Sibling relationships in early childhood: perceptions of 4- and 5-year-olds and their parents

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Sibling relationships in early childhood:
Perceptions of 4- and 5-year-olds and their parents

by

Pamela Sue Reding

A Thesis Submitted to the
Graduate Faculty in Partial Fulfillment of the
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Signatures have been redacted for privacy

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GENERAL INTRODUCTION

According to Dunn (1983), 80% of the children in the United States have at least one sibling. Sibling relationships are important because these relationships are among the longest-lasting ones that we will have with anyone (Dunn, 1985; Papalia & Olds, 1982; Stocker, Dunn & Plomin, 1989). Thus, siblings are an important socializing force in children's development.

The primary purpose of the present study was to investigate the 4- and 5-year-old children’s perceptions of their relationships with younger siblings. Mothers and fathers also rated the quality of sibling relationships. The correlations of certain demographic variables (i.e., child’s age and sex, parents’ education and occupation, family size, ordinal position, age spacing) to perceptions of sibling relationships were explored. Furthermore, assessment was made regarding the reliability of the interview instrument.

Past research has focused on parent-child relationships and the roles peers have in developing social skills (Pepler, Corter & Abramovitch, 1982). Now, more attention is being given to the roles siblings play as socializing agents. Dunn & Kendrick (1982) note that the study of sibling relationships provides the opportunity to see how children’s understanding of other people develops. Aspects of human growth and development might go unnoticed if only parent-child relationships were studied and siblings were not observed.

This study attempted to obtain more information regarding the
perceptions 4- and 5-year-olds have of their relationship with a younger sibling. Children, 4 and 5 years of age, were interviewed regarding their relationship and interactions with their younger sibling. The five objectives of this study were:

1. To study the perceptions of 4- and 5-year-old children of their relationships with younger siblings.
2. To study whether sex composition of the sibling pair influences the 4- and 5-year-old's perceptions of his/her relationship with the younger sibling.
3. To study the relationships among the child's perception of the sibling relationship and certain family constellation variables (i.e., family size, age-spacing of sibling dyads, ordinal position).
4. To investigate the relationships among maternal and paternal ratings and 4- and 5-year-old's perception of the sibling pair.
5. To assess the reliability of Bray's (1988) sibling interview instrument through the test-retest methodology. A subsample of the original subjects were reinterviewed two weeks after the first interview.

Explanation of Thesis Format

This thesis contains a review of the literature regarding perceptual abilities and sibling relationships (Section I). In addition, it contains an article prepared for publication (Section II). The article contains an introduction, a description of study procedures, the results of the study, and a discussion of the findings and implications for
further research. Presented in Appendix A are the tables relevant to the article prepared for publication. Additional appendices include a coding map for the data, supplementary tables, copies of the correspondence, and the instruments used in this study.
SECTION I. SIBLING RELATIONSHIPS OF YOUNG CHILDREN: A LITERATURE REVIEW
LITERATURE REVIEW

Several topics in the literature are presented so that a more comprehensive understanding of young children's sibling relationships and perceptions of these relationships can be obtained by the reader. This literature review will discuss the importance of siblings as socializing agents, perceptual abilities of young children, the perceptions of sibling relationships, and preschool children's sibling relationships and interactions.

Siblings as Socializing Agents

According to Dunn (1983), 80% of the children in the United States have at least one sibling. Sibling relationships are important because these relationships are among the longest-lasting ones that we will have with anyone (Dunn, 1985; Papalia & Olds, 1982; Stocker, Dunn & Plomin, 1989). Papalia and Olds (1982) go on to say:

They (sibling relationships) begin in infancy, long before we will meet our future spouses, and usually end in old age, generally long after our parents have died. Furthermore, there is an intensity and a specialness to these relationships that is rarely duplicated. These are the people who share our roots, who emerge from the same font of values, who deal with us more objectively than our parents and more candidly than anyone we'll ever know. Not surprisingly siblings are a major influence in our lives (p. 271).

Siblings spend a great amount of time together, especially during the preschool years. During this time, the majority of siblings' time is spent in each others' presence (Ellis, Rogoff & Cromer, 1981) and
children spend almost as much time interacting with their siblings as with their mothers, and much more time than with their fathers (Lawson & Ingleby, 1974).

In the past, research emphasized the importance of parent and peer relationships on the development of social skills (Pepler, Corter & Abramovitch, 1982). The roles siblings play as socializing agents has recently become a new focus. Dunn and Kendrick (1982) note that the study of sibling relationships allows us to see how children's understanding of other people develops. When a child is faced with the birth of a new sibling, there is a dramatic change in the child's social world. Responding to this change involves a reorientation of a child's understanding of why people behave as they do and what people are like (Dunn & Kendrick, 1982).

Researchers have found that siblings are very important in each other's social lives during the preschool years (Pepler, Abramovitch & Corter, 1981). Furthermore, "Younger siblings treat older siblings as more expert persons and the older siblings, as young as 3-year-olds, treat that responsibility seriously by displaying the characteristics of competent socializing agents" (Zukow, 1989, p. 84). More attention also is being given to the role of the older child as teacher for the younger as part of the sibling socialization process. In a study by Stewart (1983), preschool-age children taught infants how to operate a toy camera. It was found that the best teachers were perspective-taking children.
Perceptions of Sibling Relationships

The perceptions of sibling relationships, as well as perceptual abilities that are held by young children will be reviewed in this section. The value and limitations in using the interview method will be discussed. Additionally, parents' perceptions of the sibling relationship will be considered.

Perceptual abilities

Person perception is defined by Tagiuri (1969) as "the process by which individuals come to know and to think about other persons, their characteristics, qualities and inner states" (p. 395). Along the same lines, perspective-taking ability has been defined as "a child's ability to suppress his/her own egocentric and conceptual viewpoints in order to make inferences about another's perspective. It is crucial to effective communication" (Stewart, 1983, p. 49).

The development of friendly sibling relationships is associated with preschoolers' perspective-taking skills (Stewart & Marvin, 1984) and with mothers' conversations with their children (Dunn & Kendrick, 1982). Research has been somewhat controversial pertaining to preschooler's ability to understand another person's point of view. Some research studies show that perspective-taking develops at around age 6 or 7, while others show that it occurs in 3- or 4-year-olds (Dixon & Moore, 1990).

Piaget (1967) suggests that children between 18 months and 7 years are primarily egocentric, unable to take another's point of view. Other researchers agree with Piaget that young children are egocentric (Bigner,
and do not have the language capability to describe their perceptions of others (MacLennan & Jackson, 1985). Also, accuracy in person perception has been found to increase developmentally with age; this is probably due to learning through observations of others (MacLennan & Jackson, 1985).

However, Borke (1971) challenged Piaget's view by finding that 3-year-olds showed awareness of others' feelings and identified situations that brought about different kinds of affective responses. Borke (1971) stated that young children are not completely egocentric and that they can respond empathetically to another's point of view. Furthermore, Dunn (1988) found that children have a practical understanding of others' intentions and feelings between the age of 2 and 3. In another study, the beginnings of perspective-taking were seen in 2-year-olds when they were observed deliberately provoking and manipulating as well as comforting an older sibling (Dunn, 1983). In Stewart's (1983) study, 75% of the 4-year-olds had an elementary understanding of conceptual perspective-taking, as did half of the 3- to 5-year-olds in Stewart and Marvin's (1984) study. Also, those children who were able to infer about another person's point of view were more likely to take part in caregiving activities toward their sibling (Stewart & Marvin, 1984) and were better teachers for their younger siblings on a social cognition test (Stewart, 1983).

Examining the verbal behavior of descriptions of others has been the most widely used technique for the study of children's social perception.
According to MacLennan and Jackson (1985), there may be a confound between perceiving others and developmental language trends. "A child may have impressions of the person for which there is not yet the verbal ability to explicate" (MacLennan & Jackson, 1985, p. 30).

The interview method

The interview is a good technique to assess perceptions of significant people in children's lives (Yarrow, 1960); yet, there is controversy in the research literature regarding the use of the interview method with children as young as 4 and 5 years of age. There has been a general reluctance on the part of some researchers to interview children under the age of 6 because their language comprehension, language facility, and lack of motivation may make the interview noneffective (Yarrow, 1960). Others suggest that the interview does not give a complete picture of sibling relationships, even in school-age children, because children may not be aware of some important characteristics of their relationships or they may not be willing to discuss them. Also, they may describe their relationship in an overly positive manner (Furman, Jones, Buhrmester & Adler, 1989). Another difficulty mentioned by Yarrow (1960) is due to the different levels of language maturity in children at the same age.

On the other hand, children between ages 4 and 5 become more interested in describing events in their experiences and in exchanging information. The interview experience can be gratifying to all ages of children; through receiving the full attention of an interested adult,
status feelings of children are enhanced (Yarrow, 1960). Furthermore, the interview method allows the study of subjective phenomena (i.e., wishes, dreams, anxieties) that could not be studied with direct observation (Furman et al., 1989; Yarrow, 1960). Other advantages of the interview method over the observation method are fewer time-sampling errors and less sensitivity to mood fluctuations (Yarrow, 1960).

"On the whole, research evidence suggests that the direct interview can be used effectively with 4-year-olds" (Yarrow, 1960, p. 564). The interview method has been used with preschool and kindergarten children to assess relationships in several studies (Bigner, 1974; Bigner & Jacobson, 1980; Bray, 1988; Stewart, Mobley, Van Tuyl & Salvador, 1987; Stillwell & Dunn, 1985). Regarding the sibling relationships, Stillwell and Dunn (1985) found 6-year-olds to be "accurate and uninhibited commentators on their own feelings toward another" (p. 635).

Parent ratings

According to Furman et al. (1989), it may be helpful to utilize additional measures for assessing the qualities of sibling relationships. One of those methods is to obtain perceptions of a participant observer; this is someone who is indirectly involved in the relationship, such as a parent. Some studies have obtained perceptions about the sibling relationship from interviewing the children and questioning the mothers (Bray, 1988; Stillwell & Dunn, 1985) and both mothers and fathers (Furman et al., 1989).

In past research, maternal ratings and questionnaires have been used
extensively to gather information about sibling relationships and interactions. Stewart et al. (1987) used maternal ratings on specific behavioral items to assess the firstborn's adjustment to a new sibling. Stoneman, Brody & MacKinnon (1986) administered maternal questionnaires to assess mother's perceptions of the importance of sibling play and toy selection. MacKinnon (1989) administered maternal questionnaires which focused on family history and the overall family environment in relation to sibling interactions. Results indicated that sibling interaction qualities were related to the quality of other family dyadic relations and to family functioning.

While most questionnaires and rating scales regarding sibling relationships have been directed toward mothers, more attention is being given toward the fathers' view of the relationship. According to Creasey and Jarvis (1989), recently, there has been a realization that fathers as well as mothers have an impact on the sibling relationship. Research studies have shown that it is common for young children to express particularly strong affection for their fathers in the year following a sibling's birth, while the fathers also become more involved in child care activities (Dunn, 1985; Dunn & Kendrick, 1982; Stewart et al., 1987; Vandell, 1987).

How do children's perceptions of their sibling relationship compare to their parent or parents' perception of the relationship? In a study of 4- and 5-year-olds' perceptions of their relationship with an older sibling, Bray (1988) found that maternal and child perceptions were not
significantly correlated. Following observations of 2 to 4 years earlier, Stillwell and Dunn (1985) interviewed 6-year-olds and their mothers about the relationship with a younger sibling. They found significant correlations over a long time period, between the child interview and direct observations of the sibling relationship; also, significantly correlated were direct observation with the maternal interview. However, they did not find a significant relationship between maternal and child interview regarding quality of relations with siblings. The authors suggested this may be due to the small sample size in the study.

On the other hand, Dunn and Kendrick (1982) found agreement between maternal interviews and the observations of the firstborn child and the new sibling. Furthermore, in studies of older children, Furman et al. (1989) found evidence that children’s perceptions of their relationships substantially agree with the perceptions their parents have of their relationship. Interviews of fifth- and sixth-grade children, and questionnaires for both parents about the sibling relationship were obtained. The correlations between the mothers’ and fathers’ perceptions (mean $r = .69$) was higher than those between the children and the parents (mean $r = .53$). The explanation by Furman et al. (1989) for the higher correlation for the parents was that they are more cognitively sophisticated and might be more motivated to answer the questions. Also, since fathers and mothers are both participant observers (i.e., are indirectly involved in the relationship), they are more likely to have similar perspectives. Furman et al. (1989) suggest a number of reasons why children and their
parents have somewhat different perspectives of the sibling relationship. Children and parents differ on: (a) the degree of exposure to the relationship; (b) the amount of awareness of the behavior context; (c) influences of ego involvement, attitudes, and feelings; (d) the reference points to interpret the information; and (e) the reporter's motivation and competence.

"It is an error to believe that there is only one accurate view of a relationship" (Furman et al., 1989, p. 170). Thus, each perspective provides different information about a relationship.

Preschool Children's Sibling Relationships and Interactions

This section will discuss the effects of age and sex on the sibling relationship as well as review the literature regarding sibling relationships and sibling interactions.

Age

Research studies show that age spacing effects are important in understanding differences in siblings' cognitive functioning, sex-role development, and social orientation. Furthermore, the amount of age spacing may mediate the psychological closeness between siblings, as determined by perceptions (Bigner, 1974).

Experts put forth advice on the amount of spacing there should be between siblings. Szasz and Taleporos (1984) state that there is evidence that at least three years between children is optimal for development. It is argued that by this time, children have more secure rela-
tionships with their parents and can separate from them. However, Szasz and Taleporos (1984) also state, "There is no correct number of years parents should plan to have between children because each firstborn is different and children of the same age differ in their emotional maturity and in the rate at which they develop" (p. 127).

Researchers disagree on the effect spacing has on sibling interactions. According to White (1975), mother-child and sibling interactions are adversely affected by close spacing. Additionally, more conflict has been found in the sibling relationship when the spacing between siblings is narrow (Furman & Buhrmester, 1985a; Koch, 1960; Minnet, Vandell & Santrock, 1983). Siblings who are close in age fight for parental attention, are competitive and resentful of each other's achievements, and may have trouble finding a sense of separate identity (Szasz & Taleporos, 1984). Furthermore, results have shown that infants in widely spaced dyads have a more socially and intellectually stimulating environment than infants with siblings close in age (Teti, Bond & Gibbs, 1986).

On the other hand, researchers found that closely spaced, same-sex siblings were reported as frequent sources of companionship and intimacy (Furman & Buhrmester, 1985a). Also, closely spaced siblings have more opportunity to share developmental events in similar ways and may even share a special children's language (Bank & Kahn, 1982). Additionally, Bigner (1974) and Bigner and Jacobsen (1980) found that closely spaced younger siblings described their older siblings in more detail than widely spaced children. According to Bray (1988), 4- and 5-year-olds
described their relationship with older siblings using more general positive descriptors as age spacing increased. It should be noted that a number of studies have not shown strong effects of the age interval between siblings (Abramovitch, Corter & Lando, 1979; Abramovitch, Corter & Pepler, 1980; Berndt & Bulleit, 1985; Dunn, 1983; Dunn & Kendrick, 1981, 1982; Pepler et al., 1981; Stewart et al., 1987).

The treatment of siblings to one another, based on which is younger and which is older, has been of interest to researchers. According to Buhrmester and Furman (1990), a child's experiences with siblings greatly differs depending on whether they are the older or younger sibling. Older siblings have authority with younger siblings that they do not have with peers or parents. Subjects with older siblings have reported having less power than those with younger siblings (Bigner, 1974; Furman & Buhrmester, 1985a; Minnett et al., 1983). It was found that older siblings initiated more prosocial and agonistic behavior, while younger siblings imitated their older siblings more often according to studies by Abramovitch et al. (1979), Abramovitch et al. (1980), Berndt & Bulleit (1985), and Pepler et al. (1981). Furthermore, younger children of a 4- to 5-year-old group were more likely to view intimacy/affection as a relationship quality than older children (Bray, 1988).

Sex

Past research has revealed some noteworthy differences between same-sex and mixed-sex sibling dyads studied in sibling relationships. Dunn and Kendrick's (1982) early childhood study found dramatic differences
between same-sex and different-sex sibling dyads for all measures of sibling interaction. Differences were found to be most apparent when the firstborn sibling was male. Older males with younger brothers were friendly to their sibling more often and negative less often than were the older males with younger sisters. Same-sex preschool pairs imitated each other more often (Berndt & Bulleit, 1985; Dunn, 1983), reported greater warmth or closeness (Dunn & Kendrick, 1982), and showed more positive social behavior (Dunn & Kendrick, 1981). Same-sex pairs aged 4-6 and 7-9 showed the most numbers of competitive physical activities (Stoneman et al., 1986). The mothers in a study by Stewart et al. (1987) reported more problematic behaviors in same-sex preschool sibling dyads. Another study revealed that male dyads were more physically aggressive while female dyads were more prosocial; yet, the overall level of interaction was the same for both male and female preschool pairs (Abramovitch et al., 1979).

Mixed-sex preschool dyads showed a greater amount of aggression and a lesser amount of imitation than same-sex preschool pairs (Pepler et al., 1981). An increase in negative behavior by the older sibling in different-sex pairs was found in Dunn and Kendrick's (1981) study of preschool siblings.

Another study of preschool-aged siblings found that girls were more prosocial than boys (Abramovitch et al., 1980). In a study of 4- and 5-year-olds, those children with older sisters were more likely to describe their siblings in a general positive way than those with older brothers.
The 5-year-olds with older siblings were reported by mothers as receiving higher levels of companionship than were the 4-year-olds from their older siblings. Additionally, Bray (1988) found that younger children in the 4-year-old group with male siblings and older children in the 5-year-old group with female siblings viewed their siblings as companions more than other children.

In contrast, Pepler et al. (1981) found that sex had few effects on sibling interactions during two separate observations. No sex differences were found in agnostic or imitative behaviors in a study of preschool siblings by Abramovitch et al. (1980). Furthermore, no sex differences appeared in Lamb’s (1978) study of infant-preschool sibling’s interaction patterns. According to Dunn (1985), "There are no clear or consistent differences between very young boys and girls in the ways that they behave toward their siblings" (p. 77). In a study of school-age children, Furman et al. (1989) suggest that we cannot consider only family constellation variables (i.e., sex, sex of sibling, relative age, age spacing between siblings) when seeking an understanding of the influence of siblings on each other; we must also consider the qualitative features of sibling relationships.

Sibling relationships

Many studies of sibling relationships at all ages have reported a wide range of individual differences among sibling pairs on measures of conflict, rivalry, friendliness, and dominance; results of these studies also have indicated that each of these dimensions are independent of one
another (Dunn, 1983; Furman & Buhrmester, 1985a). A number of studies have examined the qualities of the preschool child's relationship with a sibling. Two common methods have been used to assess the qualities of sibling relationships in early childhood: (a) self-report interviews (e.g., Bray, 1988; Stillwell & Dunn, 1985); and (b) observations of siblings (e.g., Abramovitch et al., 1980; Berndt & Bulleit, 1985; Dunn, 1983; Howe & Ross, 1990).

Common behavioral patterns that manifest themselves in sibling relationships are the following: intimacy/affection, prosocial, companionship, aggression, antagonism, dominance, and imitation (Bray, 1988). The qualities of sibling relationships during preschool and early elementary years might be more important in shaping children's unique personalities than sibling relationships during adolescence (Buhrmester & Furman, 1990). It is hypothesized that sibling relationships are more intense in early childhood; therefore, the greatest effects on personalities should take place before adolescence.

In a study of the qualities of the sibling relationship of children ages 14 months to 5 years, it was found that the more active and friendly sibling relationships included the children's discussion of thoughts and feelings with their younger siblings (Howe & Ross, 1990). The study found that the quality of the sibling relationship appeared constant across time and in observations at both home and in a laboratory setting. Vandell (1987) also concluded that the quality of early sibling relationships is moderately stable during the preschool years. Additionally,
Howe and Ross (1990) found that perspective-taking ability was more related to the sibling relationship quality than it was to any form of maternal interaction.

Dunn and Kendrick (1982) found that preschool children make speech modifications and show sensitivity to the linguistic and cognitive abilities of a younger sibling while talking to them. Furthermore, they found that siblings who imitated one another had more friendly and affectionate relationships. Dunn (1988) found that even before 2 years of age, children have the ability to cooperate in play with a sibling. By 4 years of age, children can act as "comforters, teachers, devious manipulative bullies, or sensitive companions entering the play world of the other" (Dunn, 1983, p. 807).

Sibling relationships have been noted to have paradoxical qualities. Furman and Buhrmester (1985b) found that children reported their siblings as important companions; yet, they also reported the most conflict with siblings. Bank and Kahn (1982) stated, "The sibling experience dictates some of the grandest and the meanest of human emotions" (p. 292). Furthermore, Jalongo and Renck (1985) write the following, "The feelings associated with family ties are often so intense that they reverberate throughout the lifespan. Everyone who has or is a brother or sister can remember a time when hot-blooded rage, whispered secrets, uncontrollable silliness, or unswerving support were shared with siblings" (p. 350).

Ambivalence has been commonly reported regarding the behavior of young siblings toward one another, due to the negative and positive
comments siblings make about one another (Dunn & Kendrick, 1982). Both positive and negative social behaviors were commonly displayed by older toward younger siblings, while not forming simple patterns according to Dunn and Kendrick (1982). In a later study, results revealed that children gave more negative than positive comments about their siblings (Stillwell & Dunn, 1985).

Bigner & Jacobsen (1980) did a study regarding second-born children’s perceptions of concepts of "goodness" and "badness" in sibling roles. Results showed that the perceptions of a "good" sibling differed from perceptions of a "bad" sibling. A "good" sibling was characterized as being nurturant, helping, and assisting in different ways, while a "bad" sibling was characterized as using social power to start the interaction process. The perceptions of the role concepts varied by age, sex, and age spacing between siblings. Bray (1988) also found an emergence of two factors through factor analysis which she categorized as "good" and "bad" qualities that were perceived by the preschool children in her sample.

Sibling interactions

Sibling interactions are important because children are gaining recognition as playing an important role in each others' cognitive, emotional, and social development (Watson-Gego & Gego, 1989). Sibling interaction may influence the nature of their relationship in the future and also influence each siblings' individual personality (Dunn, 1983). Furthermore, "Research shows that early sibling interactions incorporate
a number of activities including helping, teaching, sharing, fighting, and playing; and that young siblings can act as emotional supports, rivals, and communication partners" (Vandell, 1987, p. 36).

Several researchers have studied preschool sibling interaction patterns in the home (Abramovitch et al., 1979; Abramovitch et al., 1980; Dunn & Kendrick, 1981; Pepler et al., 1981) and in laboratory settings (Lamb, 1987; Stewart, 1983). Two of the studies were very similar. Abramovitch et al. (1979) observed 34 pairs of siblings for two one-hour periods at home. The age of interval between the siblings was small (1-2 years) or large (2.5-4 years) with the younger siblings averaging 20 months of age. This study involved observations of same-sex siblings while Abramovitch et al. (1980) replicated the study using 34 pairs of mixed-sex siblings. Both studies found the following: (a) high levels of interaction in all groups; (b) older children initiated agonistic and prosocial acts more often than younger siblings; (c) younger siblings imitated their older siblings more often; (d) females were more prosocial than boys; and (e) the interval between the siblings had little effect on the patterning of interaction.

Another study of preschool sibling interaction in the home was done by Pepler et al. (1981). In this longitudinal study, 28 pairs of mixed-sex and 28 pairs of same-sex siblings were observed for two one-hour periods 18 months after the first observations. The age interval between siblings was small (1-2 years) or large (2.5-4 years); the younger siblings averaged 38 months of age. Younger children imitated more and
older children initiated both agonistic and prosocial behavior more often. It was suggested that younger siblings play an important role in maintaining the interaction by responding more positively to prosocial behavior and more often submitting to agonism. Between the two observations, a significant increase in prosocial behavior was found for both siblings. Also, the frequency of imitation decreased and the frequency of aggression increased for the mixed-sex pairs. According to Pepler et al. (1981), this may suggest that sex typing is a part of early sibling interaction.

Summary

Several studies have found siblings to be important socializing agents in one another's lives (Dunn & Kendrick, 1982; Pepler et al., 1981; Zukow, 1989). There has not been much research on the use of the interview method with young siblings to study the qualities of the sibling relationship, although it appears the interview can be used successfully. Therefore, the use of the interview method with young children needs to be further explored. In general, the literature reveals that siblings report both positive and negative qualities about their sibling relationship.
REFERENCES CITED


SECTION II. SIBLING RELATIONSHIPS IN EARLY CHILDHOOD: PERCEPTIONS OF 4- AND 5-YEAR-OLDS AND THEIR PARENTS
The primary purpose of the present investigation was to assess 4- and 5-year-old’s perceptions, as well as their parents’ views, regarding a relationship with a younger sibling. Individual interviews were conducted with 4- and 5-year-olds (N = 75) enrolled in schools or centers in central Iowa. A subsample of these children (N = 20) were reinterviewed for reliability purposes, two weeks after the first interviews. Additionally, mothers (N = 67) and fathers (N = 67) completed rating scales at home. Analysis of variance revealed that 4- and 5-year-old females with younger sisters make significantly more aggressive comments about their sibling than do the other combinations of sibling dyads. Children’s perceptions and parental ratings were not significantly correlated, although significant positive correlations were found in two of the categories, prosocial and aggression. In overall ratings of the sibling relationship, mothers’ ratings were significantly positively correlated to the fathers’ ratings and to the interviewer’s ratings. Some evidence was found for reliability of children’s responses for identical interviews given two weeks apart. All 16 yes/no questions regarding the sibling relationship had positive correlations between the two interviews; 6 correlations were significant. The seven category totals also had positive relationships between interviews, with intimacy/affection, companionship, aggression, irrelevant, and general
positive having significant correlations. Furthermore, the interviewer's overall ratings of the relationship in Interview 1 and Interview 2 had significant and positive correlations.
INTRODUCTION

During the preschool years, siblings spend a majority of their time together (Ellis, Rogoff & Cromer, 1981; Lawson & Ingleby, 1974) and are important in one another’s social lives (Pepler, Abramovitch & Corter, 1981). These sibling relationships also are among the longest-lasting ones that we will have with anyone (Dunn, 1985; Papalia & Olds, 1982; Stocker, Dunn & Plomin, 1989). Thus, siblings are an important aspect of the socializing process. Older siblings, as young as 3-year-olds, display the characteristics of competent socializing agents, while the younger siblings treat their older brothers or sisters as more expert persons (Zukow, 1989).

The study of sibling relationships allows researchers to see how children’s understanding of other people develops (Dunn & Kendrick, 1982). The goal of the present study was to investigate 4- and 5-year-old children’s, as well as their parents’, perceptions of relationships with younger siblings. A specific focus of the study was to investigate whether 4- and 5-year-old children’s perceptions varied as a function of their age and sex relative to the age and sex of the sibling. The relationships of the children’s perceptions to certain background variables was explored. Additionally, the reliability of the interview instrument was assessed.

Perceptions of the sibling relationship provide information on how the relationship is perceived by one member of the dyad. The interview method is used to assess perceptions of young siblings because it allows
for the study of subjective phenomena (i.e., anxieties, wishes, dreams) that would be missed in observational studies (Furman, Jones, Buhrmester & Adler, 1989; Yarrow, 1960). Also, the interview offers fewer time-sampling errors and less sensitivity to mood changes than simply observing behaviors (Yarrow, 1960). Regarding the sibling relationship, Stillwell and Dunn (1985) found that 6-year-olds were "accurate and uninhibited commentators on their own feelings towards another" (p. 635).

Assessment of perceptions of the sibling relationship in young children has merit. Yet, there is question about the accuracy of such perceptions. Perspective-taking ability has been defined as "a child’s ability to suppress his/her own egocentric and conceptual viewpoints in order to make inferences about another’s perspective" (Stewart, 1983, p. 49). Some researchers believe that young children are unable to take another's point of view (Bigner, 1974; Piaget, 1967) or do not have the language skills to describe these perceptions (MacLennan & Jackson, 1985). On the other hand, other researchers have found preschool children capable of perspective-taking (Borke, 1971; Dunn, 1983; Stewart, 1983; Stewart & Marvin, 1984).

Since young children's language facility or comprehension and lack of motivation may make the interview noneffective, there is a general reluctance to interview children under the age of six (Yarrow, 1960). However, "on the whole, research evidence suggests that the direct interview can be used effectively with 4-year-olds" (Yarrow, 1960, p. 564). Additionally, children become more interested in exchanging
information and describing events in their experiences between ages 4 and 5 (Yarrow, 1960).

Along with children interviews, an additional method of assessing the qualities of sibling relationships has been to question mothers (Bray, 1988; Stillwell & Dunn, 1985) or both parents about the sibling relationship (Furman et al., 1989). Agreement was found between observations of the firstborn child, mother and new sibling, and the maternal interviews on the quality of the sibling relationship (Dunn & Kendrick, 1982). In a study of older children, children’s perceptions of sibling relationships agreed with the perceptions the parents had of the relationships (Furman et al., 1989). However, maternal and child perceptions of the sibling relationships were not significantly correlated in Bray's (1988) study of 4- and 5-year-old children. Also, Stillwell and Dunn (1985) did not find a significant relationship between child and maternal interviews regarding the quality of sibling relations.

Researchers disagree on the effect spacing has on sibling interactions. Some researchers suggest that sibling interactions are adversely affected by close spacing of one to two years (Jalongo & Renck, 1985; Legg, Sherick & Wadland, 1974; Teti, Bond & Gibbs, 1986; White, 1975). In a study of young children, relationships were described with more general positive descriptors as age spacing increased (Bray, 1988). On the other hand, a number of studies have not shown strong effects of the age interval between siblings (Abramovitch, Corter & Lando, 1979; Abramovitch, Corter & Pepler, 1980; Berndt & Bulleit, 1985; Dunn, 1983;

There have been some noteworthy differences between same-sex and mixed-sex preschool sibling dyads studied in the past. Same-sex pairs imitated each other more often (Berndt & Bulleit, 1985; Dunn, 1983) and showed more positive social behavior (Dunn & Kendrick, 1981). Male dyads were more physically aggressive while female dyads were more prosocial (Abramovitch et al., 1979). In another study, the sex composition of the sibling dyads did not affect the perceptions of the intimate quality of the relationship, while children with older sisters described the relationship more positively than those with younger brothers (Bray, 1988). Mixed-sex dyads showed a greater amount of aggression and a lesser amount of imitation than same-sex pairs in a study by Pepler et al. (1981). In addition, there is some evidence of more negative behaviors shown by the firstborn and the younger sibling (Dunn & Kendrick, 1981).

Little research has been conducted regarding young children’s perceptions of the quality of their relationships with their siblings. The present study utilized the interview methodology developed in the Bray (1988) study of 4- and 5-year-old children’s perceptions of older siblings; the present study assessed 4- and 5-year-olds’ perceptions of younger siblings.

In addition, little research has been conducted using an interview
method with children under 6 years of age in which reliability has been assessed. Furthermore, because the findings are mixed regarding the influences of age spacing and sex composition of sibling dyads, only a few tentative predictions are offered. The present study attempted to answer the following research questions: (1) How do 4- and 5-year-old children perceive their relationship with younger siblings? (2) Are there differences in the relationships in mixed-sex vs. same-sex pairs? (3) Are there differences in the sibling relationship relative to family constellation variables (i.e., family size, age spacing of the sibling dyads, ordinal position)? (4) How do mothers', fathers', and 4- and 5-year-old's perceptions of the sibling relationship compare? (5) How reliable is the use of an interview with 4- and 5-year-old children in the assessment of sibling relationships?

Based on the literature it was expected that: (a) there will not be strong effects of the age interval between the siblings (e.g., Abramovitch et al., 1979; Dunn & Kendrick, 1981, 1982; Stewart et al., 1987); (b) older siblings will initiate more prosocial behavior, while younger siblings will imitate their older siblings more often (e.g., Abramovitch et al., 1980; Berndt & Bulleit, 1985); (c) same-sex pairs will report more affection, imitation and competition with male dyads being more aggressive and female dyads being more prosocial (e.g., Abramovitch et al., 1979; Berndt & Bulleit, 1985; (d) mixed-sex pairs will report less imitation and more aggression (e.g., Pepler et al., 1981); and (e) the
parent’s observations will correlate with the children’s reports, yet mother’s and father’s observations will correlate more significantly with each other than with the children’s reports (e.g., Furman et al., 1989).
METHOD

Subjects

Subjects were 4- and 5-year-old children (N = 75) enrolled in nursery schools, day care centers, and kindergartens in the midwest. Parental occupations were judged on a scale of 1 to 9, with higher numbers representing higher occupations (Hollingshead, 1975); education levels ranged from 1 to 9, with 9 representing the highest level of education. The occupations of mothers ranged from 2 to 9, with 75% falling in or above category 6, technicians, semi-professionals, small business owners (M = 6.5). Fathers' occupations ranged from 2 to 9, with 90% falling in or above category 6 (M = 7). The educational level for the mothers ranged from 4 to 9, with 67% of the mothers having a four-year college education (M = 6.1). For the fathers in the study, the educational levels ranged from 4 to 9, with 77% having a four-year college education (M = 6.5).

Four groups of sibling dyads were studied: 14 girls with younger sisters, 25 girls with younger brothers, 15 boys with younger sisters and 21 boys with younger brothers. Subjects ranged from 47 to 74 months in age (M = 57 months). The younger siblings ranged from 10 to 59 months in age (M = 27 months). Age spacing between the sibling pairs ranged from 11 to 59 months (M = 30 months). The children participating in the study came from intact families in which the younger sibling was at least one year old. Also, the mothers and fathers of the children completed questionnaires regarding their perceptions of the sibling relationship.
and on general background information. Families consisting of four members comprised 67% of the families, with only two families having as many as six members. The average family size was 4.34. Of the older siblings, 80% were firstborn.

Instruments

Older sibling interview

The sibling interview schedule was designed by Bray (1988) for the purposes of interviewing 4- and 5-year-olds about perceptions of their relationships with older siblings. The Bray (1988) interview was developed with questions adapted from those used by Furman and Buhrmester (1985) and Stillwell and Dunn (1985). The Bray (1988) instrument was adapted for the present study by dropping two questions which were not suitable for use with very young siblings. There were two parts to the revised interview about sibling relationships: (a) four open-ended questions with probes; and (b) 16 yes/no questions with probes.

There were four open-ended questions followed by three probes in order to facilitate conversation about the sibling relationship: (1) "What is it like having a brother/sister?"; (2) "Tell me some of the things you and ________ do when you are together."; (3) "What are the things you like about ________?"; and (4) "What are the things you don't like about ________?" Three probes were given after each open-ended question to elicit more responses about the younger sibling (e.g., "Tell me more"). Following these four questions, 16 yes/no questions were asked that were more specific; yet, they were directly related to
the open-ended questions (e.g., "Does _______ do things that make you happy?"). An additional probe would follow most yes/no questions (e.g., "What does _______ do to make you happy?").

Maternal/Paternal Rating Scale

Bray (1988) developed a maternal rating scale of the sibling relationship. The scale was adapted for the present study so it could be administered to fathers. Other modifications included: (a) a change from a 99-point scale to a 5-point scale, and (b) the addition of a few definitional descriptors more suited for perceptions of younger siblings. According to Bray (1988), the scale was based on observed sibling behavior categories reported in literature about sibling interaction patterns and sibling perceptions. The parent rating scale was based on the following categories which are characteristic of the sibling relationship: intimacy/affection, prosocial, companionship, aggression, antagonism, dominance, and imitation. Mothers and fathers were asked to rate the behavior of the 4- or 5-year-old child toward the younger sibling as well as the relationship of the younger sibling toward the 4- or 5-year-old child. The parents rated each category on a 5-point scale (1 = rarely, 3 = occasionally, and 5 = often) for the occurrence of a behavior.

Procedure

There were 11 preschools, daycare centers, or kindergarten classrooms participating in this study. After the directors agreed to
cooperate in the study, letters were sent to those parents whose children met the criteria of the study. Approximately 75% of the parents contacted agreed to participate. The children were 4- and 5-year-olds, with the exception of one child who was almost 4 years old and two children who had just turned 6 years old. These children were from intact American families and had a younger sibling who was at least one year old; two children had younger siblings who were approximately 11 months old. When parents provided written consent, demographic information was requested (i.e., the child's name and date of birth along with the name and date of birth of the next youngest sibling). The younger sibling's name was requested in order to personalize the children's interview at a later time. If there were two or more younger siblings, the next youngest child was the target sibling for the interview questions.

Children were interviewed individually about their next younger sibling. The interview questions were administered in the same order for all children by the investigator and two trained assistants; all were female Child Development students who had experience working with young children. With the exception of two children who were interviewed at home, all children were interviewed at the school or center where they were enrolled. The 20-minute interviews were handwritten and also audi-taped to check the accuracy of the written protocols.

The children were taken to a room separate from the ongoing classroom activities for the interviews. After rapport with the child had been established, the interview process was started. The interviewer
began by telling the child, "Today we are going to talk about your brother/sister." The child was asked to name his/her brother/sister and to indicate if the brother/sister was younger or older. If the child had more than one younger sibling, the interviewer told the child the name of the younger sibling who was next closest in age to him/her. A small doll that represented a child of the sex of the target sibling was shown to the child; the child was asked to pretend that it was his/her younger sibling. The child was told that what was said would be written down and also that the tape recorder was being used to help the investigator remember what they talked about. The tape recorder was then turned on and the interviewer began with the question, "What is it like having a brother/sister?" At the conclusion of the interview, the interviewer also made a global rating of the sibling relationship: (1) = very negative; (2) = negative; (3) = unsure; (4) = positive; and (5) = very positive. The child was thanked for talking with the interviewer, allowed to choose a sticker for participating, and reintroduced to the classroom. For purposes of reliability, a subsample (N = 21) of the original subjects was reinterviewed two weeks after their first interview by the same person who interviewed them the first time. The interview process was repeated exactly as it had been done the first time. One of these had to be dropped due to lack of cooperation.

A questionnaire, requesting background information (i.e., occupations, education, employment and marital status of parents, sex and dates of birth of children in the family, total number in household), and
parent rating scales were sent home with parents from the child’s center. Mothers and fathers were instructed to fill out the sibling rating scales independently. These were completed at home and then returned to the school in a sealed envelope. Of the parents who gave consent for their children to be interviewed, 88% filled out rating scales.

Coding of responses

On the same day that each interview was completed, each interviewer listened to her own audio-tapes to check the accuracy of the hand-written versions. After the interviews were transcribed, they were typed. For purposes of judging, the verbal protocols were divided into thought units. For this study, a thought unit was defined as any singly expressed unit of thought that did not reflect a change in thought, idea, behavior, or action (Furman & Buhrmester, 1985). For example, "He hits me and pushes me," is divided into two thought units because the sentence reveals a change in action.

The investigator gained expertise in dividing the written protocols into thought units by working with a child development professor who had previous experience in this task. Bray's (1988) criteria and additional criteria, developed specifically for this study for thought unit division guided the training. Training on the division of the protocols was carried out on pilot data and continued until interrater reliability was satisfactory (Range = 87% to 100%; M = 96%). Once adequate reliability was established, the investigator finished dividing the verbal protocols into thought units.
Two judges were trained to classify the thought units into the following categories: intimacy/affection, prosocial, companionship, aggression, dominance, imitation, general positive, and general negative. A "no response" category was provided in case the child did not answer the question. The categories were determined from the literature by Bray (1988) and are comparable to the categories on the maternal/paternal rating scale. Bray's (1988) judges' manual served as a guide for judges in this study; slight modifications were made to accommodate verbal material about younger siblings. Bray (1988) included antagonism as a relationship category; antagonism was dropped in the present study because pilot testing revealed it was not a distinct category for perceptions of younger siblings. The manual provides definitions of each category and concrete examples.

When satisfactory reliability was reached in training, as determined by Cohen's Kappa (1960), (Range = 77% to 100%; M = 88%) one judge judged all protocols. The other judge randomly selected protocols to judge for reliability purposes; 20% of the protocols were judged by two people. (Range = 75% to 97%; M = 89%).

Scoring

After the children's thought units were coded into one of nine relationship categories, frequencies were computed in each category for each of the four open-ended questions and their probes. The frequencies were also computed for the combined probes of the 16 yes/no questions into the nine categories. Additionally, a total frequency was computed
for each relationship category by combining the verbal responses across the four open-ended questions and their probes as well as the probes from all the yes/no questions that had probes. Proportions of responses in each relationship category were computed by dividing the total frequencies in each relationship category by the total number of thought units for each subject to control for the variability in the number of thought units across subjects; some children were more verbal than others. The number of thought units per interview ranged from 14 to 117 (M = 50).

Of the nine relationship categories, dominance and imitation were dropped for analysis due to their low occurrence (proportion of thought units = .005 and .007). Table 1 presents the seven categories that the parents used when completing the rating scale.

Insert Table 1 about here
RESULTS

Analysis of variance was performed on the proportion of children's total responses to the interviews for the following dependent variables: intimacy/affection, prosocial, companionship, aggression, irrelevant, general positive, and general negative. The four levels of the independent variable were based on age and sex: (a) older brothers with younger brothers; (b) older brothers with younger sisters; (c) older sisters with younger brothers; and (d) older sisters with younger sisters. ANOVA results indicate that aggression was the only dependent variable for which there was a significant difference among the four sibling dyads. Tukey's Studentized Range Test showed that older sisters with younger sisters are significantly different than the other dyads. This dyad shows greater amounts of aggression than the others \[ F(3,71) = 4.13, \ p < .01 \].

An analysis of means was performed on the mothers' and fathers' ratings using the same independent variable as above. The dependent variables consisted of the parents' ratings of the seven categories of children's behaviors (i.e., older toward younger and younger toward older). The results of Tukey's Studentized Range Test revealed that fathers' ratings of companionship for older siblings toward younger siblings are significantly different for females with younger brothers than for males with younger sisters \[ F(3,63) = 3.03, \ p < .05 \]. The females with younger brothers have a higher mean than males with younger sisters. Additionally, the fathers' ratings of the overall sibling
relationships are significantly different for females with younger brothers than for males with younger brothers \( [F (3,62) = 2.80, p < .05] \).
The means for females with younger brothers are higher than the means for males with younger brothers. Mothers’ ratings did not show significant differences for any dependent variable as a function of the sibling group.

Pearson product-moment correlations were computed to explore associations among the background variables, the children’s perceptions of sibling relationships, maternal ratings, and paternal ratings of the sibling relationship. For 20 subjects, children’s responses from Interview 1 and Interview 2 were also correlated to assess reliability of the interview measure.

Background variables, in general, are not related to the relationship categories. There are no significant correlations of age spacing, ordinal position, family size, parental occupations, or educational levels with the relationship categories.

There are some significant correlations of the children’s perceptions of the sibling relationship with the parents’ and the interviewer’s overall ratings of the sibling relationships. As shown in Table 2, the more the children make irrelevant comments, the less likely they are to make prosocial, companionship, aggression, and general positive comments (r's ranging from -0.33 to -0.51). Additionally, the interviewer rating of the overall relationship is lower as children’s irrelevant comments increase (r = -0.38, p < .001) as is the mothers’ rating (r = -0.29,
As the children's amount of expressed intimacy/affection increases, the number of general negative comments decreases ($r = -.37, p < .001$). As the interviewers rate the relationships more positively overall, there are significant relationships of this overall rating to the children's expressed statements of affection, prosocial, and general positive statements ($r$'s ranging from .24 to .34). Furthermore, the interviewer's overall rating of the sibling relationship is less positive as the amount of the children's general negative comments increases ($r = -.28, p < .01$). Mothers' ratings of the overall sibling relationship is positively correlated with the fathers' overall ratings ($r = .33, p < .01$) and also with the interviewer's ratings ($r = .24, p < .05$).

Insert Table 2 about here

Table 3 presents correlations among mothers' ratings of relationships of older siblings toward younger siblings and younger siblings toward older siblings. Mothers' ratings of older siblings toward younger siblings within a relationship category are significantly correlated with the mothers' ratings of younger siblings toward older for all relationship categories except imitation ($r$'s ranging from .42 to .72). For mothers' ratings of older toward younger and vice versa, there is a strong pattern of significant correlations of imitation with all other categories except imitation ($r$'s ranging from .27 to .33).

There are other sporadic relationships in which correlations among
cross-categories are significant. For example, mothers’ ratings of aggression for older siblings toward younger siblings correlates with ratings for younger siblings toward older for antagonism ($r = .29, p < .01$) and dominance ($r = .33, p < .01$).

The correlations among fathers’ ratings of relationships of older siblings toward younger siblings and younger siblings toward older siblings are presented in Table 4. The fathers’ ratings of older siblings toward younger siblings are significantly correlated with the fathers’ ratings of younger siblings toward the older for all relationship categories except prosocial and imitation ($r$’s ranging from .31 to .64). Additionally, there are a few other sporadic relationships that can be noted. For example, fathers’ ratings of dominance for older siblings toward younger siblings are significantly correlated to fathers’ ratings of antagonism ($r = .43, p < .001$) and aggression ($r = .33, p < .01$) for younger siblings toward older siblings.

When mothers’ and fathers’ ratings of the sibling relationships are correlated across categories for the same relationship (e.g., younger toward older) and the same rater (e.g., mother), some significant
correlations occur. Of mothers' ratings, 9 of 21 correlations are significant for younger toward older sibling relationships; 9 of 21 are significant for older toward younger siblings (p < .05).

Fathers' ratings follow the same general pattern as that of mothers. Of fathers' ratings, 5 of 21 are significant for younger toward older sibling relationships; 6 of 21 are significant for older toward younger siblings (p < .05). For both mothers' and fathers' ratings, positive relationships tend to be related to one another (e.g., companionship and prosocial) and similarly, negative behaviors are related (e.g., aggression and antagonism).

The mothers' ratings for behaviors of older siblings toward younger siblings and younger siblings toward older siblings, for the same relationship categories, are significantly correlated to the fathers' ratings in all relationship categories with the exception of imitation for older siblings toward younger siblings (r's ranging from .29 to .57). The strongest associations between mothers' and fathers' ratings are for older toward younger relationships in the category of intimacy/affection (r = .57) and younger toward older in prosocial behavior (r = .55).

When comparing the child's perceptions with the mother's ratings of the sibling relationship, mothers' ratings of prosocial behaviors for younger siblings toward older siblings is related to the children's prosocial comments (r = .28, p < .05). The children's expressed aggression is significantly correlated to the mothers' ratings of prosocial (r = .26, p < .05), aggressive (r = .24, p < .05) and dominance (r = .35,
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g < .01) behaviors of younger siblings toward older siblings. As the amount of children’s reported irrelevant comments increases, the mothers’ ratings of intimacy/affection (r = -.31, p < .01), prosocial (r = -.26, p < .05), and companionship (r = -.30, p < .01) decreases for behaviors of younger siblings toward older siblings. Of 98 correlations computed for categorical relationships between mothers’ ratings and children’s responses by category in the interview, nine were significant at or beyond the .05 level.

When comparing the fathers’ ratings to the children’s perceptions of the sibling interview, the fathers’ ratings of prosocial behaviors for younger toward older siblings are related to the children’s comments about prosocial behaviors (r = .25, p < .05) and to children’s comments about antagonistic behaviors (r = .25, p < .05).

The children’s expressed aggression is related to the fathers’ ratings of the younger children toward the older children on companionship (r = .27, p < .05) and antagonism (r = .27, p < .05) and negatively related to the father’s ratings of the older children toward the younger on intimacy/affection (r = -.26, p < .05). Similarly to the mothers’ ratings, the fathers’ ratings decrease on intimacy/affection (r = -.25, p < .05), prosocial (r = -.23, p < .05), and companionship (r = -.32, p < .01) for behaviors of younger siblings toward older siblings when the children’s reported irrelevant comments increases. Of 98 correlations computed for categorical relationships between children’s responses to the interview and fathers’ ratings, ten were significant at or beyond the
.05 level. The correlation patterns are similar, but not identical to those of the mothers’ ratings.

Table 5 presents correlations computed between variables on children’s first and second interviews for purposes of assessing reliability of the interview instrument. For Question 1, in which the child is asked what it is like having a brother/sister, the categories of intimacy/affection, aggression, and general negative have significant positive relationships ($r = .45$, $r = .84$, and $r = .53$, respectively). All other categories are positively correlated, with the exception of general positive, which is negatively correlated, though not significantly.

Only one category, prosocial, has a significant positive correlation in Question 2, in which the child responds to a question regarding things they do together ($r = .65$). The aggression and general negative categories have negative relationships for the two interviews.

General positive and general negative categories have significant positive correlations in Question 3, in which the child was asked about things that he/she liked about the sibling ($r = .70$ and $r = .50$, respectively). Two categories are found to have negative correlations (i.e., intimacy/affection, aggression); however, these correlations are not significant.

In Question 4 (things not liked about the sibling), the categories of prosocial ($r = .73$), aggression ($r = .64$), and irrelevant ($r = .52$) are significantly positively correlated. All other categories also are
positively correlated, with the exception of companionship.

For all yes/no probes combined, the irrelevant category has a significant positive correlation with the previous interview ($r = .45$). All other categories also are positively correlated judged on the basis of probes on the yes/no questions.

The interviewer's overall ratings of the sibling relationships has a significant positive relationship between Interview 1 and Interview 2 ($r = .73, p < .001$). In the 16 questions in which the children simply answered yes or no, six questions have significant positive correlations, with Question 1 (i.e., Do you like having a brother/sister?) having a perfect correlation of 1.00. No correlations were computed on four of the questions due to lack of variability. Inspections of the frequencies for these questions (i.e., questions 4, 10, 13, 14) reveal that the children all answered the questions in the same way in one or both interviews (i.e., all children answered yes for this question in the first interview).

The proportions of the judged relationship categories from the four open-ended questions and the yes/no probes were totaled; correlations of the totals for the seven categories were computed. All seven categories have positive correlations, with the intimacy/affection, companionship, aggression, irrelevant, and general positive categories having significant positive correlations ($r$'s ranging from .47 to .74).
A factor analysis was computed on the responses of the 16 yes/no questions in the sibling interview. The iterated principal factor analysis procedure was used and the rotation procedure was varimax. The results indicate two factors for "good" and "bad". The factor loadings show the same patterns as the Bray (1988) study, but are lower. The factor loadings for the "good" factor at the .35 level or above are found for questions 1, 3, 4, 6, 7, 8, 10, and 16. The factor loadings for the "bad" factor at the .35 level or above are found for questions 2, 5, 9, 11, 12, and 15.
DISCUSSION

A major focus of this study was to examine whether differences in perceptions of the relationship with a younger sibling by 4- and 5-year-old boys and girls varied as a function of the age and sex composition of the dyad. The present study addressed several methods of evaluating the sibling relationship. Mothers', fathers', and 4- and 5-year-old children's perceptions of the relationship with a younger sibling were tapped.

It was predicted that there would be differences in the sibling relationships for same-sex vs. mixed-sex dyads. Contrary to studies which found mixed-sex dyads to have greater amounts of aggressive behavior (Pepler et al., 1981) and male dyads to be more physically aggressive (Abramovitch et al., 1979), analysis of variance in the present study revealed only one significant difference among the four sibling dyads. Based on the children's interviews, same-sex female dyads were more aggressive than the other combinations of dyads. On the other hand, these findings are consistent with Stewart et al. (1987), in which mothers reported more problematic behaviors in same-sex male and female preschool sibling dyads. Upon inspection of the age spacing between the female dyads, the mean age between the female siblings was 26.7 months. The mean age difference in male dyads was 31 months; in the group of boys with younger sisters the average difference was 30 months. Between girls with younger brothers, the average difference was 30 months. The closer spacing between these female pairs may account for the increase in
aggressive comments. Closer age spacing may have caused more necessity for sharing and the likelihood of frustration caused by interruption of activities. White (1975) found sibling interactions to be adversely affected by close spacing. Other studies have revealed more conflict in closely spaced sibling dyads (Furman & Buhrmester, 1985; Koch, 1960; Minnet, Vandell & Santrock, 1983).

Since aggression was the only relationship to be significantly different among the four combinations of dyads, it might be speculated that younger siblings of 4- and 5-year-olds do not influence interactions as much as older siblings. The average age of the younger siblings in the present study was 27 months; these younger siblings would have less competence in interactive skills than older siblings. However, Bray (1988), in a study of 4- and 5-year-old’s perceptions of older siblings, found that, in general, children’s responses did not vary according to the ages and sexes of the sibling pairs. Thus, the findings of the Bray (1988) study and the present study are in agreement.

An analysis of means revealed that fathers’ ratings of companionship for older siblings toward younger siblings was significantly different for females with younger brothers than for males with younger sisters. The females with younger brothers were reported by fathers as showing more companionship behaviors than males with younger sisters. Also, fathers rated females with younger brothers as having a more positive overall relationship than males with younger brothers. These results seem to indicate that fathers see daughters with younger brothers having
a more positive relationship. Daughters with younger sisters were not reported by fathers as having a more positive relationship. This relates back to the first ANOVA finding; 4- and 5-year-old females perceived more aggression in their relationship with a younger sister than did the other dyads. Since only 2 of 16 ANOVAS for fathers' ratings were significant at the .05 level, these results must be treated with caution.

One study, showing that there might be relationship differences among dyads of differing sex and age combination, found that preschool-aged males with younger sisters were negative more often and less friendly to their sibling than males with younger brothers (Dunn & Kendrick, 1982). Another study found that 4- and 5-year-olds with older sisters were more likely to describe their sibling in a positive way than those with older brothers (Bray, 1988).

Correlations of background variables (i.e., age, sex, age spacing, ordinal position, family size, parental occupations) were not significantly related to the children's relationship categories. In terms of background variables, it was a relatively homogenous group (e.g., middle class), and thus, many such differences might not be expected to occur.

The mothers' ratings of behaviors of the older siblings toward the younger siblings and behaviors of younger siblings toward older siblings were significantly positively correlated for all relationship categories except imitation. Likewise, the fathers' ratings of behaviors of older toward younger and younger toward older were significantly positively correlated for all categories with the exceptions of imitation and
prosocial. These findings are not surprising because younger children are more likely to imitate their older siblings than vice versa. These results are consistent with other studies which have found that the younger siblings are more likely to imitate the older siblings (Abramovitch et al., 1979; Abramovitch et al., 1980; Berndt & Bulleit, 1985; Pepler et al., 1981).

When correlating mothers' and fathers' ratings of the relationships to children's responses in the interview, few correlations were significant. However, most were in a positive direction. It should be noted that only four of the seven parent categories corresponded with the children's categories, due to dominance, antagonism, and imitation being dropped from the children's categories. For mothers' ratings of younger toward older sibling relationships, two of four relationship categories were positively correlated at the \( p < .05 \); these categories were prosocial and aggression. For fathers' ratings of younger toward older, only the category of prosocial was significantly related \( p < .05 \) to the child's responses. Therefore, it may be that young children see some, but not all, aspects of the relationship differently than their parents. Different perceptions are likely to occur because young children will be reacting to particular, immediate situations, whereas parents have a more global time frame by which they view the sibling relationship. These findings are similar to those of Bray (1988), who found that the children's perceptions of the sibling relationship, in general, did not correlate with the maternal perceptions. In the present study, this also
was true of fathers.

It should also be pointed out that content analysis might impose too much structure on the verbal material offered by the child and may not be the most appropriate methodology to utilize. It may be that broader categories (e.g., prosocial) are more likely to result in agreement between parents and children. However, aggression is a fairly discrete category which represents highly visible behaviors on the part of a child. Thus, this behavior is easier to identify by both the child and his/her parents. Furthermore, the children’s interview used in the present study may not have asked enough questions directly dealing with imitation, dominance, or antagonism. This could account for the low occurrence of these reported behaviors.

As expected, the mothers’ and fathers’ ratings of the sibling relationships have significant positive correlations. This supports findings by Furman et al. (1989), who state that the parents are more motivated and more cognitively sophisticated than young children to answer the questions about the sibling relationship. Additionally, mothers and fathers are both indirectly involved in the relationship, so they are more likely to have similar perspectives.

The interviewers’ overall ratings of the sibling relationships were significantly positively related to those of the mothers (p < .05), but not to the ratings of the fathers. Since mothers’ and fathers’ overall ratings also were correlated (p < .01), this finding is difficult to interpret. However, all interviewers were female; therefore, it may be
that the female perspective is somewhat different than the male perspective.

The present study assessed the reliability of the children's responses to the interview questions. A subsample of the subjects (N = 20) were reinterviewed two weeks following their first interview. The proportions of thought units from the four open-ended questions were combined with the thought units of the yes/no probes for each of the interviews. All seven categories were found to have positive correlations (r's ranging from .01 to .74). Five of the seven categories had significant positive correlations; these categories were intimacy/affection (r = .51), companionship (r = .47), aggression (r = .74), irrelevant (r = .64), and general positive (r = .47). Additionally, in the 16 yes/no questions, all had positive correlations; six correlations were significant (p < .01). One question had a perfect correlation between the two interviews; this question was, "Do you like having a brother/sister?" The other six questions dealt with happiness and aggression (e.g., What does he/she do to make you happy?; When _____ is mad at you, does he/she hit you?). It is also important to note that the interviewer's ratings of the first and second interviews had significant positive correlations. This indicates that the children gave an overall positive or negative impression of their sibling relationship to the interviewer in both interviews. Thus, there is some evidence that children as young as 4 or 5 can report their insights and feelings regarding their sibling relationship. The best indicator of stability
over time was found in the questions which children answered yes or no and the interviewer’s ratings.

The willingness of the children to speak openly and freely to an interviewer supported the argument that children between the ages of 4 and 5 become very interested in describing their experiences (Yarrow, 1960). In the present study, the rank order of relationship categories used by children, as judged from frequency of thought units from highest to lowest was: irrelevant, companionship, general negative, general positive, aggression, intimacy/affection, and prosocial. Approximately 36% of the total thought units were irrelevant comments; higher frequencies of irrelevant comments, relative to other categories, also was found in a study by Bray (1988).

A factor analysis was performed on the 16 yes/no questions from the children's interview. Results indicated that there were "good" and "bad" factors. Similar to past research, the children were likely to say both positive and negative things about their younger sibling (Bray, 1988; Dunn & Kendrick, 1982). In a study which addressed 5- to 13-year-old children's perceptions of concepts of "goodness" and "badness" in sibling roles, "good" sibling characteristics were perceived differently than "bad" sibling characteristics (Bigner & Jacobsen, 1980).

It should be noted that there are a number of limitations in the present study. More research needs to be done in order to make more definite conclusions about the reliability of the interview. The sample of this study was restricted to upper middle to middle class subjects.
Therefore, these findings are not generalizable to other socioeconomic groups. Furthermore, all children involved in the study attended a school or center for at least three hours each day. The relationships of siblings who are not separated during the day may be different than those in which both children are at home. It cannot be assumed that the mothers and fathers who participated in this study filled out the rating scales independently, although they were instructed to do so. The rating scales were sent home with the parents and then returned to the children's school or center. Finally, though significant, many of the correlations are modest and therefore do not show strong relationships or explain much of the variance.

Since the children's and parents' perceptions of the sibling relationships were not significantly correlated across several relationship categories, it appears that the interview method gives a somewhat different perspective (i.e., that of a child). Future research could include a combination of direct observations, parent ratings, and child interviews to allow a more complete picture of the relationship.

In conclusion, it was surprising that the four sibling combinations did not have a larger impact on the types of relationships that emerged through the child interviews and parent ratings. In addition, larger amounts of aggression were not expected to occur among female dyads. Although the majority of children's perceptions were not significantly correlated to those of their parents, the mothers' and fathers' perceptions of the sibling relationships were significantly related. The
subsample of children (N = 20) was somewhat consistent with their responses between Interview 1 and Interview 2, especially on certain discrete questions (i.e., yes/no questions). The high significant positive correlation (r = .73) of the interviewer's overall rating of the sibling relationships between the two interviews is a strong indicator that children view the relationship in a stable manner.
REFERENCES CITED


Hollingshead, A. B. (1975). Four factor index of social status. Unpublished manuscript. Yale University, Department of Sociology, New Haven, CT.


GENERAL SUMMARY AND IMPLICATIONS

The purpose of the present study was to use a variety of measures to assess the relationship of 4- and 5-year-olds with a younger sibling. The study attempted to answer the following questions: (1) How do 4- and 5-year-old children perceive their relationship with younger siblings? (2) Are there differences in the relationships in mixed-sex vs. same-sex pairs? (3) Are there differences in the sibling relationship relative to family constellation variables (i.e., family size, age-spacing of the sibling dyads, ordinal position)? (4) How do mothers’, fathers’, and 4- and 5-year-old’s perceptions of the sibling relationship compare? (5) How reliable is the use of an interview with 4- and 5-year-old children in the assessment of sibling relationships?

Subjects included 4- and 5-year-old children (N = 75) enrolled in schools or centers, as well as their mothers (N = 67) and their fathers (N = 67). The children were individually interviewed at their school or center. The interviews consisted of two parts: (a) four open-ended questions with probes; and (b) 16 yes/no questions with probes. The verbal responses of the children were divided into individual thought units. Each thought unit was then judged into one of nine relationship categories: intimacy/affection, prosocial, companionship, aggression, dominance, imitation, irrelevant, general positive, and general negative. The dominance and imitation categories were later dropped due to their low response occurrence.

Both mothers and fathers completed rating scales regarding the
behaviors of the 4- and 5-year-old children toward a younger sibling and vice versa on seven behavioral categories. The parents rated each category on a 5-point scale (1 = rarely, 3 = occasionally, and 5 = often) for the occurrence of a behavior.

Analysis of variance was performed on the proportion of total responses with the seven relationship categories from the children's interviews as dependent variables. The four levels of the independent variable were based on age and sex: (a) older brothers with younger brothers; (b) older brothers with younger sisters; (c) older sisters with younger brothers; and (d) older sisters with younger sisters. Aggression was the only dependent variable for which there was a significant difference among the four sibling dyads. Older sisters with younger sisters showed greater amounts of aggression compared to other dyads.

An additional analysis of means was performed which used the seven relationship categories for fathers' and mothers' ratings of the sibling behaviors toward one another as the dependent variables. The independent variable was based on age and sex, as described above. Results revealed that fathers' ratings of companionship for older siblings toward younger siblings were significantly different for females with younger brothers than for males with younger sisters. The mean scores for companionship were higher for females with younger brothers than for males with younger sisters.

Fathers' ratings of the overall sibling relationship were signifi-
cantly different for females with younger brothers than for males with younger brothers. The means for females with younger brothers were higher than the means for males with younger brothers. Pearson product-moment correlations revealed that the family background information (i.e., age, sex, age spacing, ordinal position, family size, parental occupations) did not significantly correlate with any of the relationship categories.

The parental ratings were not significantly related to the children’s perceptions of the relationship for the majority of relationship categories, although significant positive correlations were found for the prosocial and aggression categories. Additionally, mothers’ ratings of the sibling relationship were significantly positively correlated to both the fathers’ ratings and the interviewer’s ratings of the overall sibling relationship.

A subsample of subjects (N = 20) were reinterviewed two weeks after the first interviews to assess the reliability of the children’s responses. Some evidence supported the reliability between interviews. All seven relationship category totals were positively correlated, with intimacy/affection, companionship, aggression, irrelevant, and general positive having significant correlations. Furthermore, all 16 yes/no questions were positively correlated, with six significant correlations. The interviewer’s overall ratings of the relationship also were significantly correlated.

A factor analysis for the 16 yes/no questions was computed. The
method utilized was the iterated principal factor analysis and the varimax rotation procedure. The results indicated two factors of "good" and "bad". Therefore, children were found to say both "good" and "bad" things about their sibling.

It is unclear if the assessment of reliability of children's responses was adequately carried out due to the small sample size. Future research is needed in which larger samples are utilized for assessment of interview reliability.

The interview method may be the most effective way to assess the child's perceptions of sibling relationships; however, the children's perceptions were unrelated to their parents' ratings of the relationship. Future studies could combine direct observation and child interviews as well as parent ratings.

The children in this study spent at least three hours each day in a school or center. Since the relationships of young siblings who are not separated during the day might be different than when both are at home, further research could make some comparisons.

This study provides valuable new information regarding: (a) perceptions of 4- and 5-year-old children of their relationship with younger siblings; (b) the perceptions of mothers, as well as fathers, of the young sibling relationship; and (c) the assessment of the reliability of the interview instrument for young children. Further studies of the sibling relationships of young children are needed using multi-method approaches, including an interview method.
ADDITIONAL REFERENCES CITED


ACKNOWLEDGEMENTS

I cannot thank Dr. Dahlia Stockdale enough for her dedication as my major professor, offering me professional guidance, encouragement, and expertise throughout my thesis project.

I would like to thank the members of my committee, Dr. Sedahlia Jasper Crase and Dr. Robert Strahan, for their helpful comments, suggestions, and assistance.

To the schools and centers who agreed to participate in this study I am especially thankful. I express my gratitude to the parents and their children for their cooperation in completing the questionnaires and the interviews.

Special thanks are also due to Diana Cavett and Tammi Hechtner for helping conduct the child interviews; and to Diana for judging the verbal protocols. Her patience and commitment to this project are very much appreciated.

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To Dr. Barry Trunk and Dr. Keith Van Loon, of Briar Cliff College,
thank you for the encouragement and support to continue with my education.

This thesis is dedicated to the memory of my father, Joel, who was always a special source of encouragement in all my endeavors.

Thanks also go to my mom, Sheila, for her faith in my abilities, and to my own siblings, Steve, Mary Kay, Pat, and Mike, who have sparked my interest in this area.

I express my deep appreciation to my fiance, Heath, for his endless encouragement, sacrifices, and love.

The University Human Subjects Review Committee approved this study and certified the protection of the subjects’ rights and welfare.

Financial support was provided through the College of Family and Consumer Science’s Development Fund.
APPENDIX A: TABLES FOR SECTION II
Table 1. Mothers’ and fathers’ rating categories for the sibling relationship

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intimacy/Affection</td>
<td>Behaviors that can be described as being close to one another, such as telling secrets or how much the siblings like each other and the amount of positive affection demonstrated by siblings.</td>
</tr>
<tr>
<td>Prosocial</td>
<td>Behaviors that can be described as helping, sharing, taking turns, teaching, nurturing, caretaking, caregiving, or any other behavior that is indicative of a positive interaction between the siblings.</td>
</tr>
<tr>
<td>Companionship</td>
<td>The amount of time that the siblings spend together in joint or cooperative interaction.</td>
</tr>
<tr>
<td>Aggression</td>
<td>Behaviors that can be described as hostile or aggressive in nature (both physical and verbal behavior). Involves intentional hostility of one sibling toward the other sibling.</td>
</tr>
<tr>
<td>Antagonism</td>
<td>Behaviors that can be described as disruptive in nature or reflect some disagreement or conflict between the siblings.</td>
</tr>
<tr>
<td>Dominance</td>
<td>Indicates how much one sibling takes control of the relationship through bossiness or other assertive behaviors.</td>
</tr>
<tr>
<td>Imitation</td>
<td>The amount of time one sibling engages in behavior that imitates the other sibling’s actions.</td>
</tr>
</tbody>
</table>

NOTE. Mothers and fathers rated both the relationship of older sibling toward younger sibling (MY and FY, respectively) and younger sibling toward older sibling (MO and FO, respectively).
<table>
<thead>
<tr>
<th>Irrelevant</th>
<th>General Positive</th>
<th>General Negative</th>
<th>Interviewer Overall</th>
<th>Mother Overall</th>
<th>Father Overall</th>
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<tr>
<td></td>
<td>- .47****</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-.06</td>
<td>-.24*</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-.38***</td>
<td>.34**</td>
<td>-.28**</td>
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</tr>
<tr>
<td></td>
<td>-.29**</td>
<td>.19</td>
<td>-.04</td>
<td>.24*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-.04</td>
<td>-.06</td>
<td>-.02</td>
<td>-.03</td>
<td>.33**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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</table>
Table 3. Correlations among mothers' ratings of relationships of older siblings toward younger siblings and younger siblings toward older siblings

<table>
<thead>
<tr>
<th></th>
<th>MO Intimacy/</th>
<th>MO Prosocial</th>
<th>MO Companionship</th>
<th>MO Aggression</th>
<th>MO Antagonism</th>
<th>MO Dominance</th>
<th>MO Imitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>MY Intimacy/</td>
<td>.49****</td>
<td>.21</td>
<td>.14</td>
<td>-.14</td>
<td>-.15</td>
<td>.04</td>
<td>.07</td>
</tr>
<tr>
<td>Affection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MY Prosocial</td>
<td>.21</td>
<td>.47****</td>
<td>.33**</td>
<td>.02</td>
<td>.04</td>
<td>.15</td>
<td>.05</td>
</tr>
<tr>
<td>MY Companionship</td>
<td>.12</td>
<td>.56****</td>
<td>.72****</td>
<td>.23</td>
<td>.29**</td>
<td>.34**</td>
<td>.03</td>
</tr>
<tr>
<td>MY Aggression</td>
<td>-.06</td>
<td>-.02</td>
<td>-.05</td>
<td>.63****</td>
<td>.29**</td>
<td>.33**</td>
<td>.18</td>
</tr>
<tr>
<td>MY Antagonism</td>
<td>.002</td>
<td>.15</td>
<td>-.02</td>
<td>.29**</td>
<td>.58****</td>
<td>.41****</td>
<td>.01</td>
</tr>
<tr>
<td>MY Dominance</td>
<td>-.23</td>
<td>-.03</td>
<td>-.10</td>
<td>.21</td>
<td>.20</td>
<td>.42****</td>
<td>.19</td>
</tr>
<tr>
<td>MY Imitation</td>
<td>.33**</td>
<td>.29**</td>
<td>.28*</td>
<td>.28*</td>
<td>.32**</td>
<td>.27*</td>
<td>.22</td>
</tr>
</tbody>
</table>

N = 67.
MY = Mothers' ratings of older sibling toward younger sibling.
MO = Mothers' ratings of younger sibling toward older sibling.
*P<.05.
**P<.01.
***P<.001.
****P<.0001.
Table 4. Correlations among fathers' ratings of relationships of older siblings toward younger siblings and younger siblings toward older siblings

<table>
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<tr>
<th></th>
<th>FO Intimacy/</th>
<th>FO Prosocial</th>
<th>FO Companionship</th>
<th>FO Aggression</th>
<th>FO Antagonism</th>
<th>FO Dominance</th>
<th>FO Imitation</th>
</tr>
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<tr>
<td>FY Intimacy/</td>
<td>.38***</td>
<td>.23</td>
<td>.08</td>
<td>.04</td>
<td>-.01</td>
<td>.23</td>
<td>.15</td>
</tr>
<tr>
<td>FY Affection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FY Prosocial</td>
<td>.22</td>
<td>.21</td>
<td>.29**</td>
<td>.06</td>
<td>-.01</td>
<td>.07</td>
<td>-.005</td>
</tr>
<tr>
<td>FY Companionship</td>
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<td>.08</td>
<td>.61****</td>
<td>.03</td>
<td>-.05</td>
<td>.18</td>
<td>.27*</td>
</tr>
<tr>
<td>FY Aggression</td>
<td>.03</td>
<td>.12</td>
<td>.11</td>
<td>.52****</td>
<td>.32**</td>
<td>.12</td>
<td>-.08</td>
</tr>
<tr>
<td>FY Antagonism</td>
<td>.09</td>
<td>.12</td>
<td>-.01</td>
<td>.35**</td>
<td>.64****</td>
<td>.30**</td>
<td>.09</td>
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<tr>
<td>FY Dominance</td>
<td>-.02</td>
<td>.11</td>
<td>.05</td>
<td>.33**</td>
<td>.43***</td>
<td>.31**</td>
<td>.18</td>
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<tr>
<td>FY Imitation</td>
<td>.16</td>
<td>.13</td>
<td>.12</td>
<td>.01</td>
<td>.15</td>
<td>.08</td>
<td>.18</td>
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</tbody>
</table>

N = 67.
FY = Fathers' ratings of older sibling toward younger sibling.
FO = Fathers' ratings of younger sibling toward older sibling.
* P < .05.
** P < .01.
*** P < .001.
**** P < .0001.
Table 5. Test-retest reliabilities for children's first and second interviews (N = 20)

<table>
<thead>
<tr>
<th>Variable Correlation</th>
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<tr>
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<td><strong>Interview Question 3</strong></td>
</tr>
<tr>
<td>Interview Question 1</td>
<td>Interview Question 4</td>
<td>Interview Question 4</td>
</tr>
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<td>Intimacy/</td>
<td>Aggression 3</td>
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<td>.42</td>
<td>YN Compan-</td>
</tr>
<tr>
<td>ship 1</td>
<td>.70***</td>
<td>ionship</td>
</tr>
<tr>
<td>Aggression 1</td>
<td>-.07</td>
<td>YN Aggression</td>
</tr>
<tr>
<td>Irrelevant 1</td>
<td>.42</td>
<td>YN Irrelevant</td>
</tr>
<tr>
<td>Gen. Pos. 1</td>
<td>.42</td>
<td>YN Gen. Pos.</td>
</tr>
<tr>
<td>Gen. Neg. 1</td>
<td>.42</td>
<td>YN Gen. Neg.</td>
</tr>
<tr>
<td><strong>Companion¬ship 2</strong></td>
<td><strong>YN Intimacy/</strong></td>
<td><strong>YN</strong></td>
</tr>
<tr>
<td>Aggression 2</td>
<td>-.07</td>
<td>Intimacy/</td>
</tr>
<tr>
<td>Irrelevant 2</td>
<td>.73***</td>
<td>Affection</td>
</tr>
<tr>
<td>Gen. Pos. 2</td>
<td>.73***</td>
<td>YN Companion-</td>
</tr>
<tr>
<td>Gen. Neg. 2</td>
<td>-.07</td>
<td>ionship</td>
</tr>
<tr>
<td><strong>Interview Question 3</strong></td>
<td><strong>YN</strong></td>
<td><strong>YN</strong></td>
</tr>
<tr>
<td>Intimacy/</td>
<td><strong>YN Aggression</strong></td>
<td><strong>YN Aggression</strong></td>
</tr>
<tr>
<td>Affection 3</td>
<td>-.07</td>
<td><strong>YN</strong></td>
</tr>
<tr>
<td>Prosocial 3</td>
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<td><strong>YN</strong></td>
</tr>
<tr>
<td>Companion-</td>
<td>.42</td>
<td><strong>YN</strong></td>
</tr>
<tr>
<td>ship 3</td>
<td>.42</td>
<td><strong>YN</strong></td>
</tr>
<tr>
<td>Aggression 2</td>
<td>-.07</td>
<td><strong>YN</strong></td>
</tr>
<tr>
<td>Total includes proportion of thought units combined for Interview Questions 1-4 and Yes/No Probes.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>NOTE.</strong> These correlations are computed on the basis of proportions in each category.</td>
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</tbody>
</table>

*p < .05.  
***p < .001.  
****p < .0001.
APPENDIX B. CODING MAP FOR DATA
CODING MAP FOR DATA

Card 1

Frequency

Id #
Interview variable:
1st interview = 1
2nd interview = 2

Affection = 01
Prosocial = 02
Companionship = 03
Aggression = 04
Five
Dominance = 06
Imitation = 07
Irrelevant = 08
General Positive = 09
General Negative = 10

Open ended Question 1

Affection = 01
Prosocial = 02
Companionship = 03
Aggression = 04
Five
Dominance = 06
Imitation = 07
Irrelevant = 08
General Positive = 09
General Negative = 10

Open ended Question 2

Affection = 01
Prosocial = 02
Companionship = 03
Aggression = 04
Five
Dominance = 06
Imitation = 07
Irrelevant = 08
General Positive = 09
General Negative = 10

Open ended Question 3
Card 2

Frequency

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<td>01</td>
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<td>Prosocial</td>
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</tr>
<tr>
<td>Companionship</td>
<td>03</td>
</tr>
<tr>
<td>Aggression</td>
<td>04</td>
</tr>
<tr>
<td>Five</td>
<td></td>
</tr>
<tr>
<td>Dominance</td>
<td>06</td>
</tr>
<tr>
<td>Imitation</td>
<td>07</td>
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<td>Irrelevant</td>
<td>08</td>
</tr>
<tr>
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<tr>
<td>General Negative</td>
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</table>

Open ended Question 4

Yes/No Probes 1-16

Overall

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<th>Code</th>
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<tbody>
<tr>
<td>Very neg.</td>
<td>1</td>
</tr>
<tr>
<td>Negative</td>
<td>2</td>
</tr>
<tr>
<td>Unsure</td>
<td>3</td>
</tr>
<tr>
<td>Positive</td>
<td>4</td>
</tr>
<tr>
<td>Very pos.</td>
<td>5</td>
</tr>
</tbody>
</table>

Yes/No Questions 1-16

<table>
<thead>
<tr>
<th>Rating</th>
<th>Code</th>
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<tbody>
<tr>
<td>Y</td>
<td>2</td>
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<td>DOB for Subject (month, day, year)</td>
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<td>DOB for Sibling (month, day, year)</td>
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<td>Date of Interview (month, day, year)</td>
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<tr>
<td>Mother's Occupation (scale of 1 to 9)</td>
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<tr>
<td>Father's Occupation (scale of 1 to 9)</td>
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<td>Age spacing (in months) between Subject and Sibling</td>
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<td>Father's Educational Level (scale of 1 to 9)</td>
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<td>occurs very often = 5</td>
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<td>unsure = 4</td>
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<tr>
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<td>mod. pos. = 5</td>
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<td>positive = 6</td>
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<tr>
<td></td>
<td>very pos. = 7</td>
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<td>FY1</td>
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<tr>
<td>----------</td>
<td>------------------------</td>
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<tr>
<td></td>
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</tr>
<tr>
<td></td>
<td>sometimes/unsure       = 3</td>
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<tr>
<td></td>
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<td>occurs very often      = 5</td>
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<td></td>
<td>mod. neg.             = 3</td>
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<tr>
<td></td>
<td>unsure                = 4</td>
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<tr>
<td></td>
<td>mod. pos.             = 5</td>
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<td>positive              = 6</td>
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<td>very pos.             = 7</td>
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APPENDIX C: SUPPLEMENTARY TABLES
Table 6. Interitem correlations of mothers’ ratings of younger sibling toward older sibling

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<th>MO Prosocial</th>
<th>MO Companionship</th>
<th>MO Aggression</th>
<th>MO Antagonism</th>
<th>MO Dominance</th>
<th>MO Imitation</th>
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</thead>
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<td>.13</td>
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<td>-.12</td>
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<td>.26*</td>
<td>.52****</td>
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<td>.25**</td>
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<td>.25**</td>
<td>.47****</td>
<td>.31**</td>
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<td>.01</td>
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N = 67.
MO = Mothers' ratings of younger sibling toward older sibling.
*P<.05.
**P<.01.
***P<.001.
****P<.0001.
Table 7. Interitem correlations of mothers' ratings of the older sibling toward the younger sibling

<table>
<thead>
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<th>MY Companionship</th>
<th>MY Aggression</th>
<th>MY Antagonism</th>
<th>MY Dominance</th>
<th>MY Imitation</th>
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<tbody>
<tr>
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</tr>
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<td>MY Intimacy/</td>
<td>.35**</td>
<td></td>
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</tr>
<tr>
<td>Affection</td>
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<td>.46****</td>
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<td>.46****</td>
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<td>.13</td>
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</table>

N = 67.
MY = Mothers' ratings of older sibling toward younger sibling.

*P<.05.
**P<.01.
***P<.001.
****P<.0001.


Table 8. Interitem correlations of fathers' ratings of younger sibling toward older sibling

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<th>FO Prosocial</th>
<th>FO Companionship</th>
<th>FO Aggression</th>
<th>FO Antagonism</th>
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<th>FO Imitation</th>
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<td>--</td>
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<td>--</td>
<td>--</td>
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<td>Affection</td>
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<td>.11</td>
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N = 67.  
FO = Fathers' ratings of younger sibling toward older sibling.  
*P<.05.  
**P<.01.  
***P<.001.  
****P<.0001.
Table 9. Interitem correlations of fathers' ratings of the older sibling toward the younger sibling

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<th>FY Aggression</th>
<th>FY Antagonism</th>
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N = 67.
FY = Fathers' ratings of older sibling toward younger sibling.
*P<.05.
**P<.01.
***P<.001.
****P<.0001.
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Table 11. Correlations of child’s perceptions with mother’s ratings of the sibling relationship

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<th>Aggression</th>
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</tr>
<tr>
<td>MO Imitation</td>
<td>-.13</td>
<td>.04</td>
<td>.09</td>
<td>.06</td>
<td>-.11</td>
<td>.14</td>
<td>-.15</td>
</tr>
</tbody>
</table>

Mothers N = 67.
Children N = 75.
MY = Mothers’ ratings of older sibling toward younger sibling.
MO = Mothers’ ratings of younger sibling toward older sibling.
*P<.05.
**P<.01.
***P<.001.
****P<.0001.
Table 12. Correlations of child's perceptions with father's ratings of the sibling relationship

<table>
<thead>
<tr>
<th>Children's Perceptions</th>
<th>Intimacy/</th>
<th>Prosocial</th>
<th>Companionship</th>
<th>Aggression</th>
<th>Irrelevant</th>
<th>General Positive</th>
<th>General Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY Intimacy/</td>
<td>-.04</td>
<td>.06</td>
<td>.12</td>
<td>-.26*</td>
<td>.03</td>
<td>-.07</td>
<td>.10</td>
</tr>
<tr>
<td>Affection</td>
<td>FO Intimacy/</td>
<td>.09</td>
<td>.17</td>
<td>.17</td>
<td>.18</td>
<td>-.25*</td>
<td>-.15</td>
</tr>
<tr>
<td></td>
<td>Affection</td>
<td>FO Prosocial</td>
<td>.06</td>
<td>.16</td>
<td>-.06</td>
<td>-.06</td>
<td>-.01</td>
</tr>
<tr>
<td></td>
<td>FO Prosocial</td>
<td>FO Prosocial</td>
<td>.13</td>
<td>.25*</td>
<td>.20</td>
<td>.04</td>
<td>-.23*</td>
</tr>
<tr>
<td></td>
<td>FY Companionship</td>
<td>FY Companionship</td>
<td>.01</td>
<td>.03</td>
<td>.15</td>
<td>.02</td>
<td>-.16</td>
</tr>
<tr>
<td></td>
<td>FO Companionship</td>
<td>FO Companionship</td>
<td>.08</td>
<td>.08</td>
<td>.12</td>
<td>.27*</td>
<td>-.32**</td>
</tr>
<tr>
<td></td>
<td>FY Aggression</td>
<td>FY Aggression</td>
<td>.09</td>
<td>-.08</td>
<td>.01</td>
<td>.03</td>
<td>.13</td>
</tr>
<tr>
<td></td>
<td>FO Aggression</td>
<td>FO Aggression</td>
<td>.001</td>
<td>.06</td>
<td>.002</td>
<td>.13</td>
<td>-.03</td>
</tr>
<tr>
<td></td>
<td>FY Antagonism</td>
<td>FY Antagonism</td>
<td>-.07</td>
<td>.25*</td>
<td>.12</td>
<td>.27*</td>
<td>-.12</td>
</tr>
<tr>
<td></td>
<td>FO Antagonism</td>
<td>FO Antagonism</td>
<td>.06</td>
<td>.16</td>
<td>-.12</td>
<td>.03</td>
<td>-.02</td>
</tr>
<tr>
<td></td>
<td>FO Dominance</td>
<td>FO Dominance</td>
<td>-.08</td>
<td>.20</td>
<td>.08</td>
<td>.06</td>
<td>-.01</td>
</tr>
<tr>
<td></td>
<td>FY Imitation</td>
<td>FY Imitation</td>
<td>.18</td>
<td>.10</td>
<td>.04</td>
<td>.11</td>
<td>-.07</td>
</tr>
<tr>
<td></td>
<td>FO Imitation</td>
<td>FO Imitation</td>
<td>.02</td>
<td>-.10</td>
<td>.04</td>
<td>.07</td>
<td>-.04</td>
</tr>
</tbody>
</table>

Fathers N = 67.
Children N = 75.
FY = Fathers' ratings of older sibling toward younger sibling.
FO = Fathers' ratings of younger sibling toward older sibling.

*P<.05.
**P<.01.
***P<.001.
****P<.0001.
Table 13. Child interview yes/no items and factors

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do you like having a brother/sister?</td>
<td>.53</td>
</tr>
<tr>
<td>2. Does _____ ever make you cry?</td>
<td>.76</td>
</tr>
<tr>
<td>3. When you and _____ are playing, does _____ share toys with you?</td>
<td>.45</td>
</tr>
<tr>
<td>4. Is it fun having a brother/sister?</td>
<td>.39</td>
</tr>
<tr>
<td>5. Do you fight with _____?</td>
<td>.61</td>
</tr>
<tr>
<td>6. Does _____ do things that make you happy?</td>
<td>.57</td>
</tr>
<tr>
<td>7. Is _____ the best person to play with?</td>
<td>.47</td>
</tr>
<tr>
<td>8. When you need help with something, does _____ help you?</td>
<td>.40</td>
</tr>
<tr>
<td>9. Does _____ do things that make you mad?</td>
<td>.72</td>
</tr>
<tr>
<td>10. Do you like to play with?</td>
<td>.54</td>
</tr>
<tr>
<td>11. Does _____ help you when you get hurt?</td>
<td>.46</td>
</tr>
<tr>
<td>12. When _____ is mad at you, does he/she hit you?</td>
<td>.36</td>
</tr>
<tr>
<td>13. Does _____ like to play with you?</td>
<td>.12</td>
</tr>
<tr>
<td>14. Do you and _____ give each other hugs and kisses?</td>
<td>.28</td>
</tr>
<tr>
<td>15. When you and _____ are doing things together,</td>
<td>.36</td>
</tr>
<tr>
<td>does he/she boss you around/make you do things?</td>
<td></td>
</tr>
<tr>
<td>16. When you have been away from _____ all day, are you happy to see</td>
<td>.35</td>
</tr>
<tr>
<td>him/her?</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX D: CORRESPONDENCE
October 1999

Dear Director,

I am a graduate student at Iowa State University in Child Development. Under the direction of Dr. Dahlia Stockdale, I am conducting a study as part of my master's degree program which examines the perceptions 4- and 5-year-olds have of their sibling relationship. There is little research about how young children perceive their relationships with their younger siblings, yet sibling relationships play an important part of their development. This study will provide insights about how siblings are a part of the socialization process.

I am interested in inviting 4- and 5-year-old children at your center or school to participate in the study. There would be minimal center involvement. Consent forms and parent letters would be sent home with the children and then returned to the child's teacher. Also, the child would be interviewed by a trained child developmentalist at your center. A quiet place would be needed for the 15-20 minute interviews. The interviews would be scheduled in direct cooperation with the head teacher. Two weeks after the initial interviews, a small sub-sample of the children would be re-interviewed to check for reliability of responses.

Enclosed is a copy of the research proposal, instruments and a parent letter. Please return the enclosed letter indicating your center's participation decision. If you have any questions please feel free to contact Pam Reding (294-3040 or 292-6756) or Dr. Dahlia Stockdale (294-5186). We will be happy to answer any questions you may have. Thank you for your time and your response to the request.

Sincerely,

Pamela Reding
Graduate Student

Dr. Dahlia Stockdale
Major Professor in charge of Research
LETTER OF INTENT TO PARTICIPATE IN THE STUDY ON CHILDREN’S PERCEPTIONS OF THEIR SIBLING RELATIONSHIPS

The nature and general purpose of the research procedure and this institution’s level of involvement have been explained to me. I understand that the children who have parent permission to participate in this study will be interviewed while in attendance at this facility. It is my understanding that the interviews will be arranged at a time that is convenient for the head teachers and that the interviews will last approximately 15-20 minutes each.

I am willing for ______________________ to participate in the study as described in the attached letter.

I am not willing for ______________________ to participate in the study as described in the attached letter.

__________________________
Director’s Signature

__________________________
Date

Reding/Stockdale Research
Dear Parents,

I am a graduate student at Iowa State University in Child Development. I am conducting a study which examines 4- and 5-year-old’s perceptions of their sibling relationship as a part of my master’s degree program. There has been extensive research on the interaction between siblings, yet there is little known about how 4- and 5-year-olds perceive the relationship with their younger sisters or brothers. There is evidence that the sibling relationship is an extremely important one. This study will provide additional insights about how the sibling relationship influences development of children.

The study will require the participation of 4- and 5-year-old children. The children will be involved in a 15-20 minute interview about their sibling relationship at their school or center. We think the children will find the interview interesting, however, they will be free to withdraw from participating in the study at any time if they wish to. Two weeks after the initial interviews a small sub-sample of children will be re-interviewed to check for reliability of the responses. To ensure the accuracy of recording responses, the interview will be tape recorded. Both parents will be asked to fill out a brief rating scale regarding their perception of the sibling relationship, as well as providing some background information. All information will be kept confidential. Children will be assigned an identification number and no subject will be identified by name. The tapes will be erased after the data has been coded.

We will be unable to consider stepfamilies due to the nature of the study. When the study is completed, we would be happy to share the results with you. If you have any questions, feel free to contact Pam Reding (294-3040) or Dr. Dahlia Stockdale (294-5186). We will be happy to answer any questions you may have.

Please indicate your decision on the attached form regarding your child’s participation in this study. Also, please fill out the background information at the bottom of the page so that we can make the interview as personal as possible. Your participation in this study is greatly valued. Thank you for your time and effort in making this study a success.

Sincerely,

Pamela Reding
Graduate Student

Dr. Dahlia Stockdale
Major Professor in charge of Research
PERMISSION SLIP FOR STUDY ON CHILDREN'S PERCEPTIONS OF THE SIBLING RELATIONSHIP

The nature and general purpose of the research procedure have been explained to me. If I participate in this study, I understand that any questions I have will be answered. I understand that my child will not be identified by name and all information will be kept confidential. Finally, I understand that I am free to withdraw from the study at any time.

Please fill in the name and check the preferred option and return this form to your child's teacher as soon as possible.

___ I am willing for my child __________________ to participate in the study described in the attached letter.

___ I am not willing for my child __________________ to participate in the study as described in the attached letter.

__________________________________________________
Parent's Signature

__________________________________________________
Date

4-or 5-year-old child's date of birth ____________________.
Sex of next youngest sibling ________________________.
Name of next youngest sibling ________________________.
Date of birth of next youngest sibling ____________________.

Reding/Stockdale Research.
Fall/Winter, 1990

Dear Parents,

If you haven't yet returned the parental consent form for the sibling research project, we hope that you would still consider being a part of the study. Please return it to your child's teacher as soon as possible. We greatly value your participation in this study.

Attached is an additional parent consent form for your convenience and an original parent letter which explains the study. Please feel free to contact Pam Reding (294-3040 or 292-6756) or Dahlia Stockdale (294-5186) if you have any questions or concerns. Thank you for your part in making this research project a success.

Sincerely,

Pamela Reding          Dr. Dahlia Stockdale  
Graduate Student       Major Professor in charge of Research
Fall/Winter 1990-91

Dear ____________________,

Thank you for participating in the sibling research project conducted at Iowa State University through the Child Development Department. The children's interviews have been completed and I am looking forward to analyzing the data that has been collected.

Enclosed you will find an additional copy of the general information sheet and the sibling rating scale. If you have not completed these, we would appreciate your response as soon as possible. The general background information is for descriptive purposes only and all information will be kept confidential. The questionnaires are only identified by a number, which appears in the upper right hand corner of each form.

Thank you very much for your cooperation in making this study a success. Please feel free to contact Pam Reding (294-3040 or 292-6756) or Dahlia Stockdale (294-5186) if you have any questions or concerns.

Sincerely,

Pamela Reding
Graduate Student

Dr. Dahlia Stockdale
Major Professor in charge of Research
APPENDIX E: OLDER SIBLING INTERVIEW
OLDER SIBLING INTERVIEW

Today we are going to talk about your brother/sister. Do you have a brother/sister? What is his/her name? Is __________ older or younger than you are?

I'm going to ask you some questions about __________. Pretend this is your younger brother/sister. I'm going to write down what you say to me and I'm going to use the tape recorder to help me remember what we talked about.

INTERVIEW

1. What is it like having a brother/sister? __________________________
   __________________________
   __________________________

   probe 1> Tell me something about __________. __________________________
   __________________________
   __________________________

   probe 2> I don't know __________, what else can you tell me about him/her? __________________________
   __________________________
   __________________________

   probe 3> Tell me some more about __________. __________________________
   __________________________
   __________________________

2. Tell me some of the things that you and __________ do when you are together. __________________________
   __________________________
   __________________________

   probe 1> Tell me more about the things you do with __________. __________________________
   __________________________
   __________________________

   probe 2> Tell me more. __________________________
   __________________________
   __________________________

   probe 3> Anything else you can tell me about __________? __________________________
   __________________________
   __________________________

3. What are the things you like about __________? __________________________
   __________________________
   __________________________

   probe 1> Tell me the good things about __________. __________________________
   __________________________
   __________________________
probe 2> What does _______ do to make you happy?

probe 3> Tell me more good things about _________.

probe 2> What does _______ do to make you mad?

probe 3> What does _______ do to make you sad?

4. What are the things you don't like about _________?

probe 1> What are the "yucky" things _________ does?

YES/NO QUESTIONS

1. Do you like having a brother/sister?
   Why/Why not? ________________________________

2. Does _______ ever make you cry?
   What does _______ do to make you cry?

3. When you and _________ are playing, does _________ share toys with you?

4. Is it fun having a brother/sister?
   Why/Why not?

5. Do you fight with _________?
   What do you and _________ fight about?

6. Does _________ do things that make you happy?
   What does _________ do?

7. Is _________ the best person to play with?
   Why/Why not?
8. When you need help with something, does ______ help you? Y N ?
What does _______ help with? __________

9. Does _______ do things that make you mad? Y N ?
What does _______ do to make you mad? __________

10. Do you like to play with __________? Y N ?
Why/Why not? __________

11. Does _______ help you when you get hurt? Y N ?
How does _______ help you? __________

12. When _______ is mad at you, does he/she hit you? Y N ?

13. Does _______ like to play with you? Y N ?
Why/Why not? __________

14. Do you and _______ give each other hugs and kisses? Y N ?
Why/Why not? __________

15. When you and _______ are doing things together, does he/she boss you around/make you do things? Y N ?

16. When you have been away from _______ all day, are you happy to see him/her? Y N ?
Why are you happy to see _________?

Overall rating:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>very negative</td>
<td>unsure</td>
<td>positive</td>
<td>very positive</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX F: MATERNAL/PATERNAL RATING SCALE
November, 1990

Dear Mr. & Mrs. ______________________,

Thank you very much for participating in this research project on siblings' social behaviors. We know that it is normal for siblings to interact in both positive and negative ways and that they are a significant influence in each others' lives. Your unique viewpoints as parents will help us to better understand how sibling relationships develop within the framework of the sibling pair.

Enclosed is a sibling relationship rating scale and a general information form for both of you to complete and return to your child's teacher in a sealed envelope. We value your independent judgments so we ask that you fill them out separately. Mothers and fathers may have very different opportunities to view the sibling interactions. Fathers should fill out the green form and mothers the yellow form.

The rating scale and information form should take about 15-20 minutes of your time. Please rate, by number, the everyday sibling interactions that occur between your 4- or 5-year-old child and his/her younger brother or sister; then also rate the relationship between the younger sibling and his/her 4- or 5-year-old older brother or sister. In other words, we would like for you to rate each behavior as you view it from the older to the younger child and vice versa. The information requested on the general background form is for descriptive purposes only and all information will be kept confidential. All questionnaires will be identified by number only.

The directions are printed on the sibling relationship rating scale. If you have any questions, please do not hesitate to contact Pam Reding (294-3040 or 292-6756) or Dahlia Stockdale (294-5186). We will be happy to address any questions or concerns you may have. Thank you for your time and cooperation in making this research project a success.

Pam Reding
Graduate Student

Dr. Dahlia Stockdale
Major Professor in charge of Research
GENERAL PARENT INFORMATION

Please check the appropriate answer or fill in the blank when necessary.

1. Occupation: ________________ ________________

2. Employment Status (check all that apply):
   Full-time student ________________ ________________
   Part-time student ________________ ________________
   Employed full-time ________________ ________________
   Employed part-time ________________ ________________
   Homemaker ________________ ________________
   Unemployed ________________ ________________

3. Educational level (check highest level reached):
   Elementary school completed ________________ ________________
   Junior high school completed ________________ ________________
   Attended high school ________________ ________________
   High school completed ________________ ________________
   Attended/ing college ________________ ________________
   Undergraduate degree completed ________________ ________________
   Attended/ing graduate school ________________ ________________
   Master's degree completed ________________ ________________
   Doctoral degree completed ________________ ________________

4. Current Marital Status
   Married ________________ ________________
   Remarried ________________ ________________
   Separated ________________ ________________
   Divorced ________________ ________________
   Widowed ________________ ________________

5. Total number living in the household: ________________

6. Sex and dates of birth of the children in the family from the oldest to the youngest:

<table>
<thead>
<tr>
<th>Date of Birth</th>
<th>Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SIBLING RATING SCALE

All ratings are made as to what you believe to be typical behavior of the sibling pair in their daily interactions. Before you begin, think carefully about the siblings and base your ratings on the occurrence of the behavior in everyday sibling interactions. For each item, rate the behavior of the older sibling directed toward the younger sibling and the behavior of the younger sibling directed toward the older sibling. Space is provided for the two ratings under each item.

You are being asked to rate the siblings using the rating scale given below for 7 categories of behavior. The categories describe behavior you would expect to find in most sibling pairs. I am interested in knowing if the siblings display the listed behavior.

In the space provided at the left of each sibling pairing, place a number (1 to 5) that seems to best represent the occurrence of that behavior for each category. You may use any number from "1" to "5" that indicates the extent to which you think the behavior occurs in the sibling relationship.

RATING SCALE

<table>
<thead>
<tr>
<th>This behavior occurs rarely in the sibling relationship.</th>
<th>This behavior occurs occasionally or I am unsure of its occurrence in the sibling relationship</th>
<th>This behavior occurs often in the sibling relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

For example, if you believe the siblings behave fairly frequently as described in item 1, you may decide to place a 4 in the rating column. If you decide to give the siblings a rating of 2, it would indicate that this behavior occurs fairly rarely. A rating of 3 would indicate the behavior occasionally occurs. To the extent that you are not sure how to rate the described behavior, your response should lean toward 3.

Use any number from 1 to 5 with which you feel most comfortable. Make use of the full range of numbers whenever possible. Be sure to rate every statement. Remember you are being asked to rate the relationship between your 4 or 5-year-old child and the younger sibling as well as the relationship of the younger sibling and the 4- or 5-year-old child.
RATING SCALE

<table>
<thead>
<tr>
<th>This behavior occurs rarely in the sibling relationship</th>
<th>This behavior occurs occasionally or I am unsure of its occurrence in the sibling relationship</th>
<th>This behavior occurs often in the sibling relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

1. **Intimacy/Affection**: Behaviors that can be described as being close to one another, such as telling secrets or how much the siblings like each other and the amount of positive affection demonstrated by the siblings.
   Examples: hugging, holding hands, saying he/she likes or loves the other one
   - Older sibling toward younger sibling
   - Younger sibling toward older sibling

2. **Prosocial**: Behaviors that can be described as helping, sharing, taking turns, teaching, nurturing, caretaking, caregiving or any other behavior that is indicative of a positive interaction between the siblings (i.e., the positive things the siblings do for one another).
   Examples: offers to assist sibling when sibling is hurt, helps sibling with some task, saying sorry to one another, gives praise, comfort and reassurance to sibling, helps sibling fix something that breaks, answers questions that the sibling asks
   - Older sibling toward younger sibling
   - Younger sibling toward older sibling

3. **Companionship**: Refers to the amount of time that the siblings spend together in joint or cooperative interaction.
   Examples: playing together or watching television with one another, misses the sibling when the sibling is absent, being "friends"
   - Older sibling toward younger sibling
   - Younger sibling toward older sibling
RATING SCALE

This behavior occurs rarely in the sibling relationship
This behavior occurs occasionally or I am unsure of its occurrence in the sibling relationship
This behavior occurs often in the sibling relationship

1 2 3 4 5

4. Aggression: Behavior that can be described as hostile or aggressive in nature (both physical and verbal behavior). This involves intentional hostility of one sibling toward the other sibling.
Examples: biting, hitting, kicking, throwing objects, yelling, saying spiteful and hurtful things to each other (i.e., "I hate you.")

Older sibling toward younger sibling
Younger sibling toward older sibling

5. Antagonism: Behaviors that can be described as disruptive in nature or reflect some disagreement or conflict between the siblings (quarreling, teasing or irritating one another).
Examples: interrupting the other's activity, arguing over who will go first or sit in the front seat of the car

Older sibling toward younger sibling
Younger sibling toward older sibling

6. Dominance: Indicates how much one sibling takes control of the relationship through bossiness or other assertive behaviors.
Examples: one sibling wanting to run the show, telling the other what to do, standing up for his/her rights with the other one, fights about who is best at doing things

Older sibling toward younger sibling
Younger sibling toward older sibling
7. **Imitation:** The amount of time one sibling engages in behavior that imitates the other sibling's actions. Examples: kicks the ball like sibling, does things that brother/sister are doing, dresses or talks like the other sibling, wants the toy the other sibling has

___ Older sibling toward younger sibling
___ Younger sibling toward older sibling

Overall, how do you rate the siblings' relationship? Circle the number below that you feel best describes the relationship.

<table>
<thead>
<tr>
<th>very negative</th>
<th>negative</th>
<th>moderately unsure</th>
<th>moderately positive</th>
<th>very positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>7</td>
<td></td>
<td></td>
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SIBLING RATING SCALE

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You are being asked to rate the siblings using the rating scale given below for 7 categories of behavior. The categories describe behavior you would expect to find in most sibling pairs. I am interested in knowing if the siblings display the listed behavior.

In the space provided at the left of each sibling pairing, place a number (1 to 5) that seems to best represent the occurrence of that behavior for each category. You may use any number from "1" to "5" that indicates the extent to which you think the behavior occurs in the sibling relationship.

RATING SCALE

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<tr>
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<td>4</td>
<td>5</td>
<td>-------------------------------------------------------</td>
</tr>
</tbody>
</table>

For example, if you believe the siblings behave fairly frequently as described in item 1, you may decide to place a 4 in the rating column. If you decide to give the siblings a rating of 2, it would indicate that this behavior occurs fairly rarely. A rating of 3 would indicate the behavior occasionally occurs. To the extent that you are not sure how to rate the described behavior, your response should lean toward 3.

Use any number from 1 to 5 with which you feel most comfortable. Make use of the full range of numbers whenever possible. Be sure to rate every statement. Remember you are being asked to rate the relationship between your 4 or 5-year-old child and the younger sibling as well as the relationship of the younger sibling and the 4- or 5-year-old child.
This behavior occurs rarely in the sibling relationship

This behavior occurs occasionally or I am unsure of its occurrence in the sibling relationship

This behavior occurs often in the sibling relationship

1 2 3 4 5

1. **Intimacy/Affection**: Behaviors that can be described as being close to one another, such as telling secrets or how much the siblings like each other and the amount of positive affection demonstrated by the siblings.

Examples: hugging, holding hands, saying he/she likes or loves the other one

___ Older sibling toward younger sibling
___ Younger sibling toward older sibling

2. **Prosocial**: Behaviors that can be described as helping, sharing, taking turns, teaching, nurturing, caretaking, caregiving or any other behavior that is indicative of a positive interaction between the siblings (i.e., the positive things the siblings do for one another).

Examples: offers to assist sibling when sibling is hurt, helps sibling with some task, saying sorry to one another, gives praise, comfort and reassurance to sibling, helps sibling fix something that breaks, answers questions that the sibling asks

___ Older sibling toward younger sibling
___ Younger sibling toward older sibling

3. **Companionship**: Refers to the amount of time that the siblings spend together in joint or cooperative interaction.

Examples: playing together or watching television with one another, misses the sibling when the sibling is absent, being "friends"

___ Older sibling toward younger sibling
___ Younger sibling toward older sibling
RATING SCALE

<table>
<thead>
<tr>
<th>Behavior</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<tbody>
<tr>
<td>This behavior occurs rarely in the sibling relationship</td>
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<td>This behavior occurs often in the sibling relationship</td>
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4. **Aggression**: Behavior that can be described as hostile or aggressive in nature (both physical and verbal behavior). This involves intentional hostility of one sibling toward the other sibling.

Examples: biting, hitting, kicking, throwing objects, yelling, saying spiteful and hurtful things to each other (i.e., "I hate you.")

___ Older sibling toward younger sibling
___ Younger sibling toward older sibling

5. **Antagonism**: Behaviors that can be described as disruptive in nature or reflect some disagreement or conflict between the siblings (quarreling, teasing or irritating one another).

Examples: interrupting the other’s activity, arguing over who will go first or sit in the front seat of the car

___ Older sibling toward younger sibling
___ Younger sibling toward older sibling

6. **Dominance**: Indicates how much one sibling takes control of the relationship through bossiness or other assertive behaviors.

Examples: one sibling wanting to run the show, telling the other what to do, standing up for his/her rights with the other one, fights about who is best at doing things

___ Older sibling toward younger sibling
___ Younger sibling toward older sibling
7. **Imitation:** The amount of time one sibling engages in behavior that imitates the other sibling's actions. Examples: kicks the ball like sibling, does things that brother/sister are doing, dresses or talks like the other sibling, wants the toy the other sibling has

Older sibling toward younger sibling
Younger sibling toward older sibling

Overall, how do you rate the siblings' relationship? Circle the number below that you feel best describes the relationship.

very negative  moderately unsure  moderately positive  very positive
very negative  negative  positive  positive

1  2  3  4  5  6  7
APPENDIX G: THOUGHT UNIT DIVISION
The following criteria for dividing verbal protocols into thought units was developed by Bray (1988). The material in bold represents adaptations made by the investigator for use in the present study.

For coding purposes, verbal protocols were divided into individual thought units. A thought unit was defined as any singly expressed thought that did not reflect a change in thought, idea, behavior, or action.

Any change in expressed behavior or action was considered a new thought unit. For example, "He hits me and pushes me," was divided into two thought units, even though both units (he hits me and pushes me) were classified as Aggression.

Any time a child used an interjection, a new thought unit occurred. For example, "She shares her dolls, but sometimes she doesn’t share all the time. She just shares her baby dolls," was three thought units: Prosocial (She shares her dolls), General Negative (. . . but sometimes she doesn’t share all the time . . .), and Prosocial (. . . she just shares her baby dolls).

A new thought unit occurred whenever a new topic or person was introduced. It was considered a new thought unit when "and" was placed between names or objects in a series. For example, "She plays with me and Tim and mom" would be considered as three different thought units: Companionship (She plays with me . . .), Irrelevant (. . . and Tim . . .), and Irrelevant (. . . and mom . . .). In addition, a response to a
new question was judged as a separate thought unit.

Repetition of thought units was not coded as a new thought unit. For example, "He plays with me. He plays outside with me", was considered one thought unit. If the child repeated the interview question before responding to the question, it was not considered as a new thought unit. When a question was posed to the interviewer (e.g., "You know what she does?"), and then answered the question, the total response was coded as one unit of thought.

Any elaboration or explanation that did not involve a change in action, behavior, or person was considered as one thought unit. If children explained why something was happening, then this was left with the previous thought unit. If the explanation involved a new person or a new action following a "when" or a "because," it was considered a new thought unit, unless it did not make sense standing alone. In those cases, it would belong to the previous thought unit.

Sometimes the children would begin their response by "Ahh" or "Hmm." These were not coded as a thought unit, but were considered part of the thought unit to which they were attached. Likewise, the children would sometimes end their response with "That's all." When this happened, it was considered as part of the previous thought unit. Any time a child ended a sentence with "and stuff" it was also considered as part of the previous thought unit.
DIVISION OF VERBAL PROTOCOLS INTO THOUGHT UNITS

AN EXAMPLE

1. / Well he kind of bosses me around sometimes. /
   a.) / He’s very active. / He’s funny. / Sometimes bad. /
   b.) / He always gets to do stuff better. / Like the last time we went to
      grandpa’s grave, / he saw the turtles / and I didn’t. /
   c.) / He acts like a baby because he thinks everyone will like him
      better. / And he talks like a baby. /

2. / We play. / We eat together. / We always play tricks on my mom /
   and dad. /
   a.) / Sometimes I get down from my bunk bed / and climb into his bed /
      and bounce him up and down. /
   b.) / We have wars with our little animals. / Sometimes I’m the winner /
      and sometimes my little brother wins. /
   c.) / Sometimes he cries a lot because he wants juice and says, "Mommy,
      listen to me!" /

3. / I don’t know. / I like him when he tries to play tricks on mom /
   and dad. /
   a.) / He comes to my school. / And when he has to go potty he just runs
      in and goes. / He plays here. / We go on a field trip sometimes with
      John. / He likes Mary. /
   b.) / He cheers up with a funny face. /
   c.) / He helps people / and he’s really nice sometimes. /

4. / I don’t like when he cries / and whines. /
a.) / Spits at mom / and he's so angry. / He drools all over the couch. / He steps on the pillow when he has shoes on. / 
b.) / He just bites me / and spits at me. / When it's my birthday he always wants me to share my stuff. / 
c.) / Does sad things. / 
1. Y / Because he's so nice sometimes. / 
2. Y / Bites me. / 
3. Y 
4. Y / Because he's so nice sometimes. / 
5. Y / When he want to have a battle. About toys. / John always wants to win so he can be better than me. / 
6. Y / He guards me. / 
7. Y / Because he's so nice. / 
8. Y / He lets me watch the TV. / He's so actible. / 
9. Y / He says, "No, no, you're not mad." / And then we start a fight / and he makes me angry / and mad. / 
10. Y / He's so fun. / 
11. Y / He gives me a band-aid / and G-I Joe. / 
12. Y 
13. Y / Because I'm so fun. / 
14. Y / Because that's how we say sorry. / That's how John says hello / and goodbye. / 
15. Y 
16. Y / Because I never saw him. /
APPENDIX H: MANUAL FOR CODING SIBLING INTERACTIONS
MANUAL FOR CODING SIBLING INTERACTIONS

The following manual for coding sibling interactions was developed by Bray (1988). The material in bold type represents those adaptations made by the investigator for use in the present study. Furthermore, Bray's (1988) category 5, Antagonism, was dropped and combined with category 10 in this study.

1. Intimacy/Affection: Behaviors that can be described as being close to one another, such as telling secrets or how much the siblings like each other and the amount of positive affection demonstrated by the siblings. This includes hugging, holding hands, saying he/she likes or loves the other one.

Examples: "Cause he's my best friend."
            "I like him."
            "She loves me."
            "When we take walks he holds my hand."
            "Cause we like each other."
            "I like to give him hugs."

2. Prosocial: Behaviors that can be described as helping, sharing, teaching, nurturing, caretaking, caregiving, empathy or any other behavior that is indicative of a positive interaction between the siblings (i.e., the positive things the siblings do for one another). This includes offers to assist sibling when sibling is hurt, helps sibling with some task, saying sorry to one another, being polite or asking permission, gives praise, gives comfort and reassurance, helps sibling fix something that breaks, answers questions the sibling asks.

Examples: "He helps me lift stuff when they're heavy."
            "Because they can help you get stuff you can't reach."
            "He helps me pick stuff up in my room."
            "Cause she shares things with me."
            "She goes and gets me a band-aid when I hurt myself."
            "Sometimes she lets me play with her dishes."
            "He does nice things for me."

3. Companionship: Refers to the amount of time that the siblings spend together in joint or cooperative interaction. This includes playing together or watching television with one another, misses the sibling when the sibling is absent, being friends, sitting by each other.

Examples: "We play outside together."
            "We go to the park."
            "We play together."

"We watch TV."
"Let's do Nintendo together."
"He's a good person to play with."

4. **Aggression**: Behaviors that can be described as hostile or aggressive in nature (both physical and verbal behavior). This involves intentional hostility of one sibling toward the other sibling. This includes biting, hitting, kicking, throwing objects, yelling, destruction of personal property, and **physical and verbal attack**.

Examples:
- "He hates me."
- "Fights with me."
- "When I color he tears my paper."
- "Saying, 'I don't like you.'"
- "When he breaks my things I get mad."
- "Because she hits."
- "Because she throws things at me."
- "He yells at me."
- "He calls me names."
- "Takes things away from me."

6. **Dominance**: Indicates how much one sibling takes control of the relationship through bossiness or other assertive behaviors. This includes one sibling wanting to run the show, telling the other what to do, standing up for his/her rights with the other one, wanting his/her own way, strongly asserting oneself, expressing power over sibling, expresses a need to be best at doing things.

Examples:
- "I say to him 'go and get me a drink.'"
- "Tells me to play with him."
- "And I say 'no I won't.'"
- "He always wants to win."
- "I'm better than he is."

7. **Imitation**: The amount of time one sibling engages in behavior that imitates the other sibling's actions. This includes kicking the ball like sibling, doing things that brother/sister are doing, dressing or talking like the sibling, **wanting what the sibling has**.

Examples:
- "I kick the ball just like him."
- "I wear skirts just like her."

8. **Irrelevant**: Any response that is not related to the sibling relationship or is unclear of the siblings involvement. This includes any reference to other persons, personal histories and the interview process. It also includes incomplete thoughts, nonsensical responses, any response that indicates the child's unwillingness
to respond to this question.

Examples: "Sean had the chicken pox a long time ago."
"Sometimes somebody babysitters us."
"When he does a job outside."
"Nothing."
"I don’t know."
"I forgot."
"Because."
"He plays with daddy."
"He likes his mom and dad and friends and dog."

9. **General Positive:** Any response that is given that is reflective of the positive perception of the sibling relationship but does not fall into the above categories. This includes attempts to entertain one another, pride and admiration of the sibling’s accomplishments that merit recognition, as well as liking physical characteristics and material possessions, and perceived similarities in regards to likes and dislikes between the siblings. It also includes a “nothing” response to questions 4., 4a., 4b. & 4c.

Examples: "Because he’s nice to me most of the time."
"She does funny things to make me laugh."
"Because she draws good pictures."
"We both like basketball."
"She don’t do yucky stuff."
"She’s nice."
"She’s my sister."
"Fun."
"Makes me happy."
"She dan do flips."

10. **General Negative:** Any response that is given that is reflective of the negative perception of the sibling relationship but does not fall within the above categories. This includes competition, rivalry, jealousy, ignoring the sibling, disliking physical characteristics and material possessions of the sibling, interrupting the other’s activity, irritating one another, arguing about who will go first or sit in the front seat of the car.

Examples: "He doesn’t follow the rules."
"She teases me."
"When he messes with the glue I get sad."
"He says, ‘nanna nanna boo boo’."
"Not very fun."
"He’s mad at me."
"He’s mean or angry with me."
"Like when she doesn’t pay attention to me."
"And he wouldn't listen to me when I talked."
It's rough having a sister/brother."
"We don't give each other hugs and kisses."
"He doesn't share."

0. No Response: Lack of a response when a question was presented to the child.
APPENDIX I: JUDGE'S MANUAL
JUDGE'S MANUAL

The following judge's manual was developed by Bray (1988). The material in bold type represents adaptations made by the investigator for use in the present study.

INTRODUCTION

The present study is concerned with sibling relationships. Recently, researchers have given more credence to the roles siblings play in the socialization process; in the past the focus of research has been placed on the parents as the primary socializing agents. There is no doubt that having a sibling is a significant experience in a child's life. There is also no doubt about the emotional ties that are present in the sibling relationship.

TASKS

The materials you will be dealing with are verbal protocols that have been divided into thought units. These are responses of preschool children to an interview about their younger sibling. Your task is to classify each of the thought units within each verbal protocol according to specific categories. In order to carry out this task, definitions of 10 sibling relationship characteristics are being provided for you. You'll also receive a copy of the interview used in data collection. Identification of the thought units in the verbal protocols are identified by slash marks (/ /).

PROCEDURE

The following procedure is to be followed before and during the classification of thought units:

1. Familiarize yourself with the interview.

   The interview was divided into two sections for data collection. The first part of the interview was an open-ended format with a series of standard probes. These questions are numbers 1, 1a., 1b., 1c., through 4c. on the interview sheet. The second part of the interview, questions 1-16, is more specific with yes/no questions and probes.

2. Learn the definitions of each category.

   Nine categories have been identified as being descriptive of sibling relationships. The tenth category is a No Response category. The categories have been specifically defined and examples given for each. The relationship categories include: intimacy/affection, prosocial,
companionship, aggression, dominance, imitation, general positive and
general negative.

3. Classify the thought units.

Before judging a verbal protocol, put the date and identify yourself
by judge number and initial on the attached score sheet.

Each interview has been divided into individual thought units and
these are identified with slash marks. Space has been provided above
each unit of thought for you to indicate your judgment regarding the
appropriate category. Refer to the interview and definitions at any time
during the judging process to refresh your memory regarding definitions
or to clarify categories.

After you have completed a protocol, record the numbers representing
categories for each response in the order that they appear. Totals for
each category will be tallied by the investigator.

4. Know the conventions.

There are several conventions that you must learn for judging
purposes. Please keep these conventions in mind when judging the thought
units and refer to them as much as you feel necessary.

a. "Nice" and "mean" are always to be classified in the General
Positive and General Negative categories.

b. "Best friend" is always an Intimacy/Affection classification,
while "being friends" falls into the companionship category.

c. A "nothing" response for questions 3, 3a, 3b, 3c, 4, 4a, 4b, &
4c have specific classifying instructions. If "nothing" is the response
given to questions 3, 3a, 3b, or 3c, then it is to be classified as
General Negative. However, if "nothing" is the response given to
questions 4, 4a, 4b, or 4c, then it is to be classified as General
Positive. All other "nothing" responses are to be classified as Ir-
relevant.

d. When there is a compound verb (multiple action) in a sentence,
be sure to consider the action within its context; in other words, you
may refer back to previous thought units.

e. On the Yes/No questions, if the probe brings out only a single
word response, make the judgement based on the yes or the no and the
question.

f. When the child says, "My brother does something with me," it is
to be judged as Companionship, and "My brother does something for me," it is to be judged as Prosocial.

        g. In questions 1, 1a, 1b through 4c, unless another person is specified, assume the responses are directed toward the sibling.

        h. Reliability will be checked at certain points during the judging process. In each case, the investigator will set the number of protocols to be judged for the next reliability check.
APPENDIX J: INTERVIEW MANUAL
INTERVIEW PROCEDURES FOR REDING/STOCKDALE
SIBLING RESEARCH PROJECT

Materials to have with you for the interview:
* 2 pens
* A tape recorder with good batteries
* A tape
* The interview form with subject’s & sibling’s names
* Play dough
* Fisher Price people
* Stickers

1. Write in the date of the interview on the upper right hand corner of the interview form.

2. Make note of the setting only if it is not in a center or school.

3. Each child will be individually interviewed. Ask the head teacher to direct you to the child you will be interviewing. Ask the child to come with you to an area agreed upon by the director and/or head teacher which is separate from the ongoing classroom activities. Tell the child you will be playing with play dough and that you will be asking them some questions about their younger brother/sister.

4. All interview questions will be administered in the same order. The interviews will be hand written and audio-taped for the purpose of checking accuracy of the written version.

5. A period of time will be spent playing with play dough to help establish rapport between you and the child. Visit with the child so as to make him/her feel comfortable. This need not be tape-recorded.

6. When you feel that a comfortable atmosphere has been established, begin the interview process by telling the child, "Today we are going to talk about your brother/sister." You will also ask the child to name his/her younger brother/sister and to pretend that their sibling is the little Fisher Price person. (If the child has more than one younger sibling, you will tell the child which sibling will be the target child for the interview.)

7. Turn on the recorder. Explain to the child that the tape recorder is being used to help you remember what they talked about. Your first question will be, "What is it like having a brother/sister?"

8. The interview should last approximately 20 minutes, however, take as long as necessary. When you finish, thank the child for talking
with you, give him/her a sticker for participating, and reintroduce the child to the classroom.

9. Following the interview, give the sibling relationship a global rating while the interview is still fresh in your mind. There is a space provided for this at the bottom of the last page of the interview form. The rating of the relationship is as follows:

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<tr>
<td></td>
<td>very negative</td>
<td>unsure</td>
<td>positive</td>
<td>very positive</td>
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<tr>
<td>negative</td>
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10. Later that same day, listen to the tape, if necessary, to record any information that was not hand-written during the interview.

11. Give the completed interview form to Pam to be typed.