides with Costin's approximated age of the resolution of the Oedipal complex and completion of the phallic stage. The data supports the psychoanalytic theory to the point of predicting the age where termination of cross-sex friendships occurs. However, the mere fact that the psychoanalytic theory's prediction coincides with the actual age of termination is no guarantee that children are terminating their cross-sex friendships as a result of the resolution of the Oedipal complex.
Social learning theory. The social learning theory could also be correct in its view that society is determining the gender identification that children are adopting. If no social difference exists between the sexes, it would be doubtful that cross-sex friendships would terminate. Therefore, it seems likely that a social difference does exist between the sexes. If boys and girls behave differently, then one must question why this is so. The social learning theorists' view of children adopting the appropriate gender behavior that society has reinforced in them is very plausible. However, the data weakens this theory in two separate analyses. First of all, if social influences were the only input to gender identification and cause of termination of cross-sex friendships, then statistically a difference should exist between the 3-4 year-olds and the 5-6 year-olds. This difference should be present because 5-6 year-olds would have had more social reinforcement than 3-4 year-olds. Chi-square analysis (See Table 2) and the Freeman-Tukey deviate do not support this difference. These results support an earlier study by Hattwick (1937) in which she observed no increase or decrease in sex differences between 2 year-olds and 4-year-olds. She also theorized that something other than societal influences are affecting behavior in boys and girls since 4 year-olds would have had greater exposure to social forces than 2 year-olds.

The second piece of evidence that weakens the social learning theory is the chi-square analysis of children attending daycare (See Tables 5 and 6). This analysis shows that attending daycare or school has no significant effect on whether children choose a same-sex or a
cross-sex friend. Thus even though children who are attending a "socialized" institution are most probably being exposed to stereotypic gender roles more than children who are not attending, this difference in exposure has no effect on cross-sex friendship choice.

**Developmental theory.** Likewise, the developmental theory of gender identification also offers a plausible explanation for the termination of cross-sex friendships. This theory stresses the idea that gender identification results from the combination of the child's maturation and the social influences exposed to him/her. The developmental theory could be used to predict that children would terminate cross-sex friendships when they have reached the cognitive level that allows them to be aware of the gender differences that society is dictating. This hypothesis would recognize that a gradual decline in cross-sex friendships would appear as children mature, with most children terminating cross-sex friendships at a similar age. However, the data has shown that a definite age exists where cross-sex friendships are terminated (See Table 1). In this regard, the developmental theory is weakened. Although not significant, data does show somewhat of a gradual decline in cross-sex friendships (See Figure 1). Possibly developmental influences have an effect on cross-sex friendship termination. Data does support the developmental theory, even though weakly, in that it shows that termination of cross-sex friendships is more contingent upon age than upon socialization (See Tables 1 and 5).

The results of this study do not strongly support any of the three theories attempting to explain the trend found in childhood cross-sex
friendships. Further research is needed to find more about cross-sex friendships and causes of their termination. One must look more closely at the family's role in children's identification process to explain the termination of cross-sex friendships in psychoanalytic terms. One must look more closely at peers' and teachers' involvement to explain the termination of cross-sex friendships in social learning terms. Finally, a longitudinal study of childhood friendships should be conducted. This study should investigate changes in gender identification and perception of sex differences to explain the termination of cross-sex friendships in developmental terms.

**Quality Ratings**

The present study also compared the quality of same-sex female, same-sex male, and cross-sex friendships. Basing the quality ratings on the score compiled in questions 4-34, t-tests show that over all age levels, girl/girl friendships are significantly higher in quality \( p < .05 \) than boy/boy friendships. When subdivided into three separate age levels, the 3-4 and 7-8 year-old girl/girl friendships were higher than the boy/boy friendships, but in the 5-6 year-old age range, there was no significant difference between the sexes. This lack of a significant difference in age 5-6 might be attributable to the small sample size.

As stated previously, it is likely that society dictates what roles are appropriate for each gender. In our society, the feminine role has traditionally been more of a pacifist role while the masculine role has been more of a powerful and aggressive role. The questions used to
describe the quality of friendship were scored to favor the pacifist model. Children received high scores for "playing nicely", "smiling", "sharing", etc., and received low scores for "competing", "disagreeing", and "hitting...or fighting", etc.. Thus it would be expected that on the average, girl/girl relations would have received higher scores than boy/boy relations. This is precisely what occurred.

If society is reinforcing a pacifist gender role for females and not for males, then what can be said about cross-sex friendships? Results show that cross-sex friendships are similar in quality to boy/boy friendships and are significantly different from girl/girl friendships at the p < .05 level. It can be inferred that society is influencing children to conform to their stereotypic gender roles. Thus as girls mature and realize that their role should be pacifist, it is likely that they will disengage from their "aggressive" cross-sex friendships and partake in girl/girl friendships. On the other hand, a boy in a pacifist girl/boy friendship could realize that his gender role should be more active. He would then terminate this relationship and engage in a more active or masculine relation with another male.

It seems that when a child realizes that he/she is not behaving according to the gender model society has prescribed, that he/she will change his/her behavior, and if the child's cross-sex friend does not adapt to this change, the friendship will terminate.

Since cross-sex friendships and boy/boy friendships are similar in quality, it would seem that the majority of cross-sex friendships follow the masculine gender role. Therefore either girls terminate
these relations when they decide they want to follow the stereotypic female role, or boys terminate these relations when they decide that they do not want to "risk" their masculinity by playing with girls.

The fact that children do play with peers of the opposite sex past age 7 is seen in the results of question 35. The results show that nine out of the seventeen 7-8 year-olds interviewed do have at least one friend of the opposite sex, although this person is not their best friend. He/she would be more of a friend encountered through group play; they would not have the personal closeness of a best friend. The fact that children still play with members of the opposite sex after 7 but do not choose any opposite sex peers as a best friend shows that whatever is happening to influence the termination of cross-sex friendships is not absolute. Children do continue to engage in cross-sex friendships, but only not on the same close level prior to age 7.

Criticisms

A questionable aspect concerning the design of this study is the limited sample. Since all subjects were procured from Orchard Downs, the married student housing division at the University of Illinois, Urbana, one must recognize that it is not a representative sample. However, even though these subjects are linked by their parent's current status of being students and by their being in similar economic situations, these factors should not be unduly significant. The subjects' backgrounds are very different as they originate from all over the world. The children attend different schools. Choosing friends, which is the major question addressed, relies on an accept/reject pattern; children
meet other children and either accept them or reject them as friends. The fact that Orchard Downs does contain numerous children gives each child more of a choice in who he/she wants as a friend. For this reason, it seems that Orchard Downs is a much desired sample because children's choice of a same-sex or cross-sex friend is not limited by proximity of available peers. However, the fact that these families are usually very mobile does sometimes make it difficult for a child to have a close friend for a long period of time.

The fact that about 80% of the residents in Orchard Downs are foreigners might also have an effect on the results. Possible cultural influences from the parents background could affect a child's choice of a same-sex or cross-sex friend due to different gender roles being present in different societies. However, this seems not to be the case. Chi-square analysis of same-sex/cross-sex friendships by length of residency shows no significant effect (See Table 8). Therefore it can be inferred that the parents' background and ties to their own culture have no substantial effect on whether their child chooses a same-sex or cross-sex friend. If the cross-sex friendship phenomenon is cultural, then it must be based on the culture to which children are presently exposed. In fact, some parents reported that they believe the influence of the American culture is far more important in their children's development than that of their homeland. It is the culture that the child is raised in that seems to have the most influence. Television, radio, magazine, toys, games, and general attitudes conveyed by teachers and other adult role models outside of the home seem
to be the major influences on children. Some parents even reported that they disagree with the American attitudes toward gender role, but that there was nothing they could do about this. Their children were responding to the American culture.

This study shows that a trend in cross-sex friendships does exist with termination occurring at about 7 years of age. It also discussed three possible theories - psychoanalytic, social learning, and developmental - to explain this trend, but concludes that none of these theories is adequately supported by the data. Differences in quality of three types of friendships were studied. T-tests show that same-sex female friendships exhibit a higher quality than either same-sex male or cross-sex friendships. It is hypothesized that this difference is due to society reinforcing a pacifist feminine gender role and an aggressive masculine gender role. Thus three questions are raised: 1) Is society actually responsible for gender roles exhibited in children? 2) Is it due to societal reinforcement of gender roles that children terminate cross-sex friendships? 3) How advantageous is it for both children and society to have differentiated gender roles reinforced in children?
Reference Notes


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Table 1
Chi-Square Analysis of Same-Sex/Cross-Sex Friendships by Various Age Levels*

<table>
<thead>
<tr>
<th></th>
<th>3-4 year-olds</th>
<th>5-6 year-olds</th>
<th>7-8 year-olds</th>
<th>Total</th>
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<tbody>
<tr>
<td>Same-Sex</td>
<td>25</td>
<td>24</td>
<td>17</td>
<td>66</td>
</tr>
<tr>
<td>Cross-Sex</td>
<td>14</td>
<td>7</td>
<td>0</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td>39</td>
<td>31</td>
<td>17</td>
<td>87</td>
</tr>
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</table>

* $X^2 = 8.78$

$df = 2$

$p < .025$
Table 2
Chi-Square Analysis of Same-Sex/Cross-Sex Friendships by 5-6/7-8 years age levels*

<table>
<thead>
<tr>
<th></th>
<th>3-4 year-olds</th>
<th>5-6 year-olds</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same-Sex</td>
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<td>24</td>
<td>49</td>
</tr>
<tr>
<td>Cross-Sex</td>
<td>14</td>
<td>7</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td>39</td>
<td>31</td>
<td>70</td>
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</tbody>
</table>

\[ * \chi^2 = .069 \]

Not Significant
### Table 3

Chi-Square Analysis of Same-Sex/Cross-Sex Friendships by 5-6/7-8 years age levels*

<table>
<thead>
<tr>
<th></th>
<th>5-6 year-olds</th>
<th>7-8 year-olds</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same-Sex</td>
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<td>17</td>
<td>41</td>
</tr>
<tr>
<td>Cross-Sex</td>
<td>7</td>
<td>0</td>
<td>7</td>
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<tr>
<td>Total</td>
<td>31</td>
<td>17</td>
<td>48</td>
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</table>

* $\chi^2 = 4.49$

$p < .05$
Table 4
Chi-Square Analysis to Check for Abnormal Male/Female Proportion in Each Age Level

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<th>7-8 year-olds</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>23</td>
<td>12</td>
<td>8</td>
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</tr>
<tr>
<td>Female</td>
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<td>44</td>
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<tr>
<td>Total</td>
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<td>17</td>
<td>87</td>
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</tbody>
</table>

*\chi^2 = 2.84*

Not Significant
### Table 5

Chi-Square Analysis to Check for Disproportionate Reporting of Cross-Sex Friendships for Males or Females

<table>
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<tr>
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<th>Same-Sex</th>
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<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>32</td>
<td>11</td>
<td>43</td>
</tr>
<tr>
<td>Female</td>
<td>34</td>
<td>10</td>
<td>44</td>
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<tr>
<td>Total</td>
<td>66</td>
<td>21</td>
<td>87</td>
</tr>
</tbody>
</table>

*\( \chi^2 = 0.10 \)

Not Significant
Table 6
Chi-Square Analysis Over all Ages of Same-Sex/Cross-Sex by Attending Daycare/Not Attending Daycare *

<table>
<thead>
<tr>
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<th>Daycare</th>
<th>No Daycare</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same-Sex</td>
<td>58</td>
<td>8</td>
<td>66</td>
</tr>
<tr>
<td>Cross-Sex</td>
<td>15</td>
<td>0</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td>73</td>
<td>14</td>
<td>87</td>
</tr>
</tbody>
</table>

\[ *X^2 = 3.19 \]

Not Significant
Table 7
Chi-Square Analysis of 3-4 Year-Olds’ Same-Sex/Cross-Sex Friendships by Attending Daycare/Not Attending Daycare*

<table>
<thead>
<tr>
<th></th>
<th>Daycare</th>
<th>No Daycare</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same-Sex</td>
<td>20</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>Cross-Sex</td>
<td>9</td>
<td>5</td>
<td>14</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>10</td>
<td>39</td>
</tr>
</tbody>
</table>

\[ *X^2 = 1.16 \]

Not Significant
### Table 8

Chi-Square Analysis of Same-Sex/Cross-Sex Friendships by Foreign Subjects' Length of Residency in the United States

<table>
<thead>
<tr>
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<th>Longterm Residents</th>
<th>Shortterm Residents</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>Same-Sex</td>
<td>16</td>
<td>18</td>
<td>34</td>
</tr>
<tr>
<td>Cross-Sex</td>
<td>2</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>18</td>
<td>25</td>
<td>43</td>
</tr>
</tbody>
</table>

\[ \chi^2 = 1.80 \]

Not Significant
Figure Caption

Figure 1. Odds ratio of percentage of cross-sex friendships in each age group.
Appendix 1

Survey Questionnaire Used in Study

1. List all children by name, age, and sex.
   (Now focus only on children between 3 and 8 years. If more than one child
   exists in this age range, then direct questions 2 through 38 on one child
   at a time)

2. Child's name, age, and sex.

3. Child's best friend's name, age, and sex. (If no best friend, focus
   on a good friend)

   (Answer questions 4-34 with "often", "rarely", or "somewhere in between".)

4. These children are reluctant to part

5. These children share

6. If there's a day when these children
   can't play, they feel sad

7. These children have a good time
   together

8. These children compete

9. These children play together for
   long periods

10. These children make up after squabbling

11. These children play nicely together

12. These children vent hostile feelings
    toward one another

13. These children smile at each other

14. These children are helpful
    to one another

15. These children hit one another
    or fight physically

16. These children offer things to
    one another

17. These children want to be
    together

18. These children disagree on
    what they'd like to do

19. These children show physical
    affection to one another

20. These children seem not
    one another
21. These children call each other on the phone
22. My child would rather play with this child than with other children
23. The children quarrel or bicker
24. These children have strong positive feelings for one another
25. These children hurt one another's feelings
26. These children feel sad when parting
27. We might take this child along on family outings

28. These children ask to see one another
29. My child spontaneously talks about this playmate in (his/her) absence
30. My child suggests visiting the other child
31. These children are very involved with each other when they play
32. These children are happy to see one another
33. These children eat over at each other's homes
34. These children may sleep over at each other's homes

35. Does this child have any cross-sex friends? If so, list name and age of friend.
36. Account for past friendships back to age four. List age of child at time of friendship and whether friend was same or opposite sex.
37. If child had a cross-sex friendship in the past, ask if the mother knows the reason why the friendship terminated.
38. Ask what school or daycare center the child attends.
40. Ask how long the parents have been in this country, if applicable.
41. Ask if they would not mind being interviewed again, if necessary.
Appendix 2

Summary of all Means, Standard Deviations, and N's

Used in T-Test for Friendship Quality

<table>
<thead>
<tr>
<th></th>
<th>3-4</th>
<th></th>
<th>5-6</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\bar{x}$</td>
<td>SD</td>
<td>N</td>
<td>$\bar{x}$</td>
</tr>
<tr>
<td>Male</td>
<td>113.13</td>
<td>13.08</td>
<td>15</td>
<td>114.22</td>
</tr>
<tr>
<td>Female</td>
<td>124.2</td>
<td>8.65</td>
<td>10</td>
<td>122.53</td>
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<tr>
<td>Male</td>
<td>111.67</td>
<td>19.21</td>
<td>9</td>
<td>119</td>
</tr>
<tr>
<td>Female</td>
<td>121</td>
<td>7.62</td>
<td>5</td>
<td>111</td>
</tr>
</tbody>
</table>

Same-Sex

Cross-Sex