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Acknowledgments

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Position in the Peer Group’s Perceived Organizational Structure:
Relation to Social Status and Friendship

A. Michele Lease
Jennifer L. Axelrod
University of Georgia

Position in the perceived peer group organization was assessed using a multi-dimensional scaling strategy and was compared with measures of social status and mutual friendship in a sample of 404 fourth-, fifth-, and sixth-grade students. Perceived organization position was correlated significantly to social preference, like-most nominations, and like-least nominations but not to social impact. Furthermore, peer group members who were marginal in the perceived structure were more likely to have a rejected status and to be friendless, whereas those in a central position were more likely to be popular and have at least one friend. Most rejected students, however, were not marginal in the perceived structure. Marginal-rejected group members, compared with nonmarginal-rejected individuals, had more negative scores on social status measures. It was hypothesized that studying the overlap between position in the group’s perceived organization and social status might be useful for discriminating types of rejected children and adolescents.

Recently it has been suggested that the peer system consists of multiple levels, including the individual, dyadic, and group levels (Rubin, Bukowski, & Parker, 1998). The individual level includes reference to the stable characteristics that a person brings to a social situation, such as temperament, social problem-solving skills, and behavioral tendencies (see reviews by Coie, Dodge, & Kuperschmidt, 1990; Crick & Dodge, 1994; Newcomb, Bukowski, & Pattee, 1993); the dyadic level is characterized by the relationship between two individuals, such as friendship (see review by Newcomb & Bagwell, 1995); and the group level encompasses the interactions of a collec-
Social development research typically has focused on the individual and dyadic levels and neglected the social context in which social relations take place (Cairns, Xie, & Leung, 1998). Indeed, most measures designed to assess a student’s acceptance within the peer system reflect that bias. It has been suggested that one of the main reasons that the study of the group level of the peer system has been slow to develop is the complexity inherent in assessing group-level constructs (Cairns et al., 1998; Rubin et al., 1998). However, recent developments, such as advanced and objective means for assessing social networks (see a review of methods by Cairns et al., 1998) and the perceived organization of peer groups (Lease, McFall, Treat, & Viken, 1998a, 1998b) have started to remedy that situation.

Ultimately, an integration of information about social acceptance across levels of the peer system might be needed to develop a full appreciation of a student’s social experience (Cairns et al., 1998; Johnson, Ironsmith, & Poteat, 1994; Johnson, Poteat, & Ironsmith, 1991). Taken separately, an individual-, dyadic-, or group-level aspect of social acceptance provides a limited, albeit informative, view of the individual’s social experience; taken together, a more complete picture might emerge.

The relation between individual and dyadic aspects of social acceptance has been assessed in previous studies (e.g., Parker & Asher, 1987). The aim for the current study was to examine social acceptance at the group level—based on a group member’s position within the perceived organization of a specific peer group—and its relation to individual and dyadic aspects of acceptance. Specifically, group members’ perceptions of the way the peer group is organized were mapped using a multidimensional scaling (MDS) strategy (Lease et al., 1998a, 1998b). It is important to note that using an MDS strategy to map the way the social environment is organized is not equivalent to conducting a social network analysis of associational patterns in the peer group.

Perception of the Social Environment

The use of MDS to map peer group organization is relatively new within the peer relations field (Lease et al., 1998a, 1998b). However, nearly three decades ago, Jones and Young (1972) developed an elaborate rationale for using MDS to study representations of the structure of intact adult groups. The use of MDS by Jones and Young was built on several fundamental assumptions, some of which include the following: (a) Individuals have inter-
nal cognitive representations of the social environment, (b) those representations correspond to the person’s understanding of his or her social environment, (c) MDS can be used to capture those representations, and (d) group members can have similar internal representations.

First, Jones and Young (1972) have asserted that each person has an internal representation, or schema, of the social environment. That schema is based on knowledge gathered from experiences and events taking place within the person’s social environment (see also Jones, 1982, 1983; Purkhardt & Stockdale, 1993; Rudy, Merluzzi, & Henahan, 1982). Specifically, a social schema is based on a person’s perceptions of the social environment rather than the objective features of the social environment per se. According to Jones and Young (1972, p. 108), a person’s social representation includes all the individuals within his or her “social field,” organized in some particular configuration or pattern.

Second, Jones and Young (1972) have maintained that a person attempts to make sense of social events, and this understanding is reflected in the person’s social schema. Furthermore, social schemas were presumed to be significant because they guide behavior and influence the way future social events are perceived—assumptions that were consistent with social psychological theories of interpersonal behavior (see Jones, 1983; Merluzzi, Rudy, & Krejci, 1986; Purkhardt & Stockdale, 1993). For example, Kelly (1955) has maintained that deciphering the objective features of the social environment is not nearly as important for explaining interpersonal behavior as is understanding the “sense that people make” of the events that take place in the social world.

Third, Jones and Young (1972) have maintained, as have others, that MDS—an analytical method developed by cognitive scientists to study the ways in which objects are organized in perceptual space—can be used to capture a person’s internal representations (Jones, 1982; Merluzzi et al., 1986; Purkhardt & Stockdale, 1993). That is because the process of conducting an MDS study of social representations was believed to be highly analogous to the process individuals naturally use to make meaning of the social environment. Furthermore, the output of an MDS analysis was assumed to mirror the person’s internal representations.

Briefly, MDS uses proximity data (e.g., similarity ratings) to construct a graphic representation of the arrangement of objects in a person’s perceptual space. In a study of group structure, for example, the similarity-rating task involves asking participants to rate the similarity of each group member with every other member. MDS is used to analyze those interpersonal similarity ratings to produce an n-dimensional picture of the group: each group member is represented as a point in that space.
Jones (1982) has argued that the process of judging similarity is comparable to the social comparison process elicited in real world situations that involve multiple group members. On one hand, individuals often are not judged in isolation, according to some absolute criterion, but in relation to others. Furthermore, some have argued that the act of judging similarity might bring the relevant criteria into focus, even when the relevant criteria for judging an individual (object) are unclear (Goldstone, 1994). On the other hand, individuals are multidimensional and the comparison process could be based on a wide range of demographic and behavioral criteria. In natural settings, individuals choose their own composite of judgmental cues to use in the social comparison process (Jones, 1982). Likewise, when completing interpersonal similarity judgments for an MDS study, participants are free to base their judgments on any and all criteria that they consider relevant (Jones, 1983; Jones & Young, 1972; Rudy & Merluzzi, 1984). Criteria (e.g., aggression, social withdrawal) are not imposed on them by the research design, so the natural comparison process can be evoked in an MDS similarity-rating task. Even though a similarity judgment has a very simplistic appearance, it has been argued that “people assume that objects that are superficially similar have deeper ‘essences’ in common as well” (see Goldstone, 1994, p. 147).

Because similarity ratings were believed to “reflect how closely the members of each pair of stimuli are psychologically related” (Jones & Koehly, 1993, p. 97)—and similarity ratings are used to construct the MDS space—the geometric distances between individuals in the MDS output were believed to correspond to the “psychological distances” between them (Rudy & Merluzzi, 1984, p. 66). Thus, Jones and Young (1972) have maintained that the MDS-derived representation of organizational structure is psychologically meaningful. Furthermore, they argued that insights into a person’s understanding of the social environment could be derived from the placement of individuals within that MDS space.

Finally, Jones and Young (1972) believed that group members can have similar perceptions of the social environment. Although each person’s internal representation is unique, members of the same group often have a common understanding of the way the social environment is organized (Corsaro, 1992; Jones, 1982; Kelly, 1955). Students are witnesses to many of the same events that take place in the peer group and they talk about those events, which often gives rise to shared perceptions. Those shared perceptions, in turn, provide the foundation for coordinated activities within the peer group (Corsaro, 1992; Kelly, 1955).

In summary, Jones and Young (1972) have maintained that individuals hold internal representations of the social world and that group members’
representations can be captured using MDS techniques. Their theoretical and methodological framework laid a foundation for using MDS to examine perceptions of intact groups. For example, Jones and colleagues used MDS to examine the perceived relations among the staff, faculty, and students in a research laboratory (Jones & Young, 1972) and members’ perceptions of group structure in a Reserve Officer’s Training Corp (Davison & Jones, 1976). Furthermore, in those studies MDS configurations successfully were used to predict frequency of social and professional interactions (e.g., patterns of research collaborations and service on dissertation committees). Other examples of MDS studies of intact adult groups include examinations of interpersonal perceptions in a large psychology department (Forgas, 1978), in groups of graduate students (Smith, Pedersen, & Lewis, 1966), among a psychology faculty (Stone & Coles, 1971), in psychotherapy groups (Sprouse & Brush, 1980), in a rehabilitation unit (Stone, Coles, Sinnet, & Sherman, 1971), and within a college fraternity (Jackson, Messick, & Solley, 1957).

Organization of the Peer Group

Lease and colleagues (1998a, 1998b) recently examined the organizational structure of the peer group in 24 same-gender groups of fifth-grade and sixth-grade students. Their use of MDS was consistent with the tenets of the Jones and Young (1972) framework. Lease and colleagues found that MDS techniques are a feasible approach to studying the perceived structure of peer groups in later childhood and early adolescence. Furthermore, they found support for the meaningfulness of the group-derived MDS configurations: (a) Group members’ perceptions of the group’s organization were largely similar to each other, (b) group members’ perceptions of the organizational structure were related substantially to teacher’s perceptions, and (c) the perceived organization of group members consistently was related to, although not overlapping with, social network (i.e., association) patterns and the behavioral characteristics of the group members across the examined peer groups. Regarding the latter finding, it is important to note that the constructs of perceived organizational structure and social network (i.e., pattern of social affiliations) were not assumed to be equivalent by Lease and colleagues or by the current researchers. Although they sound highly similar, there are important differences between the two. Perceived structure might be determined by any number of factors that the group finds important, or reputationally important (Hartup, 1996), including social behavior, neighborhood factors, socioeconomic status, and social network affiliations. Thus,
the perceived organizational structure of the peer group could subsume the social network, but the reverse is not true. Essentially, perceived group structure is a higher order construct than social network.

The current research was based on the framework established by Jones and Young (1972) and the methodology of Lease and colleagues (1998a, 1998b) for assessing peer group structure. Basically, the input data to the MDS analyses consisted of similarity ratings. Similarity ratings were generated by asking participants to rate “how alike” they considered each pair of peer group members to be (e.g., “How alike are Tom and Terry?”). The similarity ratings then were submitted to replicated MDS (RMDS) (see Schiffman et al., 1981; Young & Hamer, 1987) analyses and used to generate a two-dimensional, graphic representation of the structure of those similarity ratings for each peer group. The use of an RMDS analysis, in particular, allowed the entire peer groups’ perception of group structure to be modeled rather than each individual’s perceptions separately. Thus, RMDS analyses provided a “picture” of the way each peer group was organized, as perceived by the peer group members. Students viewed by their peers as similar appeared closer together in the RMDS space; students viewed as different appeared farther apart. Consistent with the approach used by Jones and Young (1972), similarity ratings were unconstrained (i.e., no explicit criteria were provided); participants were allowed to determine the basis of their own similarity judgments.

**Location Within the Perceived Organization:**
**A Measure of Acceptance at the Group Level**

In the present research, each boy’s or girl’s position within the peer group’s perceived organization, relative to peers, was used to represent social acceptance at the group level. Although the individual was the focus, organizational position was conceptualized as a group-level measure of social acceptance: (a) Social acceptance was determined based on the individual’s position relative to others’ positions within the perceived structure; (b) a group member’s goodness of fit with the group was based on a social comparison process (i.e., similarity ratings) rather than an absolute, predetermined criterion (e.g., aggression); and (c) conclusions about social acceptance were believed to apply only to a specific set of peers. Ultimately, it was assumed that mapping students’ positions within the perceived organizational structure of the peer group might provide insight into the way group members are viewed, and perhaps treated, by peers.
It was reasoned that an increasing distance from peers in the perceived organizational structure (i.e., marginality) represents a decreasing goodness of fit with the peer group: (a) In the structure of a natural category, such as a peer group, members are viewed as more or less atypical; (b) the more atypical an individual is perceived to be, compared with peers, the more peripheral they would be in the MDS space; and (c) perceived typicality/atypicality can be viewed as an indication of group-based social acceptance.

First, some members of a natural category (compared with the artificial categories created for cognitive psychology experiments; see Rosch & Mervis, 1975) are more typical than are other members. For example, in the category *bird*, a robin or a sparrow is a more typical example of a bird than is a penguin or an ostrich (Bourne, Dominowski, Loftus, & Healy, 1986). Analogously, some members of a peer group are viewed as more typical or atypical than are other members. However, atypicality does not carry a negative valence in and of itself, just as there is nothing inherently wrong with a penguin. Furthermore, an individual perceived as atypical in the context of one peer group might be perceived as typical in another group, in line with research showing that atypicality is contextually bound (see Heit & Barsalou, 1996). For example, a nonathletic adolescent who plays violin in the community’s youth orchestra might be perceived as atypical in the context of a classroom-based peer group that is highly sports focused but perfectly typical within the context of the youth orchestra. Conversely, atypicality—in the sense of oddness compared with peers—has been found to be one of the few universal (i.e., context-independent) predictors of peer rejection (Wright, Giammarino, & Parad, 1986). The meaning of atypicality in the current research—as defined by location in the MDS space—was left as an open empirical question.

Second, marginality within the perceived organizational structure was assumed to be related to atypicality, and, conversely, centrality was assumed to reflect typicality. On one hand, typical members of a natural category tend to be more centrally located with the other members distributed around them (Ashby, 1992). On the other hand, the degree to which a member is perceived as typical within a natural category depends on the member’s similarity to the others in the group (Rosch & Mervis, 1975). Thus, typical members are more centrally located due to their overall similarity with the other members; the less similar a group member is to the other members, the more atypical they are perceived to be (Ashby, 1992; Rosch & Mervis, 1975).

Third, although an atypical peer group member might not be “deviant” in an absolute sense, atypical group members appear to have difficulty getting along with peers. It has been demonstrated in studies of person/group simi-
larity that a group member’s acceptance by peers is mediated by the similarity between that individual’s characteristics and the summed characteristics of the peer group members as a whole. For example, the relation between peer rejection and aggression has been shown to vary depending on the manifest levels of aggression in the peer group (Boivin, Dodge, & Coie, 1995; Stormshak, Bierman, Bruschi, Dodge, & Coie, 1999; Wright et al., 1986). Thus, compared with more typical peers, a group member who is less similar to the others in the group (i.e., atypical), or a social misfit (Wright et al., 1986), also is more likely to be rejected by peers.

In comparison to those studies (i.e., Boivin et al., 1995; Stormshak et al., 1999; Wright et al., 1986), the current MDS research could be conceptualized as a more general study of person/group similarity. In the types of studies advanced by Wright and colleagues, the criteria for calculating a person’s similarity to the group (e.g., aggression, social withdrawal) were set by the researchers. In contrast, research participants in the current study completed similarity ratings that were unconstrained; therefore, the level of person/group similarity was based on criteria of the participants’ choosing.

**Individual and Dyadic Aspects of Social Acceptance**

Rubin and colleagues (1998) have suggested that social status (e.g., popularity or rejection) might be conceived of as a reflection of social acceptance at the individual level of the peer system (Rubin et al., 1998). Social status basically is a summary measure of the degree to which a group member is liked or disliked by peers as a whole (Newcomb et al., 1993). In general, social status is assessed by asking peer group members to choose one or more peers whom they like and one or more whom they dislike (for a review of methods see Frederickson & Furnham, 1998; Newcomb et al., 1993; Terry & Coie, 1991).

In the current study, the Coie and Dodge (1983) system of assessing social status was used. Peer group members nominated the three classmates they like to play with the most and the three they like to play with the least. The following scores were created from those nominations: (a) like-most—the number of times a study participant was nominated as “like to play with most,” (b) like-least—the number of times a participant was nominated as “like to play with least,” (c) social preference—the number of like-most nominations minus the number of like-least nominations received from peers, and (d) social impact—the number of like-most nominations plus the number of like-least nominations received from peers.

Those four continuous scores—social preference, social impact, and the number of like-most and like-least nominations—were used in correlational
analyses to indicate individual-level social acceptance. Furthermore, those four scores also were used to classify students into categories: popular, rejected, controversial, neglected, or average status.

Although social status is essentially a summary measure of the groups’ opinion about the individual (Newcomb et al., 1993), it can be argued that it is not a group-level construct (Rubin et al., 1998). That is, to determine an individual’s social status, researchers sum the number of like-most and like-least nominations received from peers, which in essence provides a summary index of the groups’ affective regard for the individual. However, popularity and rejection most often are treated as a proxy for the individual characteristics that a person brings to each social situation (Cillessen & Ferguson, 1989; Frederickson & Furnham, 1998; Kindermann, 1993; Newcomb et al., 1993; Rubin et al., 1998). That is, a student’s characteristics determine whether he or she will be popular with peers, independent of the composition and organization of the peer group and the student’s fit within a specific group (Frederickson & Furnham, 1998). Thus, social status communicates more about the individual than it does about the individual functioning within the context of a particular peer group.

Social acceptance at the dyadic level most often is represented by friendship, especially mutually indicated friendship (Rubin et al., 1998). Mutuality or reciprocity in friendship nominations is considered a primary consideration for determining whether two group members are indeed friends (Hartup, 1996; Rubin et al., 1998). One-way friendship nominations can be misleading, because an individual might nominate a peer as a friend even if this sentiment is not returned. A peer group member without friends might nominate others as a self-presentational strategy (Berndt, 1984), two group members could perceive the relationship between themselves differently, or a group member might nominate nonfriends if the research design requires them to make three nominations, even if he or she has fewer than three friends in actuality. Two participating students were considered to be friends, therefore, only if their nominations were mutual.

**Relation of Group and Individual Aspects of Social Acceptance**

A rejected social status is equated with being disliked by the peer group. However, Cairns and colleagues (1998) have asserted that a commonsense definition of peer rejection might indicate a peer group member who is “friendless or ostracized by the group” (p. 28). Some rejected group members are friendless and ostracized; however, many others have reciprocated friendships and/or belong to a clique (Cairns et al., 1998). That latter view of rejec-
tion suggests that it should be defined, at least in part, based on a group member’s relation to others in the peer group (Benenson, 1990; Cairns et al., 1998; Johnson et al., 1994).

It is likely that individual and structural information each convey important information about peer rejection. Thus, integrating both types of information might lead to a better understanding of the nature of peer rejection. For example, Johnson and others (Johnson et al., 1991, 1994) have suggested that studying the convergence between social networks and social status measures might help distinguish between types of rejected children and adolescents. Depending on their position in the social network, rejected group members might experience dramatically differing social lives, even though they seem equivalent from an individual perspective (Johnson et al., 1991, 1994). One rejected individual could be connected securely to an influential clique, another could be associated with other disliked students, and a third could be ostracized by all cliques. Although each is disliked by the group as a whole, those rejected group members are likely to experience “rejection” much differently. Analogously, rejected students who are perceived as marginal, or atypical, within the context of the group’s organizational structure might have a differing social experience from rejected group members not perceived as atypical.

Many insights about students’ social lives might be gained by integrating information about peer acceptance across levels of the peer system. However, there are inherent difficulties in integrating information across differing units of analysis (i.e., individual, dyad, and group). In the current study, an approach is examined for studying convergences and divergences between those differing aspects of social acceptance.

**Current Study**

The relation between three levels of the peer system in later elementary school, same-gender peer groups was examined by studying the relation between social status, number of reciprocated friendships, and position in the group’s perceived organization. The peer group was defined as the set of same-gender students within a classroom because peer interactions in later elementary school populations mostly are segregated by gender—peer interactions with the opposite gender occur but are rare (see Sroufe, Bennett, Englund, Urban, & Shulman, 1993). Children ages 9 through 13 were chosen because concerns about popularity increase in importance during the pre-adolescent and early adolescent period (Hartup, 1989) as do concerns about the organizational structure of the peer group—and who holds what position
within that structure (Parker & Gottman, 1989). Furthermore, because peer interactions are mostly same gender at this age, the significance of atypicality in the peer group was less complicated by cross-gender relationships and perceptions and the impact of romantic relationship patterns within the peer group.

Two types of analyses were undertaken. First, continuous measures of sociometric status (i.e., social preference, social impact, like-most nominations, and like-least nominations) were correlated with a student’s distance from the center of the perceived structure. It was hypothesized that increasing distance from the center of the organization would be associated with decreasing levels of social preference if individual-level and group-level acceptance are related. However, it also was hypothesized that social preference and position in the perceived organizational structure would be related only moderately if they are distinct aspects of social acceptance.

Second, individuals in each of three “layers” of the perceived group organization were examined with regard to their social status and friendship status. Students in each same-gender peer group were divided into central, moderate, and marginal groups, based on their position in the perceived structure. The central group was composed of the group members who existed at the center of the peer group. They were believed to be the most typical members of the group. Those potentially could be the group members who are at the center of the peer group’s focus and who guide peer group routines and activities. However, similar to earlier statements that were made about atypicality, no specific valence can be attached to those who were typical, or central, in the context of the peer group. The marginal group consisted of group members who were located on the outer edges of the perceived structure—the most atypical members of the peer group. It could be speculated that those are the students who are ostracized from the peer group, or at least not included, given the perceived dissimilarity between them and the other peer group members. Finally, the moderate group consisted of all group members who were neither typical nor atypical compared with peers: the majority of students who are neither stars nor outcasts perhaps. The relation between group structure layers (i.e., central, moderate, marginal) and social status categories (i.e., popular, rejected, neglected, controversial, average) was examined. An additional analysis focused on the number of reciprocated friendships (i.e., a pair of study participants who nominate each other as like-most) held by youth at the three levels of the perceived organizational structure.

As a secondary analysis, the peer-rejected group members who were perceived as atypical (i.e., marginal) in the peer group were compared with rejected group members who were not perceived as atypical (i.e., in the mod-
erate or central layers of the structure). That analysis followed the suggestion by Johnson and colleagues (1991, 1994) that at least two types of “rejected” children exist: the type who is linked with others in the social network and the type who is not linked with others in the network. Although the speculations by Johnson and colleagues concerned the social network, rather than the peer group’s organizational structure, analogous arguments might be made about group members who are not highly similar to others in the perceived structure. Thus, two groups of rejected students were compared on social status and friendship measures: rejected individuals who were located in the marginal layer of the group’s structure and rejected individuals who were located in the central or moderate layers of the organizational structure.

METHOD

Participants

Participants were 404 elementary school students from 4 fourth-grade, 11 fifth-grade, and 6 sixth-grade classrooms from five rural elementary schools in the southeast. Participants ranged from 9 through 13 years of age. Across the entire population of those five schools, 36% qualified for free lunch status and 11% qualified for reduced lunch status. According to school records, 66% of the sample were White students, 30% were Black students, and 4% were Other ethnicity students. Forty-five percent of the participants were girls.

Procedure

In the spring of the school year, parental consent forms that included a place for parents to sign if they were granting consent and a separate place to sign if denying consent were sent home with students. Parental consent and child assent were required for participation in the study. Participation rates were determined in two ways: (a) the number of individuals who participated out of the total number possible and (b) the percentage of students who participated in each same-gender peer group.

First, 404 out of a possible 530 students participated (i.e., 76%). Seventy-one students of the 530 possible—contained in 9 specific peer groups—were excluded from the study for one of two reasons: (a) the consent rate within that individual’s specific peer group fell below 70%, or (b) the peer group was considered too small (i.e., fewer than 8 members) for the MDS analyses to
make sense. Thus, 459 students remained (530 possible participants, 71 excluded) as possible participants—consent/assent was obtained for 88% of those remaining students (i.e., 404 out of 459). Second, the percentage rates per peer group ranged from 71% through 100%. The analyses in the current study were based on a total of 36 peer groups—19 groups of boys and 17 groups of girls.

Thirty-six sets of measures were constructed for the study—one per peer group. The measures that a participant completed were specific to his or her peer group: (a) Interpersonal similarity judgments were made only about the participant’s peers (i.e., same-gender classmates), and (b) a participant was allowed to nominate only peer group members as like-most and like-least (i.e., social status measures). Furthermore, only the names of peer group members with parental consent to participate were included on the measures; participants did not make interpersonal similarity judgments about nonparticipants and nonparticipants could not be nominated as like-most or like-least. Thus, a participant completed similarity judgments and nominations only for peer group members with consent to participate.

Questionnaires were group administered and instructions for each measure were read aloud in the classroom by one of the researchers. During data collection, nonparticipating classmates were asked to read or draw quietly at their desks. In addition, some classroom teachers permitted some of the nonparticipants to use the computer or go to the library.

Measures

Similarity judgments. Interpersonal similarity judgments of peers were collected from each participant as input data for RMDS analyses. The construction of similarity ratings followed two steps: First, a list of all possible pairs of group members was constructed for each peer group, and second, the Ross ordering method (Ross, 1934), recommended by Davison (1983), was used to determine the order in which group members’ names would appear in the final measure. Using that method, a group member’s name was placed in the first half of the pair as frequently as in the second half of the pair to balance potential space effects, and a group member’s name was spaced evenly throughout the list of pairs to balance potential time effects (Davison, 1983).

Participants were instructed to think about what peer group members are like during the times when they are allowed to hang out and talk with each other during the school day (e.g., lunch and recess). Then participants were asked to rate—from 1 through 7—“how alike” (i.e., similar) they believed
each pair of group members to be (e.g., “How alike are Susan and Karen?”), without being given any specific criteria for judging similarity. The participants were instructed that higher numbers correspond to a higher degree of similarity. Furthermore, the 7-point scale was anchored as follows: 1 = very different, 3 = somewhat different, 5 = somewhat alike, 7 = very alike.

After reading the instructions and asking for questions, the researcher instructed participants to complete the similarity ratings at their own pace. The individual items, or pairs, were not read aloud as a way to minimize any potential harmful effects of a study participant laughing aloud at any given pair of students. The number of similarity judgments ranged from 28 (8 participants in a group) through 153 (18 participants in a group). Pairwise similarity judgments that included the participant’s own name were excluded from the data entry.

Social status nominations. Participants viewed a roster with the names of their specific peer group members and then nominated three group members that they “play with the most” (like-most) and three that they “play with the least” (like-least) at school. Numbers of like-most and like-least nominations each participant received were summed and standardized, within peer group (i.e., class and gender), to a mean of 0 and a standard deviation of 1. Next, social preference (like-most – like-least) and social impact (like-most + like-least) scores were calculated. Finally, group members were assigned to social status groups (i.e., popular, average, rejected, neglected, and controversial) based on the Coie and Dodge (1983) method. Individuals were classified as popular if they had a social preference score greater than 1, a like-most score greater than 0, and a like-least score less than 0; rejected if they had a social preference score less than –1, a like-most score less than 0, and a like-least score greater than 0; neglected if they had a social impact score less than –1, and like-most and like-least scores less than 0; and controversial if they had a social impact score greater than 1, and like-most and like-least scores greater than 0. All remaining group members were classified as average.

Reciprocated friendship. The number of reciprocated friendships for each participant was calculated using sociometric like-most nominations (Parker & Asher, 1987). A reciprocated friendship was defined as one in which two participants nominated each other as like-most, which indicated mutual liking by a dyad. Each participant potentially could receive 0 through 3 reciprocated nominations, because each participant could nominate three peers as like-most.
RESULTS

Fit of the RMDS Group Solutions to the Similarity Data

The similarity data for the 36 peer groups were analyzed separately using PROC MDS available in version 6.07 of the SAS supplemental library. RMDS analyses (Schiffman et al., 1981) were used to fit an unweighted Euclidean distance model to ordinal-level data to generate one solution for each peer group. Solution configurations were computed for two dimensions (see Lease et al., 1998b). The fit of each of the 36 two-dimensional configurations to the similarity data was assessed with a badness-of-fit criterion (i.e., Kruskal’s Stress Formula 1) (Kruskal & Wish, 1978). Badness of fit is analogous to the square root of 1 – $R^2$, where “$R$ is a multiple correlation around the origin.” Across the 36 peer groups, the median badness of fit of the two-dimensional solutions was 0.20. Overall, most of the variance in the similarity data was accounted for by the RMDS solutions. That reveals that peer group members’ perceptions of the patterning, or organization, of the peer group were highly similar.

Figure 1 portrays the perceived organizational structure of a fifth-grade, boys peer group. In that group, peer group members view Michael and Chris as being highly similar—and consider them to be very closely positioned in the structure. In contrast, Tom and Terry are considered to be dissimilar and very distant to each other in the perceived structure.

Distance From the Center of the Perceived Structure and Social Status

In the first set of analyses, the distance of each group member from the centermost point of the RMDS solution was calculated. Group members who were farther away from the centermost point of their peer group were considered to be more atypical compared with peers, or marginal in the organizational structure, whereas those members closest to the center were considered to be more typical, or central in the organizational structure.

Pearson correlations were calculated between the continuous social status measures and the distance from the center of the organizational structure. (Inferential statistics can be biased when applied to structured data such as those in RMDS configurations. The assumption of independent observations is not met strictly, because each member’s position in the structure depends on where the other group members are located. $p$ values are likely to be smaller than they should be, so a conservative $p$ value of .01 was used to indicate significance.) Overall, the results indicate that the farther a group mem-
ber is from the center of the perceived organizational structure, the more like-least nominations and the fewer like-most nominations he or she received from peers. Distance from the center of the structure was correlated negatively with social preference, $r = -0.45 (p < 0.01)$ and like-most nominations, $r = -0.37 (p < 0.01)$. Distance to the outside of the structure was associated positively with like-least nominations, $r = 0.43 (p < 0.01)$. However, distance was not associated with social impact, $r = 0.07 (p = ns)$.

**Marginal, Moderate, or Central Positioning in the Perceived Organizational Structure, Sociometric Status, and Friendship**

In the next two sets of analyses, the individuals in each of the 36 peer groups were divided into three levels—marginal, moderate, and central—based on their distance from the center of their own peer groups’ RMDS.
space. Essentially, the three levels corresponded to three concentric “waves” emanating from the center point of the RMDS space, as illustrated in Figure 1.

It was the absolute distance from the center that was considered important, not the direction in which the deviation occurred. Group members were considered marginal if they were more than 1 standard deviation above the mean from the centermost point ($n = 49$), moderate if they were between –1 and 1 standard deviations ($n = 284$), and central if they were 1 standard deviation or more below the mean ($n = 71$). Thus, marginal group members were those on the outside fringe, or the outer ring, of the peer group, and central group members were those in the inner ring. The moderate group, by far the largest of the three levels, was somewhere in between. (No effort was made to create three groups of comparable size. However, less stringent cutoff criteria of 0.5 standard deviations also were used to create the same three levels of perceived structure and the same analyses were completed using these less stringent criteria. No fundamental differences in the results were found.)

Table 1 shows the proportion of group members in each of the three layers of the perceived structure—marginal, moderate, and central—which was considered to be popular, rejected, controversial, neglected, and average by peers. Seventy-eight percent of the group members in marginal positions were rejected by peers, whereas 48% of those in the central position were popular. However, only 35% of rejected students fell into the marginal classification, and only 31% of the popular students fell into the central level. Although a substantial association between social status and position in the perceived structure was indicated, the two views do not appear to be equivalent.

<table>
<thead>
<tr>
<th>Sociometric Status</th>
<th>Marginal</th>
<th>Moderate</th>
<th>Central</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>Expected</td>
<td>%</td>
</tr>
<tr>
<td>Popular</td>
<td>2</td>
<td>13.2</td>
<td>4.1</td>
</tr>
<tr>
<td>Rejected</td>
<td>38</td>
<td>13.2</td>
<td>77.6</td>
</tr>
<tr>
<td>Neglected</td>
<td>2</td>
<td>5.5</td>
<td>4.1</td>
</tr>
<tr>
<td>Controversial</td>
<td>2</td>
<td>2.2</td>
<td>4.1</td>
</tr>
<tr>
<td>Average</td>
<td>5</td>
<td>14.9</td>
<td>10.2</td>
</tr>
<tr>
<td>Total</td>
<td>49</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
The proportion of group members in each structural position who had zero, one, two, or three reciprocated friendships appears in Table 2. The results indicated that one-half of the group members in marginal positions had no friends, whereas the other one-half had at least one friend. In contrast, the overwhelming majority of those in the central group had at least one friend. The observed distribution of students with zero through three friends deviated from the expected distribution; \( \chi^2(6, N = 404) = 40.88, p < .01 \). It seems that the largest discrepancy between observed and expected values occurred for those in the marginal group: This group contained fewer individuals with three friends and more individuals with zero friends than was expected.

### Table 2: Proportion of Group Members Holding Zero, One, Two, or Three Friendships at Three Levels of the Perceived Organizational Structure

<table>
<thead>
<tr>
<th>Position in the Perceived Organizational Structure</th>
<th>Marginal</th>
<th></th>
<th>Moderate</th>
<th></th>
<th>Central</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>Expected</td>
<td>%</td>
<td>n</td>
<td>Expected</td>
</tr>
<tr>
<td>Zero friends</td>
<td>26</td>
<td>10.6</td>
<td>53.1</td>
<td>50</td>
<td>61.2</td>
</tr>
<tr>
<td>One friend</td>
<td>13</td>
<td>14.3</td>
<td>26.5</td>
<td>86</td>
<td>83.0</td>
</tr>
<tr>
<td>Two friends</td>
<td>9</td>
<td>14.2</td>
<td>18.4</td>
<td>89</td>
<td>82.2</td>
</tr>
<tr>
<td>Three friends</td>
<td>1</td>
<td>9.9</td>
<td>2.0</td>
<td>59</td>
<td>57.6</td>
</tr>
<tr>
<td>Total</td>
<td>49</td>
<td>100.0</td>
<td></td>
<td>284</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Rejected peer group members in marginal, moderate, or central positions of the perceived structure were compared on social status measures. The goal was to investigate whether differences could be found between rejected group members who were marginal in the peer group (i.e., marginal) compared with those who were perceived as more similar to peers in the structure (i.e., central or moderate positions). The analyses indicated that rejected group members in the three positions were not equivalent in terms of social status measures. Specifically, social preference, social impact, like-most scores, and like-least scores were submitted to a MANOVA, using position in the perceived structure (marginal, moderate, central) as a between-participants factor. A significant multivariate effect was found, \( F(4, 210) = \)
Follow-up ANOVAs revealed highly significant effects for social preference, $F(2, 106) = 21.81, p < .01$, and like-least, $F(2, 106) = 14.54, p < .01$. A more moderate effect was found for like-most, $F(2, 106) = 5.49, p < .01$. A small effect was found for social impact, $F(2, 106) = 3.68, p < .05$. Subsequent exploratory $t$ tests (see Table 3) indicated that the significant effects largely were due to the marginal-rejected individuals. They received more like-least nominations, fewer like-most nominations, and lower social preference scores than even the moderate-rejected students. The mean differences between the marginal-rejected and central-rejected groups were as large, or larger, than the discrepancy between marginal-rejected and moderate-rejected groups. However, the mean differences between the marginal-rejected and central-rejected groups often were not significant due to the small sample size of the latter group.

The proportion of marginal-rejected peer-group members who had zero, one, two, or three reciprocated friendships in each structural position was included in Table 4. Two-thirds of the marginal-rejected group was found not to have a friend as compared with one-half of those rejected individuals in a moderate or central position. Finally, nonmarginal-rejected and marginal-rejected groups were compared to examine whether those students in the nonmarginal-rejected group were more likely than those in the marginal-rejected group to have at least one friend. Four groups of students were constructed: marginal-rejected with no friends, marginal-rejected with one or more friends, nonmarginal-rejected with no friends, and nonmarginal-rejected with one or more friends. Comparing observed proportions to expected proportions, the results indicated that nonmarginal-rejected individuals were slightly more likely to have at least one friend than were marginal-rejected students, $\chi^2(1, 109) = 4.80, p = .03$.

### TABLE 3: *t* Tests for Rejected Peer Group Members at Three Positions in the Organizational Structure

<table>
<thead>
<tr>
<th>Sociometric Status</th>
<th>Marginal (n = 38)</th>
<th>Moderate (n = 62)</th>
<th>Central (n = 9)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td>SD</td>
<td>X</td>
</tr>
<tr>
<td>Social preference</td>
<td>-2.65</td>
<td>0.65</td>
<td>-1.84</td>
</tr>
<tr>
<td>Social impact</td>
<td>0.44</td>
<td>0.53</td>
<td>0.10</td>
</tr>
<tr>
<td>Like-most</td>
<td>-1.10</td>
<td>0.31</td>
<td>-0.87</td>
</tr>
<tr>
<td>Like-least</td>
<td>1.54</td>
<td>0.50</td>
<td>0.97</td>
</tr>
</tbody>
</table>

a. Marginal compared with moderate, $p < .01$.
b. Marginal compared with central, $p < .01$. 
The results from this study indicated that for students in later elementary school, position in the perceived organization of the peer group was related to sociometric social status and number of reciprocated friendships. The results indicated also that the three levels of the peer system are not independent. Specifically, with increasing distance from the center of the perceived group structure came a decrease in social preference and liking by peers and an increase in the degree that peer group members were liked least. Furthermore, the highest proportion of students in a marginal position in the structure were rejected, whereas the highest proportion in the central position were popular. In addition, many of the structurally marginal children did not have at least one friend. In contrast, the overwhelming majority of those in the central portion of the perceived organizational structure had at least one friend.

Although the relationship between acceptance at the individual and group levels of the peer system was substantial, it is perhaps the differences between the two that are the most compelling. Not all rejected students were perceived by their peers as marginal, or atypical, within the perceived organizational structure. Whereas many rejected students were located in a marginal position in the perceived structure, 65% were located in moderate or central positions. The results could be interpreted as a partial confirmation of the suggestion made by Johnson and colleagues (1991, 1994) that differing types of rejected students exist in the peer group. Two types of rejected peer group members were found: One type was marginal in the structure, and the other type was not marginal.

### TABLE 4: Proportion of Rejected Peer Group Members at Three Levels of the Perceived Structure Having Zero Through Three Reciprocated Friendships

<table>
<thead>
<tr>
<th>Position in the Perceived Organizational Structure</th>
<th>Marginal</th>
<th>Moderate</th>
<th>Central</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n Expected</td>
<td>%</td>
<td>n Expected</td>
</tr>
<tr>
<td>Zero friends</td>
<td>26</td>
<td>20.6</td>
<td>68.4</td>
</tr>
<tr>
<td>One friend</td>
<td>9</td>
<td>12.9</td>
<td>23.7</td>
</tr>
<tr>
<td>Two friends</td>
<td>3</td>
<td>4.2</td>
<td>7.9</td>
</tr>
<tr>
<td>Three friends</td>
<td>0</td>
<td>0.3</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>38</td>
<td>100.0</td>
<td>62</td>
</tr>
</tbody>
</table>
One type of rejected peer group member existed on the periphery of the group’s organizational structure. Those rejected students were seen as quite different and “psychologically distanced” from their peers within the perceived structure. Furthermore, rejected group members who were located in a marginal position in the structure were found to be less preferred than even other rejected group members. That finding is compelling given that rejected individuals, compared with their peers, already are considered extreme, by definition, on social status measures (i.e., social preference, like-most and like-least nominations). Furthermore, marginal-rejected peer group members were slightly more likely to be friendless than were nonmarginal-rejected group members. In addition, the results indicated that there is a second type of rejected individual who is embedded firmly in the group’s perceived organization (i.e., in central or moderate positions). Apparently, the second type of rejected group member is not seen as inherently different, or atypical, compared with peers even though they are not highly preferred. This latter type of rejected individual might not be preferred by peers for a number of reasons, such as being new to the school system, having a unique set of interests/hobbies, or being “shy.”

Integrating information about a group member’s acceptance by peers across individual, dyadic, and group levels might be important for developing a more complete picture of the student’s overall social experience. Specifically, it is not enough to be rejected and friendless to be perceived as marginal, or atypical, in the perceived structure of the peer group: More than one-half of the rejected individuals without a mutual friend were not found in the marginal layer of the perceived structure. Perhaps there is a difference between the rejected, friendless peer group members who are perceived as atypical and the rejected, friendless group members who are not viewed as atypical compared with peers, in terms of their concurrent and future social-emotional adjustment.

Although peer rejection in childhood has been cited as a significant predictor of maladaptive outcomes, such as school dropout and psychopathology (see review by Parker & Asher, 1987), as few as 15% of children identified as rejected remain so 1 year later (Newcomb & Bukowski, 1984). It is conceivably those 15% who carry the weight of most significant prediction equations. Identifying those children and young adolescents who are likely to fall into the stably rejected group, and differentiating them from the majority of rejected children and adolescents who do not retain this status over time, is important for prediction and intervention purposes. Although speculative, it might be that it is the rejected group members who exist on the periphery of the perceived organizational structure who remain rejected over time and are at the greatest risk. Thus, being atypical in the context of a peer group might
carry a negative connotation: Being perceived as highly dissimilar to peers could forebode continued peer rejection, even when the peer group composition changes from one school year to the next.

In contrast, nonmarginal-rejected students might not be at high risk for continued rejection. Their transient problems fitting into the peer group might be due to a mismatch between their characteristics and the characteristics of the peer group. Although rejected and friendless in the context of one specific peer group, a change of peer groups could be accompanied by a change in status. For example, during a previous data collection the first author met one girl who was very sociable, outgoing, and seemingly liked by her peers, even though she was classified as rejected and without friends. After talking to the classroom teacher, it became clear that that girl was experiencing a poor fit with her peer group: She was a “tomboy” in a group of very traditional females. The teacher believed that she was nominated as like-least so often because participants were compelled to nominate three peers as like-least, regardless of whether they truly disliked three other peers. Of all their peers, that girl was among those who group members preferred the least. However, the classroom teacher felt that that girl was neither at long-term risk for continued rejection nor that she was experiencing any negative emotional consequences of being rejected by peers.

The current results, which indicate a moderate relation between social status measures and perceived structure position, appear to differ from the findings by Lease and colleagues (1998a, 1998b). Those authors suggested that the two social status dimensions—social preference and social impact—often are assumed to underlie the group’s organization. For example, researchers have suggested that social status dimensions measure peer group structure and an individual’s place within that structure (e.g., Bukowski & Hoza, 1989; Maassen, van der Linden, & Akkermans, 1997). However, Lease and colleagues found that children do not cluster into social status groups (e.g., popular, rejected, etc.) within the perceived organizational structure (i.e., RMDS similarity space) nor is the peer group perceived to be organized by the dimensions of social preference and social impact, as pictorially demonstrated in the landmark study conducted by Coie, Dodge, and Coppotelli (1982). However, in the current study, it was not examined whether rejected group members, for example, cluster in the MDS-derived depiction of the group’s organizational structure. Rather, it was questioned whether rejected individuals are more likely to exist on the outskirts of the structure rather than the center. The focus for the current study was not about the ways in which rejected students are similar to each other per se but how distant each individual was from the center of the peer group structure.
Limitations and Future Directions

The current study had a number of methodological limitations that constrain its conclusions. First, the results only pertain to same-gender peer groups in later elementary school. Second, the study was classroom based, so if a study participant person had friends in other classrooms he or she was not able to nominate them as like-most. Thus, friendships with others outside of the classroom were not counted. Third, some peer groups were excluded from the study due to low participation rates or because the group was too small for the MDS analyses to make sense. It was unknown to the researchers why some peer groups evidenced consent rates lower than 70% whereas other groups’ consent rates were 100%. However, in both groups, non-returned consent forms tended to be the problem, rather than parents actively refusing consent. Ultimately, it was not known whether the groups that were excluded were unique in some way. However, the researchers believe that within-group participation rates are an important consideration in any study in which peer-group members are informants. Fourth, the similarity ratings used as input to the MDS analyses did not include a participant’s self-similarity judgments—or judgments of self to others in the peer group. It was believed that a student’s judgments of similarity to others would unduly bias the results of a study on group perceptions of organizational structure. However, self-similarity ratings would be very important to include in a study on the way in which individuals perceive themselves within the context of the peer group.

Alternative measures could have been chosen to represent individual-, dyadic-, and group-level aspects of social acceptance. Although organizational position was used as indicator of group-level acceptance, this was certainly not the only measure that could have been chosen and it might not be the best one. Furthermore, a group member’s summed similarity to group members might be a more sensitive measure of typicality than the measure used in the current study—distance from the center of the perceived structure. In regard to dyadic adjustment, Parker and Asher (1987) have suggested that friendship quality could be a better indicator of dyadic adjustment than number of friendships. Likewise, social status measures are limited by a number of issues, including the number of nominations a study participant is allowed to make (e.g., unlimited, three, five, etc.) and whether nonclassmates can be nominated.

Even in light of its limitations, the results of the current research have highlighted the potential contribution of MDS to the study of peer groups in childhood and early adolescence. For example, one potential use of the MDS approach is to differentiate between types of rejected peer group members. It
is likely that rejected group members who are perceived as marginal in the group’s organization have very differing experiences than do rejected individuals who are not perceived as marginal. Furthermore, marginal-rejected group members might be more likely to continue to experience peer rejection over time than would nonmarginal-rejected group members. A longitudinal research design is needed to test whether a marginal position in the perceived structure indeed can differentiate between types of rejected individuals.

A firm interpretation of atypicality—as defined by location within the perceived structure—cannot be made within the constraints of the current study. In general, atypical can mean odd, deviant, or strange. However, atypical also can imply that a person is not a “typical bird” but certainly not deviant either. Atypicality in the MDS-derived structure implies only that a group member is perceived to be dissimilar from others in the peer group. However, further studies could address the meaning of atypicality in the context of the perceived structure—based on similarity ratings and MDS.

There are disadvantages and advantages of using MDS to study peer groups. Jones and Young (1972) have asserted that representations are dynamic entities that are constantly evolving. However, MDS provides only a static snapshot of the peer group. Although MDS might provide limited insight on the dynamic processes—by making predictions about associational patterns, for example—it cannot truly capture, for example, how representations influence, and are influenced by, social events.

The use of MDS has distinct advantages as well. Jones and Young (1972) have asserted that MDS can be used to capture a person’s representations of the social environment. Because similarity ratings—the typical input to an MDS analysis—are unconstrained by the researcher, MDS output might correspond directly to peer group members’ actual representations of their social environment. Furthermore, those representations are believed to guide interpersonal behavior, so the representations group members hold of the peer group structure might provide insight into the way some children and adolescents are treated by peers (e.g., Corsaro, 1992; Kelly, 1955).

The use of MDS to study the ways in which the peer group is perceived to be patterned and organized is relatively new within the peer relationships field. However, further studies could illuminate its utility for examining issues that affect students’ social experiences. For example, just as Jones and colleagues (Davison & Jones, 1976; Jones & Young, 1972) used the MDS-derived configuration to predict various interpersonal behaviors (e.g., social and professional communication patterns in a research laboratory), further studies might explore the relation of perceived organizational position and treatment by peers. Jones and Young (1972) have argued that interpersonal perceptions guide behavior, but what this means for a person perceived as
atypical is unknown. Furthermore, a study of students’ feelings of social distress, such as loneliness and social dissatisfaction, might provide further insight into the meaning and significance of being perceived as atypical by peers. For example, Parker and Asher (1987) demonstrated that acceptance at the individual (i.e., social status) and dyadic levels (i.e., friendship) makes separate contributions to the prediction of loneliness. Assessing acceptance at the group level, integrated with individual and dyadic aspects, might provide a more complete picture of the individual’s social experience.

Even though methods for assessing group-level structures have been slow to develop, it is hoped that the current work, as well as the work of others (e.g., Cairns et al., 1998; Lease et al., 1998a), can be used to further the investigation of child and adolescent peer groups and the effect of group-level aspects of social acceptance on an individual’s well-being.

NOTE

1. Because this set of results might be biased, the analyses were repeated for each of the 36 peer groups and treated as 36 replications to check the reliability of the results. For each variable, the following information is provided: the mean correlation across all 36 peer groups, the significance level for the mean correlation (df = 34), and the t value for the hypothesis that the mean correlation is 0. Distance was related negatively to social preference (mean r = –.47, SD = 0.25, p < .01), t = –11.08, p = .0001, and like-most (mean r = –.38, SD = 0.22, p = .02), t = –10.14, p = .0001; whereas, distance was related positively to like-least (mean r = .45, SD = 0.29, p < .01), t = 9.20, p = .0001. Distance was not related to social impact (mean r = .07, SD = 0.26, p = ns), t = 1.66, p > .05. These results are very similar to those conducted for the one sample of 404 students.

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Judgment Biases and Characteristics of Friendships of Mexican American and Anglo-American Girls and Boys

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University of Nebraska-Lincoln

Dorothy Flannagan

Robert Fuhrman

University of Texas at San Antonio

Gender and ethnic patterns in ratings and assessments of four dimensions of friendship qualities were investigated (emotional attachment, support, shared activities, and conflicts) with 122 Anglo-American and Mexican American early adolescents (63 girls; mean age 10.36 years), as were links between ratings and assessments. Participants named a favorite friend, rated their perceptions of the hypothetical behaviors of that friend or an unfamiliar peer in scenarios that varied by actor’s intention and outcome of the actor’s behavior on the participant, and completed two measures designed to assess friendship quality. Girls, but not boys, rated friends’ behaviors as more positive than the similar behaviors of unfamiliar peers and reported higher levels of attachment and support in their friendships. Similar rating patterns were found for Anglo-American and Mexican American participants. In addition, ratings of friends’ behaviors in scenarios that presented neutral intentions were correlated with the level of emotional attachment reported in the friendship.

According to social cognitive perspectives (Bandura, 1986), thoughts about others can be influenced by relationships with them. Dodge and Price (1994) extended that idea to propose that processing of information about other people goes through a series of stages. Those stages include encoding relevant stimulus cues; interpreting the cues and storage into long-term memory; accessing various behavioral responses to the interpreted cues; evaluating the responses that have been accessed; and finally, enacting the behavioral response chosen. Accurate processing at all five stages is necessary for socially competent behavior. Because sociocultural theory posits that there are cultural differences in the ways in which children are socialized to inter-
act in their environment, it is conceivable that differences in social information processing would vary across individuals of differing ethnicities.

Recently researchers have explored perceived ratings of friends and unfamiliar peers by using scenarios that varied along the dimensions of intention and outcome (Flannagan & Bradley, 1999). Participants (6 through 15 years of age) were presented with hypothetical scenarios that varied as a function of the intention of the actor’s behavior (good, neutral) and the outcome of the actor’s behavior on the participant (good, bad). Those results indicated that early adolescent girls (9 through 11 years of age) rated their perceptions of the behaviors of their friends as more positive than they rated comparable behaviors performed by unfamiliar peers. That friendship bias was pronounced most when the perceived intentions of the behavior were neutral. In contrast, adolescents 13 through 15 years of age (girls and boys both) and early adolescent boys did not exhibit that bias. Flannagan and Bradley (1999) suggested that age-related differences in the display of a bias when judging the perceived behaviors of friends and unfamiliar peers occur because older adolescents demonstrate improved cognitive capabilities. Those cognitive capabilities, in areas such as the speed in which they process information (Kail, 1991) and memory span (Dempster, 1981), allow them more effectively to process information, including information about the intentions and outcomes associated with peers’ behaviors. However, age-based differences in cognitive capabilities do not explain the bias early adolescent girls, as compared with early adolescent boys, exhibit toward friends in their judgments of perceived peer behaviors. Indeed, previous research has indicated that early adolescent girls remember information better about peer behaviors than do early adolescent boys (Cox & Waters, 1986). That could indicate that social or emotional factors unique to the friendships of early adolescent girls might be related to the positive bias exhibited in their ratings of their perceptions of friends’ behaviors.

Early adolescence appears to be a particularly critical time in the development of friendships, in that a surprisingly large number of social and emotional changes occur in children’s friendships as the transition is made into early adolescence. For instance, compared with friendships of children in middle childhood, early adolescents’ friendships show significant increases in stability (Berndt & Hoyle, 1985; Savin-Williams & Berndt, 1990), reciprocal help and emotional attachment (Bigelow & LaGaipa, 1975; Youniss, 1980), and prosocial intentions (Berndt, 1981). Friendships in early adolescence are characterized also by higher levels of intimacy and self-disclosure than are those of children (Berndt, 1982; Crockett, Losoff, & Petersen, 1984; Douvan & Adelson, 1966; Keller & Wood, 1989; Savin-Williams & Berndt, 1990). Another feature of early adolescent friendships is that early adoles-
cents might make a stronger distinction between friends and nonfriends than do children. In a recent meta-analytic review of the literature, Newcomb and Bagwell (1995) found a linkage between the development of friendship intimacy and friendship boundaries and concluded that early adolescent friendships had higher levels of emotional involvement and positive engagement than did nonfriendship relationships. The status of the friend/nonfriend relationship was not related to additional dimensions, such as conflict management (e.g., the number of conflicts initiated) or task activity (e.g., the efficiency of performing a task).

The distinction between friendships in childhood and early adolescence appear to be sharper for girls than for boys. Those gender differences appear to be related to the constructs of friendship intimacy and emotional attachment. Compared with early adolescent boys, early adolescent girls report experiencing more intimacy and self-disclosure in their friendships (Buhrmester & Furman, 1987; Douvan & Adelson, 1966; Hunter & Youniss, 1982), receiving more social support from their friends (Bukowski, Hoza, & Boivin, 1994), and having closer friendship attachments (Crockett et al., 1984). Gender differences along other dimensions of early adolescent friendship, such as the number of shared activities in which friends engage, rarely emerge (Berndt, 1996), and when they do, they indicate that boys, not girls, are more likely to form friendships based on shared activities (Smith, 1997). In addition, compared with early adolescent boys, early adolescent girls exhibit greater differentiation between friends and nonfriends (Berndt, 1981; Eder & Hallinan, 1978). Taken together, those findings could indicate that early adolescent girls, more so than early adolescent boys, are likely to distinguish their friends from nonfriends on the basis of how much emotional involvement is encountered in the relationships. It is conceivable that early adolescent girls are more concerned than are boys about establishing boundaries between friends and nonfriends because they have experienced more of the rewards associated with the emotional characteristics of intimate friendships.

In addition to gender differences in the quality of early adolescents’ friendships, it is possible also that there are ethnic differences in the conceptualization of the friendships of early adolescents. The Flannagan and Bradley (1999) research findings were obtained from a population of primarily Anglo-American participants. The Rogoff (1998) sociocultural theory articulates the importance of examining ethnic and cultural differences in research. Therefore, the current study was designed for the examination of possible differences in the behavioral ratings and friendship qualities between Anglo-American and Mexican American early adolescents. Research designed to investigate friendship intimacy among Mexican Amer-
ican adolescents has been sparse. However, Erwin (1985) noted that, although all individuals have a need to form friendships, the culture to which an individual belongs influences the forms, expectations, and obligations of those relationships. It is possible that friendship status would make a stronger contribution to the processing of social information for individuals from cultures that place a higher value on collectivism. If that is the case, it would be expected that Mexican American participants’ ratings in response to the perceived behaviors of friends would be more favorable than would the ratings of Anglo-American participants. That pattern could be expected to emerge because of the higher value placed on collectivism, which supports interdependence, cooperation, and strong emotional attachments, that is emphasized in the Mexican American culture (Harrison, Wilson, Pine, Chan, & Buriel, 1990).

The purposes designated for study were to (a) replicate previous results in which a gender difference was found between early adolescent girls’ and boys’ behavioral ratings of friends, (b) extend previous research by examining the gender difference between early adolescent girls’ and boys’ friendship qualities, (c) examine ethnic differences in behavioral ratings and friendship qualities in a population that would include Anglo-American and Mexican American participants both, and (d) examine the link between behavioral ratings and dimensions of friendship (emotional attachment, support, shared activities, and conflicts).

In relation to gender patterns, it was expected that early adolescent girls, but not early adolescent boys, would rate their perception of the behaviors of friends higher than they would rate similar behaviors of unfamiliar peers. It was hypothesized also that early adolescent girls would rate the anticipated support and emotional attachments in their friendships higher than would boys (Bukowski et al., 1994). No gender differences were expected in the overall number of shared activities or conflicts reported in the friendships (Berndt, 1996; Newcomb & Bagwell, 1995).

With regard to ethnicity, two patterns of results could be anticipated. First, early adolescents (girls and boys) of Mexican American heritage might demonstrate stronger positive judgments than would early adolescents of Anglo-American heritage in their ratings of their perceptions of friends’ behaviors. Second, Mexican American early adolescents might rate the emotional attachment to and anticipated support from their friends higher than would Anglo-American early adolescents, regardless of gender. Those patterns could be expected to emerge because of the greater value placed on collectivism within the Mexican American culture. Alternatively, previous research (Flannagan & Bradley, 1999) revealed that Anglo-American early adolescent girls provided significantly higher ratings for friends’ behaviors than for the
behaviors of unfamiliar peers. However, that was not the case for boys. Given the strong patterns of results that emerged in that study, it was anticipated that a similar pattern might emerge between Mexican American early adolescent girls and boys. Specifically, girls of both ethnicities would be expected to rate the emotional attachment and anticipated support in their friendships higher than would boys, and girls, but not boys, of both ethnicities, would be expected to provide higher behavioral ratings for friends than for unfamiliar peers. The current research was designed to test those two competing hypotheses.

For the investigation of the link between behavioral ratings and friendship qualities, it was hypothesized that the amount of emotional attachment and anticipated support reported in the friendship would be correlated positively with the ratings provided for friends’ perceived behaviors. Those correlations would be significant when the perceived intention of the friend is neutral, as compared with clearly good, because the ambiguity of the situation would allow participants more freedom spontaneously to generate and to attribute positive features to the friend. One potential reason why early adolescents behave in this way might be because they need to distinguish intimacy-sharing friends from nonfriend peers. If this behavior is conducted primarily out of a need to minimize the risk of emotional intimacy, then no significant correlations would be obtained between behavioral ratings and the friendship qualities of shared activities or friendship conflict. Those hypotheses were tested separately for boys and for girls from the two ethnic groups (Anglo-American and Mexican American) to determine whether the expected patterns would occur for those early adolescents.

METHOD

Participants

Participating in the study were 134 early adolescents 9 through 11 years of age (70 girls). Prior to participation in the study, each participant’s parent received a letter describing the purpose and methods associated with the study. Each parent signed a parental consent form and completed a demographic questionnaire. Three early adolescents returned a form signed by their parent indicating that the parent did not give permission for their child to participate. Participants were recruited through announcements sent home to parents through a school and through community organizations, such as youth groups, that serve middle-class and working-class families in a large city in the Southwest. Of the early adolescents that attended the school and
could participate in the study. 24% participated in this research. Of the early adolescents that attended the community organizations, approximately 50% participated in this research. The school served approximately an equal number of Anglo-American and Mexican American students. That percentage was representative of the general population of the community in which the study was conducted. Analyses were conducted to investigate differences between participants recruited through the school and through community organizations, and the only difference that emerged was that Mexican American participants were more likely to have been recruited from the school and more Anglo-American participants were recruited from the community. Given that one purpose for this study was to compare the responses of Anglo-American and Mexican American participants, the data obtained from 5 participants, whose ethnicity was not identified on the demographic questionnaire completed by each participant’s parent, were not included in the analyses. Also excluded from the analyses were data from 6 participants whose ethnicity was identified as African American or Asian American and data from 1 participant who was identified to the researcher after data collection as being classified as developmentally disabled. Thus, data from 122 participants (35 Mexican American and 29 Anglo-American girls; 29 Mexican American and 29 Anglo-American boys) with a mean age of 10.36 (SD = 0.89) years were included.

Measures

Scenarios. Behavioral ratings were obtained through the use of eight hypothetical scenarios to assess perceived behaviors of actors who were either friends (who were designated by the participant as “best friend”) or unfamiliar peers (who were called JoAnn or Leslie for females; Lloyd or Devon for males). The scenarios were the same as those used in previous research to examine social information processing about friends and unfamiliar peers, with participants ranging in age from 6 through 15 years (Flannagan & Bradley, 1999). The scenarios varied according to the intention of the target actor (good or neutral) and the outcome of the actor’s behavior on the participant (good or bad) so that two scenarios (for friend and nonfriend) comprised each of the following combinations of actor’s intention and outcome of actor’s behavior on the participant: good intention/good outcome, good intention/bad outcome, neutral intention/good outcome, and neutral intention/bad outcome. The appendix presents an example of each type of scenario. Friends’ and nonfriends’ behavior was rated using a Behavioral Rating Scale of five choices (5 = very nice, 4 = sort of nice, 3 = just okay,
2 = sort of mean, and 1 = very mean). Faces that vary in expression from smiling to frowning are placed to correspond to each of the five alternatives.

**Friendship scales.** The assessment of participants’ friendships was conducted using two scales. The Intimate Friendship Scale (IFS) (Sharabany, 1994) and the Friendship Qualities Scale (FQS) (Bukowski et al., 1994) were used for this purpose. The total scores from these two scales were correlated significantly, $r = .76, p < .001$.

The IFS contains 32 items designed to assess friendship intimacy and is organized along eight dimensions: frankness and spontaneity, sensitivity and knowing, attachment, exclusiveness, giving and sharing, imposition, common activities, and trust and loyalty. Respondents answer each item about their best friend using a 7-point rating scale (1 = the statement does not describe your relationship at all through 7 = the statement describes your relationship well). The measure includes items such as, “I know that whatever I tell him/her is kept secret between us,” “I feel close to him/her,” and “I like to do things with him/her.” Reliability and validity have been found to be acceptable. Specifically, alpha coefficients for the eight dimensions ranged from .72 through .77 (Sharabany, 1994). In the current study, reliability within each dimension ranged from .47 through .73. In terms of criterion validity, Sharabany (1994) compared the intimacy scores of children whose choice of best friend was reciprocated and those whose choice of best friend was not reciprocated. Ratings of intimacy with best friend were significantly higher among the children whose choice was reciprocated, demonstrating that reported intimate friendship is reflecting some reality of the child’s social world. Discriminant validity was demonstrated when no correlation was found between the scale and an IQ test, a social desirability scale, or scales that assess comradeship, popularity, or role taking. Predictive validity was demonstrated through a 7-year follow-up study in which significant correlations were obtained between same-gender intimate friendships reported in 5th grade and same-gender and opposite-gender intimate friendships in 12th grade. The scale has been used also in research designed to assess intimacy in friendships (Jones & Dembo, 1989; Sharabany, Gershoni, & Hofman, 1981).

The FQS contains 23 items designed to assess the quality of a friendship and is organized along five dimensions: companionship, conflict, help, security, and closeness. Respondents answer each item using a 5-point rating scale (1 = the statement does not describe your relationship at all through 5 = the statement describes your relationship well). The measure includes items such as, “I feel happy when I am with my friend,” “My friend would help me if I needed it,” and “My friend and I can argue a lot.” This scale has been found
to have acceptable reliability and validity. In the current study, the reliability within each dimension was assessed using alpha coefficients and ranged from .53 through .78. Bukowski et al. (1994) found that each item had a correlation with its own subscale of at least .34 and did not correlate with the other subscales more than .30. Bukowski et al. (1994) also conducted a factor analysis to confirm that there were five distinct dimensions within the scale. Validity was indicated by higher scores on the scale for mutual friends than for nonmutual friends and for stable friends rather than for nonstable friends. Furthermore, the scale has been used by other researchers (Doyle, Markiewicz, & Hardy, 1994) to assess friendship quality.

**Procedure**

Each participant met individually with a researcher. Participants were asked to name their favorite friend and were told that they were going to hear some short stories. The researcher explained that “Some of the stories are going to be about you and a boy (girl) who you don’t know, named (name of an unfamiliar peer inserted). Other stories will be about you and (name of friend inserted).” Each participant named a same-gender peer as his or her favorite friend. The unfamiliar peer in the scenario was always of the same gender as the participant. To reduce the probability that the participant would have an existing schema activated by the name of the unfamiliar peer, it was established that the name of the unfamiliar peer was not the name of anyone known by the participant.

The researcher read each of the eight scenarios aloud to the participant. The scenarios were presented in random order predetermined before the session for each participant and including the following constraints: Friends and unfamiliar peers appeared in each of the four scenario categories (good intention/good outcome, good intention/bad outcome, neutral intention/good outcome, and neutral intention/bad outcome) one-half of the time; two scenarios from the same category could not be presented consecutively. The order of inclusion of friend or unfamiliar peer was random also and predetermined prior to the interview of each child.

Immediately after reading each scenario, the researcher asked the participant to verbally recall everything he or she remembered in the story; however, recall data were not considered in the analyses reported here. After indicating that he or she could not remember any more information, each participant was asked, “How do you think (name of friend or unfamiliar peer) was behaving in this story?” The participant was then presented with the Behavioral Rating Scale.
Following the presentation of the scenarios, each participant was asked to complete the IFS and the FQS in relation to his or her best friend. One-half of the participants completed each scale first. Both the researcher and the participant had a copy of each scale, and the participant circled his or her responses on his or her copy. The researcher read the instructions associated with each scale to each participant and asked if there were any questions. The researcher then read each item aloud while the participant read the item silently. This was done to focus the participants’ attention on each item and to standardize the session for participants with various levels of reading skills. Each participant was allowed as much time as necessary to respond.

RESULTS

Behavior Ratings of Friends and Unfamiliar Peers

To investigate the effects of participants’ gender and ethnicity, actors’ friendship status and intentions, and the outcome of actors’ behaviors on the young adolescents’ ratings, a 2 (Gender) × 2 (Ethnicity) × 2 (Friendship status) × 2 (Intention) × 2 (Outcome) repeated measures analysis of variance (ANOVA) was performed. Friendship status, intention, and outcome were the repeated measures. Main effects were obtained for ethnicity, $F(1, 117) = 5.88, p < .05$; friendship status, $F(1, 117) = 8.79, p < .01$; intention, $F(1, 117) = 254.40, p < .01$; and outcome, $F(1, 117) = 134.64, p < .01$. Overall, the ratings provided by Anglo-American participants ($\bar{X} = 4.02, SD = 0.86$) were higher than those of Mexican American participants ($\bar{X} = 3.81, SD = 1.15$). Participants’ ratings also were higher for actors (a) who were friends ($\bar{X} = 4.00, SD = 0.85$) rather than unfamiliar peers ($\bar{X} = 3.82, SD = 0.93$), (b) who had good ($\bar{X} = 4.36, SD = 0.79$) rather than neutral intentions ($\bar{X} = 3.46, SD = 0.99$), and (c) whose actions resulted in good ($\bar{X} = 4.23, SD = 0.75$) rather than bad outcomes ($\bar{X} = 3.59, SD = 1.03$). The main effect for gender was not significant.

A significant two-way interaction was revealed for the variables of Gender × Friendship Status, $F(1, 117) = 7.52, p < .01$. Simple main effects performed to interpret that interaction showed that girls rated the behaviors of friends ($\bar{X} = 4.11, SD = 0.69$) significantly higher than they did corresponding behaviors of unfamiliar peers ($\bar{X} = 3.78, SD = 0.96$). Boys’ ratings of friends ($\bar{X} = 3.87, SD = 0.96$) and unfamiliar peers ($\bar{X} = 3.87, SD = 0.88$) did not differ significantly.

The analyses also revealed a significant two-way interaction of Intention × Outcome, $F(1, 117) = 98.14, p < .01$. However, this interaction was quali-
fied by a three-way interaction of Ethnicity × Intention × Outcome, F(1, 117) = 6.69, p < .05, and will be discussed in relation to the three-way interaction. The means and standard deviations associated with this three-way interaction are presented in Table 1. Simple main effects showed that Anglo-American and Mexican American participants were similar to each other in their ratings of behaviors in the good intention/good outcome scenario. Both groups rated behaviors in that scenario higher than they did the behaviors in the other three scenarios. However, Anglo-American participants also rated the behaviors in the other three scenarios significantly higher than did Mexican American participants.

### Ratings of Friendship Characteristics

Characteristics of the participants’ friendships were assessed using the IFS and the FQS. Scores for the eight subscales of the IFS and five subscales of the FQS were calculated and submitted to a principal components analysis to identify possible similarities between the subscales of the two measures. Using a scree decision rule and a varimax rotation, four distinct factors emerged from this analysis, which, in combination, accounted for 72.55% of the total variance (see Table 2 for a complete list of factors and factor loadings). The first factor, labeled Anticipated Support, is defined by high factor loadings from five subscales. Those include the Trust and Loyalty, Giving and Sharing, and the Frankness and Spontaneity subscales of the IFS and the Helping and the Security subscales of the FQS. The second factor, labeled Common Activities, is defined by high factor loadings from the Common Activities subscale of the IFS and the Companionship subscale of the FQS. The third factor, labeled Emotional Attachment, is defined by high factor loadings from the Attachment subscale of the IFS and the Closeness subscale of the FQS. The fourth factor, labeled Conflict, is defined by a single factor

### Table 1: Mean Ratings (and standard deviations) by Ethnicity for Actors’ Behaviors in Scenarios Involving Good or Neutral Intentions and Good or Bad Outcomes

<table>
<thead>
<tr>
<th>Intention Type/Outcome Type</th>
<th>Mexican American Raters</th>
<th>Anglo-American Raters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good/good</td>
<td>4.91 (0.55)</td>
<td>4.89 (0.45)</td>
</tr>
<tr>
<td>Good/bad</td>
<td>3.68&lt;sup&gt;a&lt;/sup&gt; (1.11)</td>
<td>3.99&lt;sup&gt;a&lt;/sup&gt; (1.01)</td>
</tr>
<tr>
<td>Neutral/good</td>
<td>3.41&lt;sup&gt;b&lt;/sup&gt; (0.96)</td>
<td>3.75&lt;sup&gt;b&lt;/sup&gt; (1.02)</td>
</tr>
<tr>
<td>Neutral/bad</td>
<td>3.26&lt;sup&gt;c&lt;/sup&gt; (1.00)</td>
<td>3.48&lt;sup&gt;c&lt;/sup&gt; (0.99)</td>
</tr>
</tbody>
</table>

NOTE: Means sharing a superscript differ significantly, p < .05.
loading from the Conflict subscale of the FQS. It should be noted that three subscales exhibited complex factor structures. The Imposition and the Sensitivity and Knowing subscales of the IFS loaded high on both the Anticipated Support and Common Activities factors. The Exclusiveness subscale of the IFS loaded high on both the Common Activities and Emotional Attachment factors. The subscales Imposition, Sensitivity and Knowing, and Exclusiveness were dropped from further analyses.

**Anticipated Support.** Scores for this factor were calculated for each participant by summing together the scores of each of the five relevant subscales (Helping, Security, Trust and Loyalty, Giving and Sharing, and Frankness and Spontaneity). The range of scores possible in any sample for the anticipated support factor was 22 through 124. Subsequently, the support scores were evaluated in a 2 (Gender) × 2 (Ethnicity) ANOVA. Girls reported significantly more support in their friendships ($\bar{X} = 89.54, SD = 12.24$) than did

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**TABLE 2:** Factors and Factor Loadings Obtained in a Principal Components Analysis of All Thirteen Subscales From the Friendship Qualities Scale and the Intimate Friendship Scale

<table>
<thead>
<tr>
<th>Friendship Qualities Scale subscales</th>
<th>Factor 1: Support</th>
<th>Factor 2: Activities</th>
<th>Factor 3: Attachment</th>
<th>Factor 4: Conflict</th>
</tr>
</thead>
<tbody>
<tr>
<td>Help</td>
<td>0.78</td>
<td>0.39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Security</td>
<td>0.74</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Companionship</td>
<td>0.36</td>
<td>0.69</td>
<td></td>
<td>0.83</td>
</tr>
<tr>
<td>Closeness</td>
<td>0.31</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conflict</td>
<td></td>
<td></td>
<td></td>
<td>0.97</td>
</tr>
<tr>
<td>Intimate Friendship Scale subscales</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trust and Loyalty</td>
<td>0.73</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frankness and Spontaneity</td>
<td>0.71</td>
<td>0.39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Giving and Sharing</td>
<td>0.62</td>
<td>0.32</td>
<td>0.40</td>
<td></td>
</tr>
<tr>
<td>Common Activities</td>
<td>0.80</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attachment</td>
<td>0.62</td>
<td></td>
<td>0.88</td>
<td></td>
</tr>
<tr>
<td>Exclusivity</td>
<td>0.55</td>
<td></td>
<td>0.52</td>
<td></td>
</tr>
<tr>
<td>Imposition</td>
<td>0.58</td>
<td>0.52</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensitivity and Knowing</td>
<td>0.58</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eigenvalues</td>
<td>3.58</td>
<td>2.49</td>
<td>2.30</td>
<td>1.06</td>
</tr>
<tr>
<td>Percentage of variance accounted for</td>
<td>27.5</td>
<td>19.18</td>
<td>17.69</td>
<td>8.18</td>
</tr>
<tr>
<td>Alpha</td>
<td>.86</td>
<td>.74</td>
<td>.85</td>
<td>.78</td>
</tr>
</tbody>
</table>

NOTE: Factor loadings less than 0.30 are omitted from the table. Loadings for each factor are underlined.
boys ($\bar{X} = 78.76, SD = 16.34$), $F(1, 118) = 16.99, p < .05$, but no difference was found in the friendship support reported by Anglo-American participants and Mexican American participants. In addition, no significant interaction between ethnicity and gender was found for the friendship support scores.

**Common Activities.** Scores for this factor were calculated for each participant by summing together the scores of each of the two relevant subscales (Companionship and Common Activities). The range of scores possible in any sample for the common activities factor was 8 through 48. The common activity factor scores then were evaluated in a $2 \times 2$ (Gender) × 2 (Ethnicity) ANOVA. Girls did not differ significantly from boys, and Anglo-American participants did not differ significantly from Mexican American participants. The interaction between gender and ethnicity was not significant.

**Emotional Attachment.** Scores for this factor were calculated for each participant by summing together the scores of each of the two relevant subscales (Closeness and Attachment). The range of scores possible in any sample for the emotional attachment factor was 9 through 53. The emotional attachment scores then were evaluated in a $2 \times 2$ (Gender) × 2 (Ethnicity) ANOVA. Girls reported significantly more emotional attachment in their friendships ($\bar{X} = 42.84, SD = 3.96$) than did boys ($\bar{X} = 39.41, SD = 7.30$), $F(1, 118) = 11.44, p < .05$. No difference was found in the emotional attachment reported by Anglo-American participants and Mexican American participants. However, an interaction was obtained in which the difference between Anglo-American

<table>
<thead>
<tr>
<th></th>
<th>Anticipated Support</th>
<th>Common Activities</th>
<th>Emotional Attachment</th>
<th>Conflict</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mexican American girls</strong></td>
<td>114.68 (15.05)</td>
<td>39.65 (7.96)</td>
<td>48.11 (6.06)</td>
<td>10.27 (4.96)</td>
</tr>
<tr>
<td><strong>Anglo-American girls</strong></td>
<td>114.05 (15.82)</td>
<td>39.95 (5.74)</td>
<td>49.76 (3.81)</td>
<td>11.95 (4.83)</td>
</tr>
<tr>
<td><strong>Mexican American boys</strong></td>
<td>102.50 (22.77)</td>
<td>38.56 (6.61)</td>
<td>41.91 (10.31)</td>
<td>10.50 (3.79)</td>
</tr>
<tr>
<td><strong>Anglo-American boys</strong></td>
<td>107.00 (13.57)</td>
<td>37.30 (6.72)</td>
<td>46.33 (7.34)</td>
<td>9.60 (4.61)</td>
</tr>
</tbody>
</table>
Conflict. Scores for this factor were based solely on ratings from the Conflict subscale of the FQS. The range of scores possible in any sample for the conflict factor was 4 through 20. These scores were evaluated in a 2 (Gender) × 2 (Ethnicity) ANOVA. No main effects for gender or ethnicity were found and no significant interaction was obtained between gender and ethnicity. The means and standard deviations associated with each of the factors for Mexican American and Anglo-American girls and boys are presented in Table 3.

<table>
<thead>
<tr>
<th>Scenario Type:</th>
<th>Friendship Factors</th>
<th>Support</th>
<th>Attachment</th>
<th>Activities</th>
<th>Conflict</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexican American girls</td>
<td>Friend/good/good</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Friend/good/bad</td>
<td>.09</td>
<td>.32</td>
<td>.08</td>
<td>.10</td>
</tr>
<tr>
<td></td>
<td>Friend/neutral/good</td>
<td>.46**</td>
<td>.29</td>
<td>.24</td>
<td>.08</td>
</tr>
<tr>
<td></td>
<td>Friend/neutral/bad</td>
<td>.22</td>
<td>.02</td>
<td>.13</td>
<td>-.24</td>
</tr>
<tr>
<td>Anglo-American girls</td>
<td>Friend/good/good</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Friend/good/bad</td>
<td>.06</td>
<td>-.04</td>
<td>.04</td>
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NOTE: N = 122. Dashes indicate that the correlation could not be computed because the rating scores were constant.

*p < .05. **p < .01.
The Relation Between Friendship Characteristics and Behavior Ratings

The amount of emotional attachment and anticipated support reported in the friendship were expected to be correlated positively with the participants’ behavior ratings of friends when the intentions were described as neutral. Pearson correlations were performed separately for boys and girls of Mexican American and Anglo-American ethnicities. The relevant correlations for each group are shown in the first and second columns of Table 4. Except for one correlation among Anglo boys, as predicted, significant correlations were obtained only for friends for neutral intentions but not for good intentions. Also as predicted, the significant associations were found between the amount of emotional attachment early adolescents reported receiving from their friend and behavior ratings but not between the number of shared activities, with one exception, or reported conflict and ratings. However, in direct contrast to predictions, no significant correlations were obtained between emotional attachment and the behavior ratings of friends in any condition. Reasons for that finding will be considered presently.

DISCUSSION

The possible gender and ethnic differences in behavioral ratings and friendship qualities as well as links between specific dimensions of friendship and behavioral ratings were examined. First, replicating previous research findings on judgment biases (Flannagan & Bradley, 1999), early adolescent girls judged the behaviors of their best friends to be significantly more positive than were the similar behaviors of unfamiliar peers, whereas early adolescent boys did not rate the behaviors of their best friends as more positive than they did those of unfamiliar peers. Second, the replication of previous research findings on friendship characteristics (Berndt, 1996; Bukowski et al., 1994), early adolescent girls rated the emotional attachment and support in their friendships significantly higher than did early adolescent boys, whereas no gender differences were found in reports of shared activities or conflicts with friends.

Regarding friendship patterns and judgments across ethnicity, the results from this study indicated that there were more similarities than differences between the Anglo-American and Mexican American participants. This occurred in spite of the fact that the majority of the Mexican American participants were recruited from a school and the majority of the Anglo-American participants were recruited from community sources. The gender difference
found in the tendencies of girls, but not boys, to provide judgments that were more positive about the behaviors of friends and to report greater levels of attachment and support in their relationships with friends occurred both for Anglo-American and Mexican American participants. It must be noted, however, that the majority of these participants attended ethnically diverse schools in an ethnically diverse community in which many Mexican American families have resided for many generations. Therefore, the Mexican American participants in this study might be acculturated more to the majority society than would many Mexican American early adolescents. Further research should be designed to investigate differences in acculturation and to determine whether the same pattern of results would emerge if the Mexican American participants were first generation or had been in the United States for many generations. In addition, the difference in emotional attachment to friends between Mexican American girls and boys was larger significantly than was the difference between Anglo-American girls and boys. That finding might be because emotional attachment is stronger for girls than for boys, and this difference might be more distinct within the Mexican American culture because the culture tends to be more stereotypical in terms of gender differences (Gonzalez, 1982). For instance, it has been suggested that the tendency for females to be subordinate to males is characteristic in the Mexican and Mexican American cultures (Gonzalez, 1982; Neff, Prihoda, & Hoppe, 1991; Vazquez-Nuttall, Avila-Vivas, & Morales-Barreto, 1984). Another interesting finding was that Anglo-American participants rated actors’ behaviors higher in three of the four types of scenarios. If, as it has been suggested (Harrison et al., 1990), Mexican American individuals do place more value on collectivism, Mexican American participants would have been expected to rate the behaviors of friends higher than would Anglo-American participants. This finding would appear to contradict the conceptualization of collectivism if friends are perceived as part of the in-group. However, whether a sense of collectivism extends outside of the family to a Mexican American early adolescent’s friend, particularly in the case of an early adolescent boy, is not clear. Research should be designed to address this issue by comparing early adolescents’ ratings of friends and siblings or other family members.

The final purpose for the study was to evaluate the link between friendship qualities and friendship biases. One way to evaluate this relation is to consider the correlations between the four dimensions of friendship quality and the behavior judgment scores. As expected, significant positive correlations were obtained between participants’ reports of friendship quality and ratings for actors’ perceived behaviors only when the intention of the behavior was neutral, not when the intention clearly was good. The ambiguity of the neu-
Central scenarios apparently allowed participants more freedom spontaneously to generate, and to attribute, features to the actor. Friends might be viewed positively in neutral situations because they have shown support toward the early adolescent and thus have earned a favorable attribution in ambiguous situations. The fact that this pattern of associations was found for the participants of both genders and ethnicities in this study indicates that the links between early adolescents’ perceptions of friendship and judgments of friends' behaviors extend across gender and ethnicity. However, the finding that these links appear to be more numerous for boys than for girls indicates that this link might be stronger for boys than for girls. Even though girls might report that their friendships are characterized by higher levels of anticipated support, the level of anticipated support perceived in the friendships both of boys and of girls is related to their judgments about the behaviors of their friends, and this appears to be at least as common for boys as for girls.

Unlike the characteristics of anticipated support, participants' ratings of emotional attachment to their friends were not correlated significantly with their ratings of the friends' behaviors. That null result is surprising and difficult to interpret. One possible explanation involves the limited range of scores obtained with the attachment factor. The standard deviations of scores on the anticipated support factor were substantially larger than the standard deviations of scores on the attachment factor. The lower variability for scores on the attachment factor means less power was available to detect significant relations between attachment scores and the behavior ratings. A second reason for the nonsignificant results might be that the relation between emotional attachment and the ratings of friends' behaviors might not be positive consistently. Although participants spontaneously might attribute positive features to supportive friends, they might be less willing to attribute positive features to nonsupportive friends with whom they happen to be attached emotionally. Research that has explored that possibility in early adolescent friendships has been sparse, but a similar issue has been investigated in adult heterosexual relationships. Adults often rate their partners less favorably if they feel that the distribution of rewards and costs in the relationship is inequitable (Schafer & Keith, 1980; Walster, Walster, & Berscheid, 1978). Further research on feelings of inequity in early adolescent friendship might help to explain the low correlations obtained between emotional attachment and the ratings of friends' behaviors.

Similar patterns of correlations were found for girls’ and boys’ ratings of friends’ behaviors and their ratings of anticipated support from, and attachment to, friends. Thus, it seems unlikely that girls’ experiences of anticipated support and intimacy would account for the distinction that they make between friends and nonfriends more strongly than would those of boys. It
also seems unlikely that girls’ experiences of anticipated support and intimacy in their friendships would account for the higher ratings that they provided for their friends’ behaviors, relative to the ratings provided by boys. It is possible that girls’ more general conceptualizations and attitudes about friendship, as compared to their feelings about a particular friend, might have contributed to the more favorable ratings that they provided here. Researchers should continue to explore the underlying causes for the gender differences in early adolescents’ judgments about the behaviors of friends and unfamiliar peers.

It should be noted that the current research is based only on adolescent self-reports and did not contain reports from nominated friends, therefore mutuality of friendships could not be determined. It is possible, therefore, that some of the participants’ named friends, in fact, were not individuals with whom they were involved in a valid friendship relationship. Conducting further research that involves early adolescents’ judgments about friendships that are demonstrated to be mutual might result in clearer patterns than those demonstrated in the current research between reasoning about friends and unfamiliar peers, as well as in stronger associations between behavioral ratings and reported friendship qualities.

In spite of the fact that the mutuality of the friendships investigated here was not ascertained, the obtained ratings related to friendship qualities indicated that anticipated support is a very important part of friendship and should be focused on more as researchers try to understand adolescents’ thoughts about their peers. In addition, knowing that anticipated support is a key factor in friendships could be applied to clinical settings. Perhaps promoting anticipated support among adolescents would be one way of helping to mediate social problems and help in social interactions.

The fact that boys did not report a positive bias in the judgments that they made about friends, whereas girls did report a positive bias, indicates that gender differences exist in early adolescents’ conceptualizations of friendship. That pattern was consistent across participants of two ethnicities, to indicate that it is not a characteristic exclusive to early adolescents from only one type of cultural background. The results obtained through this research appear to support the Rubin and Coplan (1992) observation that “In many ways, friendship experiences seem to be qualitatively different for boys and girls, and more research is needed to examine this prospect” (p. 534).

The results of this study support the social cognitive perspective that individuals evaluate their social situations and their social relationships in a particular context and that thoughts about others in a particular context might vary as a function of existing relationships with them. These results also support the Dodge and Price (1994) social information-processing theory,
which states that differing social stimuli might elicit differing patterns of processing by an individual. The social information-processing theory proposes that a child’s interpretation of a social situation will influence his or her response to that situation. Given that proposal, research in the future should be designed to investigate whether the ratings of early adolescents about the appropriateness of the behaviors of friends and unfamiliar peers might predict their responses to those behaviors.

APPENDIX

Sample scenarios used in previous research (Flannagan & Bradley, 1999), representing each of the measured combinations of actor’s intention and outcome of actor’s behavior on study participants.

Scenario Type

**Good intention/good outcome:** While you are standing at the bus stop, a gust of wind blows the paper with your homework on it away. _____ offers to help you find it, and after searching for a few minutes, _____ finds it under a bush. You are able to turn it in and make a good grade.

**Good intention/bad outcome:** _____ gets a new bike for his/her birthday. All of the kids in the neighborhood want to ride it, but _____ says you can go first. The bike has hand brakes, and you have never used them before. You find you can’t stop the bike and have to run into a hedge to stop yourself.

**Neutral intention/good outcome:** While playing at your house, _____ accidentally breaks one of your tapes. It was an old tape that you didn’t play with much anymore, but your mom replaces it with a new tape that you like a lot better.

**Neutral intention/bad outcome:** You are in the cafeteria and _____ is in front of you in line. _____ accidentally slips in a wet spot on the floor, causing him/her to drop his/her tray. The mashed potatoes and gravy go all over you.

NOTE

1. Although inclusion of data about unfamiliar peers is not related to the hypothesis, correlations were examined between the behavior ratings and factor scores for unfamiliar peers. No significant correlations were found among the groups, except for Anglo-American boys who were correlated significantly with every factor.
REFERENCES


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Aggressive and Nonaggressive Young Adolescents’ Attributions of Intent in Teacher/Student Interactions

Laura W. Wyatt
Mary E. Haskett
North Carolina State University

Young adolescents classified by teacher report as nonaggressive or aggressive were administered the Attributions Questionnaire, which consisted of 12 hypothetical teacher/student interactions depicting positive, negative, or ambiguous teacher intentions. Variables measured were (a) type of intent attributed to the teacher (i.e., hostile, benign), (b) degree of hostile and benign intent, (c) degree of anger felt, and (d) assignment of blame for negative outcomes. When the teachers' intentions were ambiguous, aggressive adolescents were more likely than nonaggressive adolescents to attribute hostile intentions to the teachers, and they attributed a higher level of hostile intent, were more likely to blame teachers for the outcome, and reported higher levels of anger. A similar pattern of group differences emerged for situations in which the teachers' intentions clearly were negative. However, when the teachers' intentions were benevolent, aggressive youth responded in a manner similar to nonaggressive adolescents. Assessment of gender differences showed aggressive boys and girls to be similar in social information processing.

Extensive and ongoing research in the area of childhood aggression shows aggressive behavior often is characterized as a stable, persistent, and intractable behavioral pattern (e.g., Cummings, Iannotti, & Zahn-Waxler, 1989). Aggressive behavior that develops in early childhood and persists through adolescence serves as a powerful marker variable for future delinquent and/or antisocial behavior (Kupersmidt & Coie, 1990). Certainly all aggressive children do not become antisocial adults (see Loeber & Stouthamer-Loeber, 1998), but for those who demonstrate a pattern of social maladjustment...

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extending into late adolescence, a host of negative outcomes in adulthood can be likely. Few interventions have proven effective for conduct problems, including aggression (Kazdin, 1995); thus, determining the etiology and predictors of aggression is critically important to identification of targets for prevention and intervention efforts.

Dodge and colleagues have proposed a social information-processing model of aggression that has spawned a large body of research that has potential for development of interventions for aggressive youth. Those researchers have suggested that aggression is a type of social incompetence in which an aggressive child’s social misperceptions and inaccurate appraisals contribute to his or her decisions to use aggression for resolution of problems (see Crick & Dodge, 1994). Many studies have been done to examine the relation between aggression and components of the social information-processing model (Dodge, Pettit, McClaskey, & Brown, 1986; Guerra & Slaby, 1989; Lochman & Dodge, 1994; Lochman, Meyer, Rabiner, & White, 1991; Lochman, Wayland, & White, 1993; Quiggle, Garber, Panak, & Dodge, 1992). That research has indicated that aggressive children tended to exhibit a pattern of distorted social appraisals and deficient social cognitive processes that clearly differentiated them from nonaggressive peers.

The bulk of past research on social information processing of aggressive youth has focused on processing in a single context—peer relationships. Relationships with adults largely have been ignored in the area of social information processing despite the fact that childhood aggression tends to be fairly stable across social relationships. In the past, some researchers embedded hypothetical situations involving teachers in their measures of intent, but they did not separate adolescents’ responses to peer and teacher situations for data analyses. An exception to that trend was a report by Bickett, Milich, and Brown (1996), who found aggressive boys demonstrated a hostile attributional bias for hypothetical peer and teacher interactions. It seems intuitive that social information processing would be stable across relationships, and aggressive youth therefore would show a bias in interpretation of adults’ intentions. However, Dodge and colleagues (1986) and Lochman and colleagues (1991) warn against predicting social behavior across differing contexts from behavior within a single type of situation. Contextual factors, including the child’s relationship with the other person involved in the interaction, can influence phases of social information processing.

The current study was designed for examination of several components of social information processing of aggressive and nonaggressive students in the context of hypothetical teacher/student interactions. The importance of examining social information processing during interactions with teachers is
underscored by growing concern about the increase of physical assault and verbal threat in the middle school setting, not just among peers but between students and teachers as well (Albin, Lucyshyn, Homer, & Flannery, 1996). If the aggressive child’s ability to understand the intentions of teachers is deficient, as it is in the context of peer relations, it follows that aggressive children will experience strained relationships with teachers and ultimately might use verbal or even physical aggression against the teacher. Students in a middle school setting are particularly vulnerable to difficult relationships with teachers as they negotiate the challenges of transitioning from elementary school to middle school, which in many schools is characterized by a complex curriculum, multiple teachers, and a new and much larger peer group (Compas, Hinden, & Gerhadt, 1995). Indeed, the transition from elementary school to middle school has been identified as potentially one of the most stressful transition periods in development, particularly for aggressive children who already might have been characterized by an early school pattern of social and academic difficulty (Eccles, Lord, & Midgley, 1991).

Unfortunately, during that transition time when students could benefit from a relationship with a supportive nonparent adult, interactions with teachers can tend to be strained (Carnegie Council on Adolescent Development, 1989).

There is evidence that a supportive teacher/student relationship might buffer aggressive children from continued conduct problems (Hughes, Cavell, & Jackson, 1999) and might protect children, at risk for academic failure, from retention (Pianta, Steinberg, & Rollins, 1995). In addition, middle school students’ perceptions of relationships with teachers is associated closely with their sense of school belonging; in turn, students’ sense of relatedness to their school predicts their academic and social success (e.g., Goodenow, 1993; Roeser, Midgley, & Urdan, 1996). Understanding adolescents’ social information processing for teacher interactions might provide a basis for interventions that could result in improved relationships with teachers, enhanced feelings of belonging, and reduced risk of poor school adjustment. It was hoped that the current study would serve as an impetus for a line of research into this important area of adolescent development, which would ultimately serve to inform interventions for young aggressive students.

The first component of social information processing examined in the current study was young adolescents’ attributions of intent for teacher behavior. Of particular relevance to the present research was a seminal study by Dodge (1980) in which aggressive boys were found to be more likely than were nonaggressive boys to infer that child antagonists in hypothetical peer problem situations acted with malicious intent when the intent of peers, in fact, was ambiguous. An extensive body of research has provided replication and expansion of those findings to demonstrate that aggressive children have a
strong tendency to overestimate the hostile intentions of peers (Bickett et al., 1996; Burks, Laird, Dodge, Pettit, & Bates, 1999; Dodge & Frame, 1982; Guerra & Slaby, 1989; Quiggle et al., 1992; Waas, 1988). Furthermore, attributions of intent have a clear effect on the responses chosen by adolescents to resolve peer conflicts, such that hostile attributions of intent are related to an increased likelihood of reactive, retaliatory aggression (see Lochman et al., 1991; Zelli, Dodge, Lochman, & Laird, 1999).

In addition to assessment of adolescents’ attributions for teacher intent, the present study was designed for examination of adolescents’ attributions of responsibility for negative outcomes in hypothetical interactions involving teachers. Adolescents’ perceptions of self-blame and other blame for negative situations are known to influence subsequent behavioral decisions. As discussed by Lochman (1987), assignment of blame to the other party in a disagreement might provide justification for retaliation, whereas acceptance of self-blame might serve to modulate the individual’s behavioral response to anger and even might motivate them to change a negative situation. Lochman reported that 50% of aggressive boys, as compared with only 17% of the nonaggressive boys, gave higher blame ratings to peers than they gave to themselves after being involved in a conflictual situation. To assess attributions of responsibility in the current research, the degree to which aggressive and nonaggressive adolescents (defined on the basis of teacher report) assigned blame to teachers for hypothetical unpleasant interactions between teachers and students was measured.

A third and final aspect of social information processing examined in the current study was feelings of anger. Crick and Dodge (1994) have proposed that children’s feelings of distress can affect negatively each component of the information processing cycle. Negative emotions such as anger might prime an adolescent to interpret benign teacher behavior as hostile, or heightened anger might follow interpretation of the teacher as having hostile intent. In turn, hostile attributions and anger might facilitate aggressive retaliation. This attribution-affect-action linkage has not been examined adequately despite hypothesized strong relations among these constructs and some empirical support for the connections (DeBaryshe & Fryxell, 1998; Graham, Hudley, & Williams, 1992). The current study was designed to address this relative gap in the research through investigation of the emotional state, specifically the level of anger, of teacher-identified aggressive and nonaggressive youth as the students interpreted social cues in teacher/student situations.

Bickett and colleagues (1996), and most other researchers in the area of social information processing of aggressive youth, included male partici-
pants exclusively even though the nature of aggressive behavior (see Loeber & Stouthamer-Loeber, 1998) and the social information processing of boys and of girls (Cairns, Cairns, & Neckerman, 1989; Crick, 1995; Feldman & Dodge, 1987) might differ. To illustrate, a recent report of a study by Anshel (1999) that involved just girls indicated that girls with hostile attributional bias had lower teacher ratings of prosocial behavior, but not higher teacher ratings of aggression, than did girls without that bias. As noted by Crick and Dodge (1994), the behavioral disturbance of girls with an attributional bias might be more consistent with girls’ stronger interpersonal orientation, which is associated with prosocial behavior, cooperation, and nurturance; boys’ social orientation tends to be instrumental, which is associated with domination and overt aggression. Assessment of possible gender differences in attributions of intent and blame and in feelings of anger is essential if interventions derived from this line of research are to be effective for boys and for girls.

In summary, the current research was designed for examination of multiple stages of social information processing of aggressive and nonaggressive adolescents in the context of hypothetical interactions with teachers. Girls were included in the sample to explore possible gender differences in social information-processing style. It was expected that the findings would contribute to (a) the knowledge base on social information-processing models of aggression, specifically for teacher/student interactions and (b) the development of intervention efforts to improve teacher/student relationships for aggressive youth, a group of students at particular risk for disruptions in social and academic success in middle school.

Included in the hypothetical vignettes in the current study were situations in which the teacher’s intentions clearly were negative or benevolent or were ambiguous with respect to teacher intent. It was hypothesized that, when faced with hypothetical scenarios in which the teacher’s intentions toward a student were ambiguous or negative, aggressive adolescents would be more likely than would nonaggressive adolescents to attribute hostile intent to the teacher and would be more likely to blame the teacher (rather than themselves or no one) for the outcome of the hypothetical situation. It was predicted also that aggressive adolescents would report feeling greater anger in response to hypothetical situations in which the teachers’ intent was manipulated to precipitate a negative outcome for the student. Given the paucity of empirical findings to support further directional hypotheses, evaluation of (a) potential gender differences and (b) responses of adolescents in situations in which the teacher was depicted as trying to be helpful was considered exploratory.
METHOD

Participants

Students were recruited from traditional middle schools (Grades 6 through 8) and alternative middle schools for disruptive youth. To recruit students from traditional schools, mathematics and language arts teachers at three public middle schools (two rural and one urban school district) were asked to nominate students according to two classifications: (a) 10 boys and 10 girls, from all their classes combined, who were considered to be the most aggressive and disruptive (i.e., students who demonstrated “behavior problems of physical aggression, difficulty controlling anger, and open disobedience, defiance, and oppositionality” [Quay & Peterson, 1996, p. 1]); and (b) 10 boys and 10 girls from their classes who did not have any difficulty with aggressive behavior (i.e., students who did not demonstrate problems with physical aggression and generally were compliant and obedient in the classroom [Quay & Peterson, 1996]). Following nominations, teachers completed the Conduct Disorder subscale (22 items) of the Revised Behavior Problem Checklist (RBPC) (Quay & Peterson, 1996) for each nominated child.

Students were recruited also from alternative middle schools available within the public school system specifically for disruptive youth who were not able to function within a traditional school setting. Students were placed in alternative schools as a result of serious disruptive behavior such as truancy, physical violence, property damage, or repeated violation of school rules. Alternative schools provided a low teacher:student ratio, close supervision of students, and a high degree of student accountability for behavior. To recruit participants at alternative schools, mathematics and language arts teachers at two alternative middle schools in the same school districts as the regular schools were asked to complete the Conduct Disorder subscale of the RBPC for all students in regular education classrooms. Because they did not teach a large number of students, it was unnecessary to ask them to nominate nonaggressive and aggressive students prior to administering the RBPC. The validity of this identification process (i.e., use of teacher nomination and behavior checklist) is supported through previous research that has shown that children identified by this process are those known to be aggressive based on behavioral observations and peer sociometric ratings (Lochman, 1987; Lochman & Dodge, 1994; Lochman & Lampron, 1986). Furthermore, Dodge, Price, Bachorowski, and Newman (1990) found that the Conduct Disorder subscale of the RBPC was correlated positively with level of hostile attributional bias of aggressive adolescent boys.
Taken together, teachers in all participating classrooms completed a scorable RBPC on an initial sample of 206 students. Students were then divided into groups based on RBPC Conduct Disorder subscale t scores (i.e., scores with \( \bar{X} = 50 \) and \( SD = 10 \)). Students were classified as nonaggressive if they received a standard score of less than 50 and they were classified as aggressive if they received a score of 70 or greater (i.e., 2 standard deviations above the mean). Students whose scores were between 50 and 69 were excluded from further consideration. A total of 124 students met the criteria for one of the two groups. Four students from alternative schools obtained scores slightly less than 50; however, they were excluded from the pool of potential nonaggressive students because it was felt that if they had been enrolled in schools for typical students their teacher’s reference point might have differed, and those students might have obtained an RBPC score greater than 50. The pool of potential participants thereby was reduced to 121 students. Parental permission for participation was granted for 63 of the 121 eligible students (52% of the sample). There was no significant difference in mean RBPC scores for students who returned parental permission forms (\( \bar{X} = 58.2 \)) and those who did not (\( \bar{X} = 63.1 \)), \( p > .50 \). The students who returned forms were given a choice to participate or decline, and all 63 agreed to complete the study.

The final sample of 63 students included 53 young adolescents from regular schools (32 nonaggressive and 21 aggressive) and 10 from alternative schools (all of whom were aggressive). The sample was composed of 57% girls, and 55.5% of the sample was African American. For descriptive purposes, analyses were conducted to determine the degree to which aggressive and nonaggressive participants differed on predictor variables of race and gender. Results of \( \chi^2 \) analyses (see Table 1) revealed significant group differences in race and gender, with a larger proportion of aggressive participants, as compared with nonaggressive participants, being African American and being boys. There was also a significant interaction of gender and race for the aggressive participants only, such that a significantly greater proportion of White participants were girls compared with the proportion of African American participants who were girls, \( \chi^2(1) = 7.44, p = .006 \). Gender and race each were included in data analyses as predictor variables so the effects of these variables could be determined. Groups also differed with respect to placement in regular or special schools, but analyses were not conducted to determine statistical significance because the chi-square would not be valid given the low number of participants in one cell (i.e., there are no nonaggressive participants enrolled in alternative schools). For a more complete description of the total sample and each group, see Table 1.
Dependent Measure

To assess attributional patterns, the Attribution Questionnaire (AQ), developed by the first author for use in the current research, was administered. The AQ includes 12 written vignettes that depict teacher/student situations commonly experienced in the middle school setting. They were written so that characters, conflicts, and language would be familiar to young adolescents. Teachers were presented as women, but protagonists were presented as neither boy nor girl but were designated as “you” so that participants could imagine themselves in the assigned role. To construct the AQ, an initial group of 18 vignettes was generated from (a) the Problem-Solving Measure for Conflict (Lochman & Lampron, 1986) and (b) information obtained from middle school teachers and students interviewed by the first author. Five adult judges (doctoral students in school psychology) classified each vignette according to the intentions of the teachers—clearly negative, clearly positive, or ambiguous. In addition, a series of three sessions were held with groups of 15 to 53 middle school students who also classified each vignette as depicting negative, positive, or ambiguous teacher intent. Vignettes for which there was at least 65% agreement among the students on the teachers’ intention were retained. Of the 12 vignettes that met the criteria, 4 depict negative intentions by the teacher, 4 depict positive intentions, and there are 4 vignettes in which teacher intent is ambiguous. For an example of each type of vignette, see the appendix.

### TABLE 1: Demographic Characteristics of the Sample

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</table>

*p < .05. **p < .001.
An assessment of temporal stability was conducted by administering the AQ to 24 participants 3 weeks after the initial assessment. The test-retest sample included randomly selected participants from the aggressive (n = 8) and nonaggressive (n = 8) samples and 8 students whose scores on the RBPC were between 50 and 69. Correlation coefficients were calculated for each variable within each type of situation. Results showed correlations ranging from .76 for type of intent attributed in ambiguous situations through a low of .45 for type of intent attributed in positive situations. Mean correlations across all variables were calculated for ambiguous (.70), negative (.63), and positive (.57) situations. A complete description of development of the AQ is available from the second author.

For each vignette, the student was asked to imagine himself or herself in the assigned role of the protagonist. The five forced-choice questions that followed each negative and ambiguous vignette were designed to assess the following: (a) attribution of teacher intent (“Why did the teacher do this—did she have it in for you or was she just doing her job?”), (b) degree of agreement for attribution of benign intent (“How much do you agree the teacher was just doing her job?”), (c) degree of agreement for attribution of hostile intent (“How much do you agree the teacher had it in for you?”), (d) level of anger felt by the participant on imagining himself or herself as the protagonist (“How angry or mad would you feel if the things in this story really happened to you?”), and (e) designation of blame for the outcome (“Whose fault was it that your teacher did this—your fault, nobody’s fault, or the teacher’s fault?”). Two of the questions (Item a and Item e above) use a multiple-choice format, and the remaining questions use a scale ranging from 1 = not at all through 4 = very much.

The three questions that followed each positive vignette were designed to assess the following: (a) attribution of teacher intent (“Why did the teacher do this—was she just doing her job or did she want to help you?”), (b) degree of agreement for attribution of benign intent (“How much do you agree the teacher was just doing her job?”), and (c) degree of agreement for attribution of benevolent intent (“How much do you agree the teacher wanted to help you?”). The first question uses a multiple-choice format and the remaining questions use a scale ranging from 1 = not at all through 4 = very much.

The 63 students who participated in the study were administered the AQ at their school in small groups of 2 through 4 students. The AQ was prerecorded on a tape for use in the test administration and participants were instructed to read silently while the researcher on the tape was reading aloud. The questionnaire was completed by participants in about 20 minutes.
RESULTS

Analysis of the AQ data was conducted using a series of three 2 (Group) × 2 (Gender) × 2 (Race) multivariate ANOVAs, one for each type of vignette (ambiguous, negative, positive). The predictor variables were group (aggressive, nonaggressive), gender (boys, girls), and race (African American, Caucasian). For ambiguous and negative situations, the four criterion variables were (a) type of intent (hostile/benign), (b) degree of hostile intent, (c) degree of benign intent, and (d) degree of anger. For positive vignettes, the three criterion variables were (a) type of intent (benevolent/benign), (b) degree of benevolent intent, and (c) degree of benign intent. Results of the three MANOVAs and follow-up analyses are displayed in Table 2.

Ambiguous vignettes. For situations in which the teacher’s intent was ambiguous, the MANOVA revealed a significant main effect of Group, $F(4, 52) = 3.04, p = .02$. There were no significant main effects of Race or Gender, and no significant interactions. Follow-up univariate analyses showed significant Group differences on all four criterion variables. Compared with

<table>
<thead>
<tr>
<th>Type of Vignette</th>
<th>Nonaggressive (n = 32)</th>
<th>Aggressive (n = 31)</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\bar{x}$</td>
<td>SE</td>
<td>$\bar{x}$</td>
<td>SE</td>
</tr>
<tr>
<td>Ambiguous situations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of intent$^b$</td>
<td>1.13</td>
<td>0.05</td>
<td>1.35</td>
<td>0.07</td>
</tr>
<tr>
<td>Level of hostile intent$^a$</td>
<td>1.82</td>
<td>0.12</td>
<td>2.23</td>
<td>0.18</td>
</tr>
<tr>
<td>Level of benign intent$^a$</td>
<td>3.16</td>
<td>0.12</td>
<td>2.57</td>
<td>0.18</td>
</tr>
<tr>
<td>Level of anger$^a$</td>
<td>1.79</td>
<td>0.13</td>
<td>2.47</td>
<td>0.19</td>
</tr>
<tr>
<td>Negative vignettes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of intent$^b$</td>
<td>1.42</td>
<td>0.05</td>
<td>1.74</td>
<td>0.07</td>
</tr>
<tr>
<td>Level of hostile intent$^a$</td>
<td>2.47</td>
<td>0.12</td>
<td>2.97</td>
<td>0.18</td>
</tr>
<tr>
<td>Level of benign intent$^a$</td>
<td>2.40</td>
<td>0.10</td>
<td>1.70</td>
<td>0.15</td>
</tr>
<tr>
<td>Level of anger$^a$</td>
<td>3.24</td>
<td>0.11</td>
<td>3.53</td>
<td>0.17</td>
</tr>
<tr>
<td>Positive vignettes</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Type of intent$^b$</td>
<td>1.71</td>
<td>0.04</td>
<td>1.68</td>
<td>0.06</td>
</tr>
<tr>
<td>Level of benevolent intent$^a$</td>
<td>3.12</td>
<td>0.10</td>
<td>2.92</td>
<td>0.16</td>
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<tr>
<td>Level of benign intent$^a$</td>
<td>2.83</td>
<td>0.09</td>
<td>2.70</td>
<td>0.14</td>
</tr>
</tbody>
</table>

a. Range of possible scores is 1 = lowest level of response through 4 = highest level of response.
b. Range of possible scores is 1 = benign intent, 2 = hostile intent (negative and ambiguous vignettes) or benevolent intent (positive vignettes).
nonaggressive adolescents, aggressive adolescents attributed hostile intent to the teacher more often, $F(1, 55) = 6.21, p < .01$, and attributed a higher level of hostile intent to her, $F(1, 55) = 3.76, p < .05$, and a lower level of benign intent $F(1, 55) = 8.35, p < .005$. In addition, aggressive adolescents reported feeling greater anger in response to those situations, $F(1, 55) = 9.42, p < .005$.

**Negative vignettes.** A similar pattern of findings emerged for adolescents’ responses to situations in which the teacher’s intent was clearly hostile. For those situations, the MANOVA revealed a significant main effect of Group, $F(4, 53) = 4.01, p = .006$. There were no significant main effects of Race or Gender and no statistically significant interactions. Follow-up univariate analyses showed significant Group differences on three of the four criterion measures. Compared with nonaggressive adolescents, aggressive adolescents attributed hostile intent to the teacher more often, $F(1, 55) = 13.47, p < .001$, and attributed a higher level of hostile intent to her, $F(1, 55) = 5.65, p < .05$, and a lower level of benign intent $F(1, 55) = 16.30, p < .001$. However, aggressive adolescents did not report feeling greater anger in response to these situations.

**Positive vignettes.** In situations in which the hypothetical teacher was depicted as trying to help the student, aggressive and nonaggressive adolescents showed no differences in responses. The MANOVA revealed no significant main effects for Group, $F(3, 53) = 0.54, p = .65$. Furthermore, there were no main effects of Gender or Race and no significant interactions.

**Blame.** Group differences on assignment of blame for the outcomes in ambiguous and negative vignettes were examined using a series of two $\chi^2$ analyses. To conduct those analyses, the total number of times each participant blamed the teacher was determined separately for the ambiguous and negative vignettes. Thus, each participant received a score of 0 (if he or she never blamed the teacher) through 4 (if he or she blamed the teacher for the outcome in all four scenarios) for ambiguous and negative vignettes. Due to the fact that there were many cells with fewer than 5 participants (see Table 3), data were reduced for $\chi^2$ analyses so that participants were combined into two groups. One group included participants who never blamed the teacher or only blamed her once, and the other group was composed of students who blamed the teacher more than once. A summary of the raw and combined data is displayed in Table 3. There were statistically significant group differences for blame in ambiguous vignettes, $\chi^2(1) = 5.03, p < .05$, and in negative vignettes, $\chi^2(1) = 3.77, p < .05$. Specifically, in situations in which the teacher’s intent was ambiguous, only 9.38% of nonaggressive students...
blamed the teacher more than once, but 32.3% of aggressive students blamed the teacher more than once. In situations in which the teacher was depicted as having negative intent toward the hypothetical student, fewer than 50% of the nonaggressive students blamed the teacher more than once, but 70% of aggressive students blamed the teacher more than once. In fact, almost 20% of aggressive students blamed the teacher in all of the negative vignettes (see Table 3).

### DISCUSSION

This study was designed to further the understanding of social information processing of aggressive youth by examining that processing in the context of relationships with teachers. Specifically, this research was an investi-
ation of intent attributions, attributions of blame, and emotions of aggressive youth as they encoded information about teacher/student interactions. Based on previous research and the social information-processing model, it was predicted that aggressive adolescents would attribute hostile intentions to teachers more often and to a greater extent than would non-aggressive adolescents in situations in which the intent of teachers in hypothetical stories was ambiguous. In support of the predictions, aggressive boys and girls, as compared with nonaggressive adolescents, were much more likely to say that the teacher “had it in” for them, and they held this opinion more strongly in situations involving attributional ambiguity.

Previous research in which attributions of aggressive youth for hypothetical peer situations were examined had shown that aggressive and non-aggressive adolescents equally were likely to attribute hostile intentions to peers in clearly provocative situations and only differed when peers’ intentions were ambiguous. In contrast, the current findings and those of Bickett and colleagues (1996) revealed that differences between aggressive and nonaggressive adolescents’ attributions of intent existed in ambiguous situations and extended to situations in which teachers were perceived as clearly provocative. Perhaps nonaggressive adolescents are less likely than aggressive adolescents to assume negative intentions with regard to actions of adult authority figures, even when teachers clearly are acting with negative intentions. In situations involving clearly hostile peers, however, nonaggressive and aggressive adolescents are equally likely to assume that the peer intends to harm them.

The current research was designed to extend the investigation of Bickett and colleagues (1996) by including scenarios in which teachers were depicted as being helpful to a protagonist student. When faced with these situations, aggressive and nonaggressive adolescents were likely equally to report that the teacher indeed was trying to be helpful. These findings are important because they indicate that aggressive adolescents do not view all teacher behavior as hostile, and aggressive adolescents recognize, and are willing to acknowledge, that teachers can be helpful. These findings might be used to motivate teachers of disruptive students to increase the frequency of their helpful behaviors to increase the likelihood of a positive teacher/student relationship. Enhancing that relationship might buffer the aggressive student against school failure because having an adult mentor at school can serve, in some instances, as a protective factor for youth who demonstrate severe behavioral disturbances and aggression in the school setting (Vance, Fernandez, & Biber, 1998). It should be noted that students’ responses on the AQ were least reliable over time for situations in which the teacher was depicted as helpful, which indicates that young adolescents’ beliefs about
positive teacher behavior might be somewhat unstable. Given the importance of a positive teacher/student relationship, students’ perceptions of helpful teacher behavior deserve further attention from researchers.

A second component of social information processing examined in the current study was assignment of blame for negative events. The degree to which aggressive and nonaggressive adolescents blamed teachers for negative outcomes of hypothetical situations involving students and teachers was assessed. As expected, results showed that aggressive adolescents were much more likely than were nonaggressive adolescents to assign fault to the teacher (rather than to themselves or no one) in situations in which teacher intentions were ambiguous and in situations in which teacher intentions clearly were negative. A heightened perception that negative events in school, such as those depicted by the AQ (e.g., after school detention, failing grades), are the fault of teachers might serve to increase the student’s anger and provide justification for retaliation against the teacher or others. The current findings are consistent with previous research in the area of peer relations; for example, Graham and Hudley (1994) found that aggressive African American adolescent boys, as compared with a matched group of nonaggressive boys, placed a significantly higher level of blame on the peer in a hypothetical peer provocation story. The current results indicate that aggressive youths’ tendency to blame others for negative outcomes might extend from peer relationships to situations involving adults.

Because anger has been shown to mediate the relation between hostile attributions and aggressive acts (Graham et al., 1992), the present research included an examination of the perceived intensity of anger experienced as participants encoded and interpreted cues related to hypothetical interactions with teachers. Theoretically (i.e., the attribution-affect-action link), hostile attributions combined with heightened anger might facilitate escalation of teacher/student conflict to the point of aggressive acts. Although the specific role of anger in the escalation of conflict between teachers and students remains to be tested, the current results indicated that aggressive adolescents reported feeling more intense anger than did nonaggressive adolescents but only when the intent of the teacher in hypothetical situations was not clear. That finding revealed that situations characterized by ambiguous teacher intentions were more frustrating for aggressive than for nonaggressive youth. However, both groups reported the same degree of anger in response to situations in which the teacher was depicted as clearly malicious. In summary, although nonaggressive boys and girls experienced a similar degree of anger toward teachers when the teacher was acting maliciously, they were less likely to blame the teacher for outcomes of those situations and attributed hostile intentions to the teacher in those situations less often than did their
aggressive counterparts. Perhaps the relatively healthy attributional style of nonaggressive youth can serve to moderate their anger and reduce risk of retaliation in the context of feelings of anger (i.e., the attribution can moderate the affect to result in a more positive action).

Unique to this investigation was the inclusion of aggressive and non-aggressive girls, which allowed for an examination of gender differences in attributional style. It should be noted that post hoc t tests revealed no significant gender differences in RBPC scores for aggressive or nonaggressive groups (p < .20). Tests for main effects of gender and interactions of gender and group for attributions of intent and responsibility showed no significant differences. Furthermore, boys and girls did not differ in the degree of anger they expected to feel if they were in fact the student in the hypothetical situation. Results indicated that teacher/student interactions in which the teachers’ intentions were ambiguous clearly were problematic for aggressive adolescents, regardless of gender. An alternative explanation for those findings is that there was insufficient power to detect interactions of gender and group. Further research on gender differences in social information processing should include larger groups of boys and girls to increase power to detect possible gender differences. Further research also should include investigations of gender differences in later steps of social information processing; it is possible that aggressive girls and boys do not differ in their interpretations of teacher behavior or in their affect related to processing this information but that differences emerge in the response decision steps of problem solving. Specifically, even though aggressive girls attribute hostile intentions to their teacher and experience a high level of anger, they might be more likely than their aggressive male counterparts to inhibit aggressive responses to teachers. In fact, research involving peer conflicts (Quiggle et al., 1992) shows girls identified as aggressive, based on teacher report and peer nomination, might be less likely than aggressive boys to suggest aggressive responses to hypothetical situations involving peer provocation.

The current findings point to a cluster of differences in social information processing between aggressive and nonaggressive youth, which place aggressive youth at high risk for difficult relationships with their teachers. These findings, combined with results of research on social information processing of aggressive adolescents in relationships with peers, highlight the potential for relational difficulties in multiple contexts (i.e., during interactions with peers and with adults). Several leading theories of the etiology of interpersonal aggression are consistent with findings of continuity in social information processing across relationships. For example, proponents of attachment theory (Bowlby, 1988) posit that the quality of early parent/child relationships form the basis of subsequent interpersonal relations. Children’s
expectations and perceptions of adults and peers are based, at least in part, on internal working models of attachment relationships that are first established with early caregivers. Research shows that children who experience unpredictable, nonresponsive, harsh parenting are at increased risk for insecure attachment and might be predisposed to subsequent behavioral and social disturbances by virtue of continuity in (mal)adaptation across relationships (see Carlson & Sroufe, 1995, for a review of attachment theory in relation to psychopathology). Proponents of social learning theory (Patterson & Capaldi, 1990) also believe that early coercive parent/child relationships can produce later antisocial behavior and might be associated also with a pathway to depressed mood among adolescents. Evidence in support of attachment theory and social learning theory shows that many young adolescents identified as aggressive have a history of distressed interpersonal relationships that result in complex social and emotional disturbances that render intervention efforts quite challenging.

It is hoped that the current findings will serve as the basis for an ongoing research agenda in which replication and expansion of the current findings are pursued. The present research was based on a single measure of attributions involving hypothetical interactions between students and teachers. There certainly might be important differences in social information processing between aggressive and nonaggressive adolescents in actual live social settings as compared with their responses to hypothetical scenarios. Thus, the external validity of these findings should be examined in follow-up research based on actual social situations (see Lochman, 1987). Assessment of the psychometric properties of the AQ should continue also. Post hoc analyses showed significant correlations among the five dependent measures, which indicate that information gained from the questions that follow the vignettes might be somewhat redundant. Further research will be necessary to determine whether any questions can be omitted from the AQ without losing valuable information. Finally, correlations for each variable across the three types of vignettes indicated adequate, but not strong, test-retest reliability. It is possible that correlations were deflated somewhat because the retest constituted more reflective or deliberate responding as compared with the automatic responding presumed to be measured in the initial test. As cited in the literature, Rabiner, Lenhart, and Lochman (1990) found some slight differences between automatic and deliberate responses of aggressive children on a problem-solving measure such that in the delayed responding, aggressive children elicited fewer conflict escalation responses than in the automatic response situations.

A number of cautions related to the sampling procedures should be noted. First, even though the sample size is consistent with other published research
in this area, and there was sufficient power to detect differences in social information processing and anger between aggressive and nonaggressive youth, gender differences might have been obscured due to relatively small subsample sizes. Second, approximately one-third of the aggressive students in this research were enrolled in an alternative school for disruptive youth. It was necessary to extend the sampling to alternative schools because there was an insufficient number of students with elevated RBPC scores in the regular schools whose parents returned permission forms. It is likely that the students in alternative schools had a more extensive history of negative interactions with teachers than did aggressive youth in regular school settings. Unfortunately, the existence of confounds related to school setting could not be examined adequately given the small number of students (n = 10) enrolled in alternative schools. Third, although post hoc analyses showed no group differences in teacher-reported aggression between students who returned permission forms and those who did not, the possibility remains that the current sample was not fully representative of aggressive young adolescents. It is possible, for example, that students who participated differed in terms of school experiences (e.g., academic success) or in terms of family circumstances (e.g., socioeconomic status [SES]) from those whose parents did not give consent to participate. Finally, SES of aggressive and nonaggressive participants was not controlled. Given the close relation between race and SES, and the potential importance of those variables in understanding childhood aggression, subsequent research in this area should include adequate controls for interactions of SES and race (see Graham, 1994, for a discussion on that issue).

It should be noted that the RBPC Conduct Disorder subscale includes items related to disruptive, noncompliant behavior as well as aggressive acts. Thus, it is possible that students in this study who were identified as aggressive were in fact more disruptive than they were physically aggressive. If that were the case, it could be assumed that a hostile attributional style is not specific to aggressive boys and girls; rather, a hostile attributional style is characteristic of children with a range of externalizing problems. Indeed other researchers have used measures of general externalizing problems and found correlations with hostile bias in the context of peer interactions (Burks et al., 1999).

Although the current findings should be considered preliminary, and generalization to real-life situations remains to be established, the results do indicate several viable points of intervention for difficult teacher/student relationships. Specifically, teachers of students who exhibit externalizing problems might benefit from increased understanding of the unique aspects of social-cognitive processing of these adolescents, particularly the difficul-
ties they experience in trying to define and interpret teachers’ intentions in the classroom. Indeed, such knowledge of the emotional and social development of children and adolescents often is lacking in teacher education programs (see Pianta, 1999). Because aggressive adolescents have a tendency to assume hostile intentions by teachers, teachers should be encouraged to take the time to explain the purpose of their actions to students who exhibit aggressive tendencies. Teachers also should be alerted to the heightened anger experienced by aggressive students within the context of relationships with teachers. Teachers increasingly are being taught skills for diffusing anger in peer conflicts; perhaps those skills can apply to relationships with teachers as well. Finally, because the aggressive young adolescents in this sample were able to recognize attempts by teachers to be helpful, there might be a basis for modified use of “Banking Time” (Pianta, 1999). Banking Time is an intervention similar to the “Child’s Game” in parent training (Forehand & McMahon, 1981), in which teachers are encouraged to spend time with the individual student, doing activities chosen by the student, with the purpose of conveying positive messages of acceptance and availability to the student.

The intervention is called Banking Time because of the metaphor of saving up “positive experiences” so that the relationship between teacher and child can withstand conflict, tension, and disagreement without deteriorating and returning to a negative state. Thus, the child and teacher can draw on their accrued relationship capital and can “withdraw” from the relationship resources that enable them to interact effectively in times of stress. (Pianta, 1999, p. 140)

This type of intervention would need to be modified for use by middle school teachers, who have much less time with each student than do teachers of elementary school students. Specific time set aside for “banking” positive interactions might be unrealistic for teachers of adolescents; instead, those teachers could give students brief messages that the teacher is a helper, is unconditionally available, is a source of safety and comfort, and is available for problem solving. Those positive messages might serve to counter the aggressive adolescent’s view of teachers primarily as a source of conflict and irritation. Of course, individual differences are expected in students’ responses to the types of interventions proposed herein, based on such influences as youth’s temperament.

Implications for the current results for direct intervention with aggressive youth are offered tentatively, pending replication of the findings. In light of the present results, it seems reasonable to propose that interventions for aggressive adolescents based on social information processing should include a focus on their relationships with adults in addition to attention to peer relationships. Attribution interventions, which train adolescents to infer
nonhostile peer intentions, have been shown to be successful in reducing levels of anger and aggressive retaliation (Graham & Hudley, 1994). Similar approaches might prove successful in reducing risk of anger and aggressive responses to teachers. Most important, interventions should begin well before aggressive adolescents enter middle school, at which point negative relationships with teachers might have become a well-entrenched pattern. Specifically, Pianta (1999) describes the first 3 years of school as a “sensitive period” during which time developmental trajectories remain changeable; thus, efforts to enhance teacher/student relationships should begin in early elementary school when children first become identified as having precursors to externalizing problems.

APPENDIX
Examples of Vignettes Representing Three Types of Teacher Intentions

<table>
<thead>
<tr>
<th>Ambiguous Intent</th>
</tr>
</thead>
<tbody>
<tr>
<td>You’ve returned to school after being sick for a week. Your homeroom teacher reminds you that you will need to stay after school this week and make up your tests.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Negative Intent</th>
</tr>
</thead>
<tbody>
<tr>
<td>You’ve been hassling the student teacher all week, and all week she’s been having you stay after school. At the end of the week, your regular teacher calls you in. She says that she has had enough of your rude behavior and that she is sending you to the principal’s office and recommending an in-school suspension.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Benevolent Intent</th>
</tr>
</thead>
<tbody>
<tr>
<td>You just got back a science test. You thought you had made a good grade on it, but you find out you failed. You are worried because you want to make a passing grade in this class for the 9 weeks. Your teacher talks to you after class and says you can take a retest the next day after school.</td>
</tr>
</tbody>
</table>

NOTE

1. At the recommendation of a reviewer, the blame variable was regrouped so that no cell had fewer than 5 participants. For ambiguous vignettes, there were two categories (never blamed the teacher; blamed the teacher one or more times). For negative vignettes, there were three categories (never blamed the teacher or blamed her once; blamed her twice; blamed her more than twice). Analyses based on these groupings were essentially the same as those found in the groupings reported in the text; group differences for both situations were statistically significant.
REFERENCES


Requests for reprints and/or copies of the Attributions Questionnaire should be addressed to Mary E. Haskett, Department of Psychology, C.B. 7801, North Carolina State University, Raleigh, NC 27695; e-mail: mary_haskett@ncsu.edu
Early Adolescent Predictors of Youth
Violence as Mediators of Childhood Risks

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Analyses were conducted to assess whether risk factors for youth violence measured at 10 years of age influenced later violence directly or indirectly through predictors measured in early adolescence (14 years of age). Analyses revealed that many childhood risks—which included teacher-rated hyperactivity/low attention, teacher-rated antisocial behavior, parental attitudes favorable to violence, involvement with antisocial peers, low family income, and availability of drugs in a neighborhood—had strong and persistent effects on later violence. However, mediation effects also were noted for most factors. Male gender and low neighborhood attachment measured at 10 years of age were the only two risks that appeared not to be mediated partially by predictors at 14 years of age. School and peer predictors of violence measured at 14 years of age were the strongest mediators of the earlier risk factors. Those predictors consistently added to the explanatory power of each model that was tested.

Recent media reports about violent crimes committed by young people have heightened concern about youth violence in this country. Although in recent years the number of arrests for serious violent offenses has declined, rates of youth violence in the United States remain high (Kelley, Huizinga, Thornberry, & Loeber, 1997; Puzzanchera, 1998). There is speculation that youth arrests will rise again if swift action is not taken now to develop pro-
grams that address the underlying causes of violence (Blumstein & Rosenfeld, 1998; Kelley et al., 1997).

Criminologists appear to be in agreement about the need for effective prevention programs (Farrington, 1998; Hawkins et al., 1998; Reiss & Roth, 1993). The development of such programs requires careful examination of modifiable risk and protective factors (predictors) as potential foci for intervention. Numerous studies that address predictors of youth violence have been carried out in recent years (see reviews by Brewer, Hawkins, Catalano, & Neckerman, 1995; Farrington, 1998; Hawkins et al., 1998; Lipsey & Derzon, 1998; Reiss & Roth, 1993). Results of those studies generally are consistent. Predictors have been found in multiple domains of influence: family, school, peer, and community (Brewer et al., 1995; Farrington, 1998; Hawkins et al., 1998; Lipsey & Derzon, 1998; Reiss & Roth, 1993). Characteristics of individuals themselves also have been shown to predict youth violence.

Limitations of Existing Research

Although considerable effort has been put forth to identify risk factors for youth violence, most research has been focused on the prediction of violence from one point in time. Thus, little is known about developmental patterns of risk that relate to the onset and maintenance of violent offending behaviors. To advance knowledge about the etiology of youth violence, it is important to examine predictors in more complex relations using longitudinal data (Cowen, Cowen, & Schulz, 1996). A first step is to carry out tests of mediation in which risk factors from an earlier developmental period and a later developmental period are modeled as precursors to later violence. The current study is based on such an approach, to identify whether previously established early risk factors for youth violence have direct or predominantly indirect effects on that outcome. Potential mediators include later occurring risks that also are well-established predictors of youth violence.

Three waves of data from the Seattle Social Development Project (SSDP) were used in the analyses presented here. Analyses focus on risk factors for youth violence measured at 10 and 14 years of age as predictors of violent behavior at 18 years of age. Factors measured at 14 years of age were chosen to represent risks that could be foci for intervention during early adolescence. Risk factors at each age were validated empirically in a previous study using SSDP data (Herrenkohl, Maguin, Hill, Hawkins, & Abbott, 2000); many risk factors also have been examined in other longitudinal studies (Hawkins et al., 1998).

A discussion of research on risk factors for youth violence relevant to this study is provided next. Comprehensive reviews can be found elsewhere (see
Brewer et al., 1995; Farrington, 1998; Hawkins et al., 1998; Lipsey & Derzon, 1998; Reiss & Roth, 1993). The discussion that follows will focus first on risks for youth violence that emerge before adolescence. Attention then will be given to influences on violent behavior during early adolescence. A summary of objectives for the study concludes the introduction.

**Risk Factors for Youth Violence**

*Male gender.* Many studies have indicated that males engage in higher rates of violence than do females (Loeber & Stouthamer-Loeber, 1998; see also Elliott, 1994). Explanations for why violence is observed more often among males are inconsistent. One possibility is that boys are socialized into roles that encourage higher levels of physical aggression (Spivak, Hausman, & Prothrow-Stith, 1989). Another possibility is that males and females adopt differing methods of showing aggression. Some researchers have suggested that males use physical force to express hostility toward others, whereas females use indirect and verbal forms of aggression, such as “alienation, ostracism, and character defamation” (Loeber & Stouthamer-Loeber, 1998, p. 253).

*Hyperactivity/low attention and early antisocial behavior.* Longitudinal studies have shown that hyperactivity and low attention as well as early antisocial behavior can predict later violence (Farrington, 1989; Hawkins et al., 1998; Herrenkohl et al., 2000; Mannuzza, Klein, Konig, & Giampino, 1989). The Moffitt (1993) theory of life course persistent offending posits that children who chronically are antisocial have suffered neuropsychological impairments that affect their acquisition of skills to negotiate interpersonal conflict and ability to regulate emotions. Skill deficits, evident from birth, can predispose children to behavior problems across the life span.

*Parental attitudes favorable to violence.* It appears that children who are raised in families in which violence is modeled by others are more likely to engage in violence themselves (Farrington, 1991). Exposure to antisocial norms and values held by parents, other family members, and individuals outside of the home, also can have a negative effect on children’s behavior by presenting violence as acceptable and normalizing the occurrence of violence (Brewer et al., 1995).

*Low academic performance.* Risks for violence can involve children’s schooling and academic performance. For example, research has indicated
that children who have little interest in school, and who perform poorly on academic tasks, are at risk for violence (Herrenkohl et al., 2000; Maguin & Loeber, 1996).

Involvement with antisocial peers. Children who develop friendships with antisocial peers in elementary school are at higher risk than are other children for violence in adolescence (Herrenkohl et al., 2000). One explanation for this finding is that through interaction with peers, children acquire values and beliefs that support high-frequency and chronic antisocial behavior. Another possibility is that friendships formed in childhood set a foundation for future peer relationships in early adolescence and middle adolescence, which have a more proximal influence on violence via modeling and reinforcement of negative behavior (Catalano & Hawkins, 1996).

Low family income, availability of drugs, and low neighborhood attachment. Poverty is a well-established risk factor for violence and other forms of antisocial behavior (Brewer et al., 1995; Hawkins et al., 1998). Children from very low-income families not only have lower access to basic resources necessary for general health and well-being, they also are more likely than are other children to encounter, in disorganized neighborhoods, opportunities for crime and drug selling (Catalano & Hawkins, 1996; Sampson, 1994; Sampson & Wilson, 1995). In such neighborhoods, crime occurs in the absence of social control networks (Sampson, 1994; Sampson & Lauritsen, 1994). In high crime areas, children might feel unsafe and detached from their neighborhoods. Low neighborhood attachment also predicts youth violence (Herrenkohl et al., 2000).

Early Adolescence

The social development model (Catalano & Hawkins, 1996) posits that antisocial behavior develops from weak social bonds to prosocial institutions and to individuals who uphold and promote the values those institutions represent. Strong bonds to family and school are of primary importance in the development of prosocial beliefs and good behavior. Absent those bonds, youth are less likely to succeed in school, to aspire to become productive citizens, and to behave in accordance with the law (Catalano & Hawkins, 1996).

In early adolescence, peer influences (positive and negative) are particularly strong (Catalano & Hawkins, 1996). The social development model posits that negative peer influences affect behavior most powerfully when bonds to prosocial institutions and individuals are weak, while bonds to peers are strong. As noted elsewhere, peer groups and gangs play an important role
Parents remain important socializing agents during early adolescence, even as peer influences intensify (Catalano & Hawkins, 1996). Thus, the functioning of families and behavior management practices that parents employ should affect the behavior of early adolescents.

Prevention efforts directed to young children and adolescents routinely are based in schools (Dryfoos, 1994, 1998; Hawkins & Herrenkohl, in press; Herrenkohl et al., 2000; Wasserman & Miller, 1998; Weissberg & Greenberg, 1997). A number of factors associated with the process and organization of schools affect youths’ risk for violence (Hawkins & Herrenkohl, in press). Risk for violence also is associated with youth’s academic performance, their social interactions in and outside the classroom, and their commitment to, and level of interest in, school activities (Hawkins et al., 1998). Adolescents who are bonded weakly to school and who have low aspirations for success in education are far more likely than are other children to engage in violence (Herrenkohl et al., 2000; Maguin & Loeber, 1996).

**Study Objectives**

The current study involved tests of mediation based on predictors of violence measured at 10 years of age and at 14 years of age. Analyses were carried out to establish whether risk factors at 14 years of age mediate the effects of risk factors measured at 10 years of age in the prediction of violent behavior measured at 18 years of age. Three general research questions guided the study: (a) Does a risk factor at 10 years of age have a direct or predominantly indirect effect on violent behavior at 18 years of age? (b) Do risk factors within a single domain of influence at 14 years of age (family, school, or peer) account more strongly than do predictors in other domains for the indirect effect of an earlier risk factor? (c) Is the prediction of later violence by an early risk factor mediated fully when risk factors across all three domains at 14 years of age are taken into account?

**METHOD**

**Participants**

Data for this study are from the Seattle Social Development Project (SSDP), a longitudinal study of youth development and behavior. The SSDP
has followed a panel of children since they entered the fifth grade (average 10 years of age) in 1985 (Battin et al., 1998; Catalano, Kosterman, Hawkins, Newcomb, & Abbott, 1996; Hawkins et al., 1997). Participants were from 18 Seattle public elementary schools serving predominantly high-crime neighborhoods. From the total population of 1,053 fifth-grade students in those 18 schools, 808 (77%) youth consented to take part in the longitudinal study. That acceptance rate is comparable to other studies in which researchers have attempted to recruit youth for participation (Ellickson & Bell, 1990; Elliott, Knowles, & Canter, 1981; Thornberry, Bjerregaard, & Miles, 1993). Of the 808 youth, 396 (49%) were female, 372 (46%) were European American, 195 (24%) were African American, 170 (21%) were Asian American, and 72 (9%) identified a race/ethnic group other than those mentioned. Many participants were from low-income households. Forty-six percent of parents reported yearly incomes less than $20,000 in 1985. Fifty-two percent of participants were involved in the school free-lunch program at some point between the fifth and seventh grades. Forty-two percent of the participants reported living with a single parent in 1985.

Assessments

Participants and their parents took part in annual assessments through 1991. Participants were assessed again in 1993 at 18 years of age. Teachers took part in annual assessments through 1989. Data from official school records also were collected.

Data for the current study were collected in the fall and spring of the participants’ 5th-grade year at 10 years of age, at 14 years of age when those progressing normally in school were in the 8th grade, and at 18 years of age when those progressing normally were in the 12th grade. At 10 years of age, participants were given group-administered questionnaires in their classrooms. At 14 and at 18 years of age, participants were interviewed in person. Each interview took approximately 1 hour to complete. For their involvement, participants received an audiocassette tape (at 10 years of age) or monetary compensation (at 14 and 18 years of age).

Participation rates across study waves were consistently high: At 14 years of age, 96% of the original sample of 808 participants assessed at 10 years of age were assessed again; 94% of the sample was assessed 4 years later, when youth were 18 years of age.

Assessments provided information about participants’ experiences at home, in school, and in their peer groups. Participants also reported on their behavior and the behavior of family members and peers. Teachers provided information about children’s behavior and social interactions. Information
from teachers was collected with the Child Behavior Checklist (Achenbach & Edelbrock, 1983). Data sources for the current study are from youth and teacher reports, as well as from official school records (for information on standardized achievement test scores).

Measures

Risk factors measured at 10 years of age included male gender, teacher-rated hyperactivity/low attention, teacher-rated antisocial behavior, perceived parental attitudes favorable to violence (based on youth reports), low academic performance, involvement with antisocial peers, low family income (based on a child’s eligibility for the national school free-lunch program), availability of drugs in a neighborhood, and low neighborhood attachment. Risk factors at 14 years of age were grouped into three domains: family (low bonding to parents, youth-reported poor family management, youth-reported family conflict), school (low academic performance, low school commitment, low educational aspirations), and peer (involvement with antisocial peers and gang membership). A full listing of items that represent each predictor construct is given in the appendix.

Violent behavior at 18 years of age. The outcome variable in this study, violent behavior at 18 years of age, is a dichotomous variable that classifies youth as having committed any of seven violent acts in the past year (coded 1) or not (coded 0). Youth were asked to indicate whether they had (a) hit a teacher, (b) picked a fight, (c) hit someone with the intent of hurting him or her, (d) threatened someone with a weapon, (e) used force or threats of force to get things from others, (f) beat someone so badly he or she required medical attention, or (g) hit a parent. Because picking a fight and hitting someone with intent of hurting him or her can be considered less serious forms of violence for adolescents, and because the distribution of scores on those variables reflect higher frequency behaviors,¹ cutoff points were established so that multiple acts (three or more) on those indicators were required before a youth was coded as having engaged in violence. A single act of violence on any of the remaining five indicators led to a youth being coded as having engaged in violence.²

A dichotomous measure of violence at 18 years of age was used in this study, rather than a continuous measure of violence, because few individuals reported more than one or two violent acts at 18 years of age. Thus, the distribution of scores on the continuous measure was skewed toward zero. Transformations to normalize highly skewed distributions on measures such as the one used in this study are not advised because of the potential to distort the
nature of the underlying behavior that is being measured and because of difficulties that might arise in interpreting analysis results (Farrington & Loeber, 2000). In total, 157 youth (21% of those surveyed) had committed a violent act at 18 years of age, based on the dichotomous classification. Of those youth, 54 (34%) were female.

**Dichotomization of predictors.** Scores on each risk factor construct were dichotomized to indicate the presence or absence of a risk factor. For most constructs, scores in the top quartile of the distribution received a 1, to indicate the presence of that risk, and scores in the remainder of the distribution were given a 0, to indicate the absence of that risk. This method, used elsewhere (Farrington, 1989, 1994, 1998; Jessor, Van Den Bos, Vanderryn, & Costa, 1995; Loeber, Farrington, Stouthamer-Loeber, & Van Kammen, 1998), maximizes the likelihood that exposure to a risk did occur and it simplifies interpretation of the analysis results (Farrington & Loeber, 2000; Loeber et al., 1998). When continuous predictors are dichotomized, benefits typically are gained without an appreciable loss of information. Indeed, preliminary examination of the data used in the current study showed that analyzing predictors in their dichotomous and continuous forms provided similar results.

In some cases, scores on predictors were distributed so that breakpoints for dichotomization could not be made at precisely the 75th percentile. In those instances, breakpoints in the distribution of scores were made as near to that point as possible. Constructs that already were dichotomous were analyzed in their original form (e.g., male gender and gang membership).

**Analysis**

**Treatment of missing data.** Missing data in longitudinal survey research are common (Graham, Hofer, Donaldson, MacKinnon, & Schafer, 1997). Over the course of a multiwave panel study, responses might be lost due to sample attrition, participants’ refusal to answer certain questions, inadvertent omissions, or interviewer error. Traditionally, missing data have been handled by dropping incomplete cases from analyses (listwise deletion) or by looking at selective pairings of data on the basis of availability (pairwise analysis). Research into these methods has shown that they can provide biased parameter estimates when data are not missing completely at random (Graham, Hofer, & Piccinin, 1994). In addition, loss of statistical power in analyses might result from using a listwise deletion procedure.
Commonly used missing data procedures assume that there is no systematic pattern underlying data that are missing. Rarely is that the case (Graham et al., 1997). Omitting cases blindly without examining missing data patterns might contribute to inferences being drawn on a select group of respondents rather than on the sample as a whole. Pairwise analysis also is problematic because cases used in an analysis might differ from one variable pairing to the next, leading to estimates that are specific to subgroups rather than to the full sample.

Expectation-maximization (EM) algorithm and multiple imputation procedures are less affected by problems due to nonrandom missing data patterns (Graham et al., 1994). Those methods, which have been used more widely in the social sciences in recent years, have been shown to provide unbiased parameter estimates by taking advantage of all available data (Graham et al., 1994).

In the current study, missing data were handled with the NORM program (Graham et al., 1994, 1997; Graham & Schafer, 1997; Schafer & Olsen, 1997). In NORM, an EM algorithm computes maximum-likelihood covariance matrices, as well as estimates of variances and means. With those estimates as starting values, a data augmentation procedure generates multiple estimates of a given value, previously missing, and then stores those imputed values in separate data files. Estimates reflect variability in predicted scores that are possible for the population under study given characteristics of the data. Any number of data sets with imputed values can be requested from NORM depending on the maximum percentage of data that is missing. A larger number of imputations is appropriate for high percentages of missing data. For this study, five data sets were imputed and used in subsequent analyses. That number is sufficient given the low percentage of data missing on any given variable used in the current study (Graham et al., 1997). Coefficients and standard errors were entered back into the NORM program to derive overall estimates, which are reported here (see Graham & Schafer, 1997).

**Tests of mediation.** Analyses focused on the extent to which the effect of each risk factor measured at 10 years of age was mediated through risk factors at 14 years of age (in the family, school, and peer domains) in the prediction of violent behavior at 18 years of age (illustrated in Figure 1). Predictors in each domain at 14 years of age were examined collectively as blocks in mediation models. Although there is some correspondence between predictors at 10 years of age and 14 years of age, there was no attempt to create measures with the same items at those ages. Rather, attention was given to whether predictors were meaningful given the ages of participants. Further-
Figure 1: Tests of mediation with childhood risks and predictors of violent behavior representing the family, school, and peer domains at 14 years of age.

a. Violent behavior at 18 years of age was examined as a single dichotomous outcome, based on these seven indicators.
more, predictors at 14 years of age were limited to those that were deemed to reflect risks in the family, school, and peer domains that could be changed through intervention.

To identify mediation effects, the following steps were taken. First, the bivariate relation between a childhood risk and the violence outcome measure was examined. This provided information about that risk factor’s total effect on later violence. Next, risk factors measured at 14 years of age were entered in blocks (by domain) along with the earlier risk. Those tests provided information about the direct and indirect effects of the risk factor at 10 years of age on later violence, having controlled for predictors within each domain in early adolescence. Finally, predictors from all three domains at 14 years of age were entered simultaneously, along with an early childhood risk factor, to establish an overall measure of mediation.

A risk factor’s (at 10 years of age) indirect effect on violence was based on the change in magnitude of a regression coefficient from the bivariate model to each multivariate model in which predictors in each domain at 14 years of age were taken into account. Thus, tests of mediation performed here focused on the extent to which each and all of the three domains in early adolescence, rather than individual predictors within the three domains, reduced the effect of an earlier risk on later violence. By looking at the domain as a whole, it is possible to determine the domain’s relative importance as a context for prevention in the early adolescent years on the basis of an individual’s risk exposure in childhood.

To assess further the relative importance of the early adolescent predictors as explanatory variables in each regression model, $R^2$ values were examined at each step in the mediation analysis. Those values provide information about the degree to which each predictor block (at 14 years of age) explained additional variance in violent behavior at 18 years of age after accounting for variance associated with a risk factor at 10 years of age.

### RESULTS

Results of the mediation tests are shown in Table 1. Table 1 provides estimates of each early risk factor’s total effect on violent behavior at 18 years of age, as well as estimates of each risk factor’s direct and indirect effects on violence, having controlled for predictors in each and all of the three domains at 14 years of age.

All risk factors measured at 10 years of age were related strongly to later violence at the bivariate level. The effects of male gender, hyperactivity/low attention, antisocial behavior, parental attitudes favorable to violence,
TABLE 1: Regression Coefficients (and standard errors) Reflecting Total, Direct, and Indirect Effects of Childhood Risks on Violent Behavior at 18 Years of Age (N = 808)

<table>
<thead>
<tr>
<th>Risk</th>
<th>Total Effect</th>
<th>Direct Effects on Violence Controlling for: (SE)</th>
<th>Indirect Effects of Age 10 Predictors Through: b (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Family</td>
<td>School</td>
<td>Peer</td>
</tr>
<tr>
<td>Male gender</td>
<td>.73 (.18)***</td>
<td>.76 (.18)***</td>
<td>.70 (.18)***</td>
</tr>
<tr>
<td>Hyperactivity/low attention</td>
<td>.83 (.21)***</td>
<td>.79 (.22)***</td>
<td>.60 (.22)***</td>
</tr>
<tr>
<td>Antisocial behavior</td>
<td>.85 (.20)***</td>
<td>.77 (.20)***</td>
<td>.66 (.21)**</td>
</tr>
<tr>
<td>Parental attitudes favorable to violence</td>
<td>.84 (.27)***</td>
<td>.74 (.27)**</td>
<td>.70 (.28)**</td>
</tr>
<tr>
<td>Low academic performance</td>
<td>.48 (.19)**</td>
<td>.51 (.19)**</td>
<td>.27 (.20)**</td>
</tr>
<tr>
<td>Low neighborhood attachment</td>
<td>.45 (.19)**</td>
<td>.42 (.20)**</td>
<td>.35 (.21)**</td>
</tr>
<tr>
<td>Low family income</td>
<td>.45 (.20)**</td>
<td>.42 (.21)**</td>
<td>.35 (.21)**</td>
</tr>
<tr>
<td>Availability of drugs</td>
<td>.56 (.20)**</td>
<td>.43 (.21)**</td>
<td>.44 (.21)**</td>
</tr>
<tr>
<td>Low neighborhood attachment</td>
<td>.45 (.19)**</td>
<td>.42 (.20)**</td>
<td>.45 (.20)**</td>
</tr>
</tbody>
</table>

a. Total effect is the bivariate estimate of each childhood risk factor with the violence outcome measure; direct effect is the effect of each childhood risk factor adjusted for predictors in the family, school, or peer domains at 14 years of age; indirect effect is the proportion of each childhood risk factor’s total effect mediated by each domain at 14 years of age (expressed as a change in the regression coefficient and as a percentage of the risk factor’s total effect involved in that change).

b. Indirect effects cannot be tested for statistical significance in these models; larger indirect effects reflect stronger mediation.

*p < .05, **p < .01, ***p < .001.
involvement with antisocial peers, and low neighborhood attachment at 10 years of age generally remained strong across the domain-specific tests of mediation. However, mediation effects also were observed for most early risks. Those are indicated by a risk factor’s indirect effects on violence. Larger indirect effects reflect stronger mediation by predictors within a given domain at 14 years of age. For example, hyperactivity/low attention measured at 10 years of age appeared to be mediated most strongly by predictors in the school domain at 14 years of age. Twenty-eight percent of that risk factor’s total effect on violence was mediated through the school domain. Low academic performance at 10 years of age also was mediated strongly by predictors in the school domain at 14 years of age. Forty-four percent of that risk factor’s total effect on violence was accounted for by school factors in early adolescence. Availability of drugs in a neighborhood at 10 years of age

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Male gender</td>
<td>3.3</td>
<td>4.9</td>
<td>6.1</td>
<td>3.8</td>
<td>9.4</td>
</tr>
<tr>
<td>Hyperactivity/low attention</td>
<td>3.7</td>
<td>4.4</td>
<td>4.7</td>
<td>3.4</td>
<td>8.2</td>
</tr>
<tr>
<td>Antisocial behavior</td>
<td>4.0</td>
<td>4.0</td>
<td>4.8</td>
<td>2.6</td>
<td>7.8</td>
</tr>
<tr>
<td>Parental attitudes favorable to violence</td>
<td>2.0</td>
<td>4.4</td>
<td>5.9</td>
<td>3.8</td>
<td>9.2</td>
</tr>
<tr>
<td>Low academic performance</td>
<td>1.2</td>
<td>5.0</td>
<td>5.8</td>
<td>4.1</td>
<td>9.6</td>
</tr>
<tr>
<td>Involvement with antisocial peers</td>
<td>3.7</td>
<td>4.3</td>
<td>5.5</td>
<td>2.9</td>
<td>8.4</td>
</tr>
<tr>
<td>Low family income</td>
<td>1.3</td>
<td>4.8</td>
<td>6.1</td>
<td>4.0</td>
<td>9.7</td>
</tr>
<tr>
<td>Availability of drugs</td>
<td>1.6</td>
<td>4.3</td>
<td>5.9</td>
<td>3.6</td>
<td>9.2</td>
</tr>
<tr>
<td>Low neighborhood attachment</td>
<td>1.0</td>
<td>4.8</td>
<td>6.6</td>
<td>4.4</td>
<td>10.2</td>
</tr>
</tbody>
</table>

NOTE: Numbers are Nagelkerke $R^2$ values. Nagelkerke $R^2$ values are derived from the likelihood statistic obtained in nested models. That statistic measures the proportion of explained variation in a logistic regression analysis. Interpretation but not computation is similar to $R^2$ in a linear regression analysis. Change in the $-2 \log$-likelihood statistic with the addition of each block of predictors at 14 years of age indicated in all cases a significant improvement in model fit over the base model that contained only the childhood risk.
appeared to be mediated most strongly by predictors in the peer domain at 14 years of age. Twenty-seven percent of that risk factor’s total effect on violent behavior was accounted for by peer factors at 14 years of age. Predictors in the family and school domains also mediated drug availability as a risk factor.

When all constructs across domains at 14 years of age were taken into account, the effects of most childhood risks on violence were reduced but not eliminated. The last column in Table 1 shows that the total effects of all early risks on violence, with the exception of male gender and low neighborhood attachment, dropped by 27% or more in the presence of family, school, and peer factors at 14 years of age. The effects of male gender and low neighborhood attachment at 10 years of age changed very little when predictors at 14 years of age were taken into account.

Table 2 illustrates the added proportion of variance explained in violent behavior at 18 years of age when each block of early adolescent predictors was modeled. In most cases, between 4% and 6% of additional variance in violent behavior was accounted for by predictors in each of the family, school, and peer domains at 14 years of age. When all predictors across the three domains were added simultaneously to each regression model, an additional 8% to 10% of variance in violence was explained. Thus, predictors measured at 14 years of age appeared to contribute to the explanation of violent behavior at 18 years of age after the effects of risks at 10 years of age were taken into account.

**DISCUSSION**

Many risk factors for violence examined in this study can be changed through intervention (Catalano, Arthur, Hawkins, Berglund, & Olson, 1998; Wasserman & Miller, 1998). Others are less directly changeable (such as poverty) or not changeable (such as male gender). By developing knowledge of risk factors such as poverty and male gender, research helps to identify populations that should receive interventions (Brewer et al., 1995). Thus, knowledge of these risk factors is important nonetheless in etiological studies. For programs to have an impact on populations at higher risk for violence, protective factors shown to increase resistance to risk exposure also must be addressed (Brewer et al., 1995).

To the extent that risk exposure in childhood predisposes individuals to antisocial behavior in adolescence, there is reason to consider early intervention as a key to preventing youth violence. Several criminological theories posit that, for some individuals, violence, and other forms of antisocial behavior, develop from a very early age (see Moffitt, 1993). The strong and
persistent effects of risks at 10 years of age examined in this study generally support that hypothesis. As shown in Table 1, the total effects of most childhood risks were reduced by less than 30% when risk factors from within a single domain in early adolescence were taken into account. When predictors across domains at age 14 were modeled simultaneously as mediators of childhood risks, many risk factors maintained strong associations with later violence.

At the same time, results from this study also point out that childhood risk factors have indirect effects on youth violence. The relations between most risk factors and violence partially were accounted for by later risk exposure. This is shown by the indirect effect percentages listed in the last four columns of Table 1. Results shown in Table 2 also support that conclusion. Results in Table 2 indicate that after accounting for variance in violent behavior related to a childhood risk, additional variance in violence is explained by early adolescent predictors within and across the family, school, and peer domains.

The most important mediators of childhood risk factors in this study appeared to fall in the school and peer domains at 14 years of age (see Table 1). That indicates that risk factors at 10 years of age exert influence on later violence indirectly, by affecting children’s later academic performance, their level of commitment to school, and aspirations to advance their education. Involvement with antisocial peers within and outside of gangs also appears to be important in the development of violent behavior. Findings from this study are fairly consistent with those from other studies that have examined predictors of youth violence (Battin et al., 1998; Hawkins et al., 1998; Herrenkohl et al., 2000; Resnick et al., 1997). For example, in the Add Health longitudinal study of youth in Grades 7 through 12, Resnick et al. (1997) found that although “family factors explained relatively little of the variability in violence perpetration,” school connectedness was related to violence (p. 828). Peer factors were not examined in that study.

Given the importance of school and peer factors as predictors of youth violence, those factors should be targeted in prevention programs directed toward early adolescents (Catalano & Hawkins, 1996; Hawkins & Herrenkohl, in press; Herrenkohl, Hawkins, Chung, Hill, & Battin-Pearson, 2001). Several programs of this kind already exist (Hawkins & Herrenkohl, in press). Of those, perhaps the most promising are school-based interventions that combine skills enhancement curricula for individual youth, with behavior management training for teachers and parents (Hawkins & Herrenkohl, in press; Herrenkohl et al., 2001; Wasserman & Miller, 1998). Also included in some promising preventive interventions are components to improve children’s academic achievement and their commitment to the schooling process. The strength of those programs stems from a multifaceted
An intervention approach that addresses several social, contextual, and individual risk factors and protective factors. An important goal for prevention efforts that are directed to adolescents, but which sometimes is overlooked, is to ensure that youth have opportunities to take part in prosocial activities at school and in the community (Catalano & Hawkins, 1996). Such opportunities can strengthen youth’s bonds to peers who model and reinforce prosocial behavior, as well as to parents and other adults who can offer positive guidance and support. Also important, is for parents and other caregivers to monitor youth’s social interactions to reduce long periods of unsupervised activities in the after-school hours (Brewer et al., 1995).

Limitations of the Study and Implications for Further Research

Although this study advances knowledge about predictors of youth violence by testing patterns of risk influence, there were several limitations. First, the analyses examined only a subset of known predictors of violence (Hawkins et al., 1998). A larger set of risk factors from childhood and early adolescence could be considered. Such factors might include impulsivity and risk-taking behaviors, social skill deficits, and impairments in cognitive functioning (see Hawkins et al., 1998; Herrenkohl et al., 2001, for a list of empirically supported predictors of youth violence). An examination of cultural beliefs and practices that might promote or discourage the use of violence also would be valuable. Data to address those issues were not available here.

Second, analyses in this study did not directly model the intercorrelations among risk factors at 10 years of age. Risks were examined separately here to understand their potential as possible foci for preventive interventions. This analysis approach does not provide a method of determining the unique effect of each factor.

Last, the examination of mediation effects that included predictors in the family, school, and peer domains at 14 years of age did not account for the nesting of social contexts. As hypothesized in ecological theories of human development (Bronfenbrenner, 1979), social contexts are interconnected and hierarchically situated. For example, families, schools, and peer groups are nested within communities. To understand the ways in which those differing contexts and the community interact to influence the behavior of youth, more complex analysis models would be needed.
CONCLUSION

This study involved models of mediation based on previously validated risk factors for youth violence to strengthen the understanding of developmental patterns that can lead to violent behavior in late adolescence. The study demonstrated that exposure to risks at 10 years of age increases the likelihood of later violence. Results also showed that school and peer experiences in early adolescence can influence whether youth exposed earlier to risks go on to commit violent acts later in life. Those data indicated that interventions to enhance school performance and to reduce peer negative influences might benefit those early adolescents, who, since childhood, have been at risk for committing violence.

APPENDIX

Item List for Risk Factors Measured at 10 Years of Age

Male Gender
Coded so that males = 1, females = 0.

Hyperactivity/Low Attention (Teacher/Child Behavior Checklist)
- Fails to finish things he/she starts.
- Can’t concentrate, can’t pay attention for long.
- Can’t sit still, restless, or hyperactive.
- Fidgets.
- Difficulty following directions.
- Inattentive, easily distracted.
All items were measured on scale in which 0 = not true, 1 = somewhat or sometimes true, and 2 = very true or often true. Cronbach’s alpha was .90.

Antisocial Behavior (Teacher/Child Behavior Checklist)
- Argues a lot.
- Defiant, talks back to staff.
- Cruelty, bullying, or meanness to others.
- Doesn’t get along with other pupils.
- Gets in many fights.
- Physically attacks people.
- Explosive and unpredictable behavior.
- Temper tantrums or hot temper.
- Swearing or obscene language.
Threatens people.
Fails to carry out assigned tasks.
All items were measured on a scale in which 0 = not true, 1 = somewhat or sometimes true, and 2 = very true or often true. Cronbach’s alpha was .94.

Parental Attitudes Favorable to Violence (Youth Interview)
• How do you think your parents feel about you hitting or threatening to hit someone?
  Measured on a scale in which 1 = think it’s ok, 2 = don’t care, and 3 = think it’s bad.

Low Academic Performance (School Records)
• California Achievement Test Scores

Involvement With Antisocial Peers (Youth Interview)
Asked of each of four best friends:
• Does this person do things that get him or her into trouble with the teacher [or other adults]?
• Has this person tried beer, wine, or liquor when his or her parents didn’t know about it?
Questions answered Yes or No. Cronbach’s alpha was .68.

Low Family Income
• Based on a child’s eligibility for the national school free-lunch program.

Availability of Drugs (Youth Interview)
• Do you know [personally] anyone who has tried marijuana?
• Have you ever had the chance to try marijuana?
• If you had the money and wanted to get marijuana, could you get some?
Questions answered Yes or No. Cronbach’s alpha was .58.

Low Neighborhood Attachment (Youth Interview)
• I know many people in my neighborhood.
• I like my neighborhood.
• I feel safe in my neighborhood.
All items were measured on a scale in which 1 = YES!, 2 = yes, 3 = no, and 4 = NO!. Cronbach’s alpha was .64.

Item List for Predictors Measured at 14 Years of Age

Family
Low Bonding to Parents (Youth Interview)
• Would you like to be the kind of person your mother is?
• Do you share your thoughts and feelings with your father?
• Do you share your thoughts and feelings with your mother?
• Would you like to be the kind of person your father is?
All items were measured on a scale in which 1 = *YES!*, 2 = *yes*, 3 = *no*, and 4 = *NO!*. Cronbach’s alpha was .66.

Poor Family Management (Youth Interview)
• My parents put me down. (reverse coded)
• When you are away from home, do your parents know where you are and whom you are with?
• The rules in my family are clear.
• When you have misbehaved do your parents . . . [Take time to calmly] discuss what you did [have done wrong]?
• My parents praise me for my school achievements.
• My parents notice when I am doing a good job and they let me know about it.
All items were measured on a scale in which 1 = *YES!*, 2 = *yes*, 3 = *no*, and 4 = *NO!*. Cronbach’s alpha was .70.

Family Conflict (Youth Interview)
• How often are people in your family critical of each other [criticize each other]?
• How often do you and your family argue?
• How often do people in your family get on each other’s nerves?
• How often do people in your family yell at each other?
• How often do people in your family get upset with each other?
All items were measured on a scale in which 1 = *almost always*, 2 = *fairly often*, 3 = *sometimes*, 4 = *seldom*, and 5 = *almost never*. Cronbach’s alpha was .84.

School
Low Academic Performance (Youth Interview and School Records)
• Putting them all together, what were your grades like this school year? Measured on a scale of 1 to 5 in which 1 = *mostly As*, 2 = *mostly Bs*, 3 = *mostly Cs*, 4 = *mostly Ds*, and 5 = *mostly Es or Fs*.
• California Achievement Test Scores

Low School Commitment (Youth Interview)
• I do extra work on my own in class.
• When I have an assignment to do, I keep on working on it until it is finished.
All items were measured on a scale in which 1 = *YES!*, 2 = *yes*, 3 = *no*, and 4 = *NO!*. Cronbach’s alpha was .50.

Low Educational Aspirations (Youth Interview)
• Eventually, how much schooling do you want to get?
• Eventually, how much schooling do you actually expect to get?
Measured on a scale in which 1 = go to high school for awhile, 2 = finish high school, 3 = go to college for awhile, and 4 = finish college. Cronbach’s alpha was .86.

Peer
Involvement With Antisocial Peers (Youth Interview)

• In the past year has your best friend done anything that could have gotten him/her in trouble with the police? (If yes) Was he/she arrested?
• In the past year has your second best friend done anything that could have gotten him/her in trouble with the police? (If yes) Was he/she arrested?
• In the past year has your third best friend done anything that could have gotten him/her in trouble with the police? (If yes) Was he/she arrested?

Questions answered Yes or No.

• Other than your three best friends or your own brothers and sisters, about how many kids do you know personally who in the past year have belonged to a street or youth gang?
• Other than your three best friends or your own brothers and sisters, about how many kids do you know personally who in the past year have done anything that could have gotten them in trouble with the police?

Cronbach’s alpha was .76.

Gang Membership (Youth Interview)

• Do you belong to a street or youth gang?

Question answered Yes or No. Youth’s responses were validated by asking them to provide the name of the gang to which they belonged.

NOTES

1. To create an outcome measure that was not dominated by one or two forms of violence, it was necessary to code these variables to reduce behavior frequencies; higher frequencies were understood to reflect the more common occurrence (and less serious nature) of these behaviors among adolescents.

2. Percentages of those coded as having committed a violent act on each indicator are as follows: 0.4% hit a teacher, 8.2% picked a fight, three or more times, 10.5% hit someone with the intent of hurting him or her, three or more times, 7.3% threatened someone with a weapon, 1.3% used force or threats of force to get things from others, 9.2% beat someone so badly he or she required medical attention, 2.5% hit a parent.

3. After imputation, each data set contained complete information on all 808 cases.

4. Percentages of missing data on predictors in this study ranged from 0% to 15%. Involvement with antisocial peers at 10 years of age had near 15% missing data, hyperactivity/low attention at 10 years of age had near 12% missing data, as did teacher-rated antisocial behavior (missing data on teacher measures reflect the absence of teacher ratings for a small subset of children); the remaining predictors had less than 10% missing data.
REFERENCES


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Revised Description and Measurement of Ego Development in Early Adolescence: An Artifact of the Written Procedure?

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The applicability of the Loevinger conception of ego development was explored for the period of early adolescence. Recent modifications of the earliest ego levels are summarized, and a new version of the measure is presented: the Sentence Completion Test for Children and Youth (SCT-Y). Questions were considered about the reliability and validity of this new instrument. The main question addressed was whether an oral administration would yield essentially different responses and significantly differing ego-level scores as compared to the standard written administration in an early adolescent sample (9.5 through 15.5 years of age; N = 120). The results indicated that an oral administration of the SCT-Y did not yield essentially different responses or significantly differing ego-level scores, regardless of the respondent's age, gender, reading/writing skills, and preference for either presentation mode. The findings indicate that the revision of the ego development construct and measure for (early) adolescence does not seem to be an artifact of the written procedure.

Even though the early adolescent period marks psychosocial developments common to all, it is obvious that young adolescents differ in many ways. For example, early adolescence is viewed as a normative period of increasing independence (i.e., emotional autonomy and individuation from parents; see Steinberg, 1999), yet at the same time some young adolescents are much more independent than are others. The question is whether the latter could be attributed to the former, that is, whether individual differences in the psychosocial realm (e.g., independence) might be related to developmental differences.

According to the Loevinger (1976, 1997) conception of ego development, individuals differ in the speed, timing, and extent of development, leading to significant differences in developmental maturity at any given age—a pre-
sumption clearly supported by the findings of longitudinal studies (e.g., Gfellner, 1986; Hauser, Powers, & Noam, 1991; Westenberg & Gjerde, 1999). Differential maturity would contribute to individual differences within any age cohort. In other words, young adolescents differ in many ways, partly because they differ in terms of the developmental level attained (e.g., Westenberg & Block, 1993). The possibility that individual differences might be due to developmental differences is overlooked frequently by researchers and practitioners working with (young) adolescents.

The Loevinger Conception of Ego Development

The Loevinger (1976, 1993) conception of ego development concerns the individual’s central frame of reference, or master trait, regarding the psychosocial realm. McAdams (1998) likens ego to the William James “I”—the self as subject, whereas dispositional traits, personal concerns, and life narratives reflect the “Me”—the self as object. “The ego’s relation to [these] three levels of personality is that of the I to the Me. . . . Loevinger’s ego should function as the master orchestrator of traits, concerns, and narrations” (McAdams, 1998, p. 35). Psychoanalysts also have postulated an organizing or synthesizing function of the ego in addition to the other ego functions (e.g., defense mechanisms). Loevinger (1976), however, has argued that the synthesizing function is not one among many ego functions but denotes what ego is: “The striving to master, to integrate, to make sense of experience is not one ego function among many but the essence of the ego” (p. 59).

The continuum of ego development consists of three strands—impulse control, interpersonal style, and conscious preoccupations—and is marked by nine qualitatively different milestones (see Table 1 for a brief outline). The low end of the scale is marked by the Impulsive ego level. Loevinger (1997) described individuals at the Impulsive ego level as easily yielding to their aggressive and sexual impulses and dependent on others for impulse control. They are oppositional and defiant and view rules as arbitrary and punishment as retaliatory. Impulsive individuals display an egocentric interpersonal style and expect others to cater to their needs. At the next, Self-Protective, ego level, control of self and others is viewed as crucial to further the person’s own interests. An opportunistic morality is coupled with a manipulative and exploitive attitude toward others. Rules are understood but manipulated. The overarching rule of Self-Protective individuals is to stay out of trouble and not be caught.

In contrast to the egocentric perspective characteristic of the Impulsive and Self-Protective individuals, persons at the Conformist ego level adopt a
sociocentric perspective. They are attuned to the needs, expectations, and opinions of others. Approval is valued, disapproval is feared. Everyone is, or ought to be similar, just as rules of conduct and appearance apply to everyone. The rules of the individual’s social group are accepted just because they are the rules. Conformity should not be confused with conventionality: The person might adhere rigidly to nonconventional standards. The next, Self-Aware, ego level is characterized by the awareness of personal feelings and thoughts both in self and others. The examination of inner life is accompanied by a sense of being different from others. Exceptions to rules are allowable, deviant behavior and opinions are tolerated. A good relationship is defined by the sharing of innermost feelings and thoughts. Empirical studies have indicated that the Self-Aware ego level is very rare in early adolescence, and the higher ego levels (see Table 1) are not at all relevant to young adolescents (e.g., Avery & Ryan, 1988; Cohn, 1998; Gfellner, 1986; Westenberg & Block, 1993).

Level of ego development is measured by means of the Washington University Sentence Completion Test (WUSCT) (Loevinger, 1985, 1998). The WUSCT yields 36 responses that are rated by an equal number of very

<table>
<thead>
<tr>
<th>Ego Level</th>
<th>Impulse Control</th>
<th>Interpersonal Mode</th>
<th>Conscious Preoccupation</th>
</tr>
</thead>
<tbody>
<tr>
<td>E2. Impulsive</td>
<td>Impulsive</td>
<td>Egocentric, dependent</td>
<td>Bodily feelings</td>
</tr>
<tr>
<td>E3. Self-Protective</td>
<td>Opportunistic</td>
<td>Manipulative, wary</td>
<td>Trouble, control</td>
</tr>
<tr>
<td>E4. Conformist</td>
<td>Respect for</td>
<td>Cooperative, loyal</td>
<td>Appearances, behavior</td>
</tr>
<tr>
<td></td>
<td>rules</td>
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</tr>
<tr>
<td>E5. Self-Aware</td>
<td>Exceptions</td>
<td>Helpful, self-aware</td>
<td>Feelings, problems, adjustment</td>
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<td></td>
<td>allowable</td>
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<tr>
<td>E6. Conscientious</td>
<td>Self-evaluated</td>
<td>Intense, responsible</td>
<td>Motives, traits, achievements</td>
</tr>
<tr>
<td></td>
<td>standards, self-critical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E7. Individualistic</td>
<td>Tolerant</td>
<td>Mutual</td>
<td>Individuality, development, roles</td>
</tr>
<tr>
<td>E8. Autonomous</td>
<td>Coping with conflict</td>
<td>Interdependent</td>
<td>Self-fulfillment, psychological causation</td>
</tr>
</tbody>
</table>

detailed scoring manuals. The cumulative frequency of the 36-item ratings is converted to a total protocol rating by means of a set of objective scoring rules. Many studies have supported the construct validity of the WUSCT (see Carlson & Westenberg, 1998; Hauser, 1976; Loevinger, 1979; Manners & Durkin, 2000; Westenberg, Blasi, & Cohn, 1998). The presumption that differential maturity is related to individual differences within age cohorts has been demonstrated in numerous research studies that have addressed a wide variety of issues (e.g., John, Pals, & Westenberg, 1998; Pals & John, 1998).


Despite the impressive construct validity of the WUSCT as a measure of ego maturity, two questions surfaced as far as ego development in the early adolescent period is concerned: (a) Is a description of ego development based on adults also applicable to ego development in the early adolescent period? and (b) Is the sentence completion procedure used with adults also appropriate for measuring ego development in young adolescents?

Measuring and Describing Ego Development in Children and Adolescents

As noted previously, the Impulsive through Conformist ego levels are of particular relevance to late childhood and early adolescence. Yet the descriptions of those levels were based primarily on research with respondents who were older than 18 years of age (see Loevinger, 1985, 1998; Loevinger & Wessler, 1970). Likewise, the WUSCT was constructed for measuring ego level in (young) adults (Loevinger, 1993, 1998). On the basis of conceptual analyses and comparisons with other developmental models, however,
Loevinger (1976) has argued that the sequence of adult ego levels reflects developments occurring in childhood and adolescence. However, the empirical success of the measure obscured the fundamental question as to whether the stage descriptions and the measurement instrument would be adequate for describing and measuring ego level in children and youth. Are theoretical generalizations about the “lower” ego levels, as derived from adults, conceptually and empirically similar to the “early” ego levels of children and youth moving through those stages during a normal developmental course?

On the basis of a large-scale investigation of ego development in more than 2,500 children and youth, Westenberg, Treffers, and Drewes (1998) concluded that the WUSCT test protocol and scoring manual had to be modified in several ways to be adequate for measuring ego development of adolescents and children older than 8 years of age: the Sentence Completion Test for Children and Youth (SCT-Y)1 (see Loevinger, 1998). Moreover, the feedback loop between the scoring categories in the manual, on one hand, and the descriptions of the ego levels on the other hand (i.e., microvalidation; see Loevinger, 1993), resulted in changes in the descriptions of the earliest ego levels to be adequate for children and adolescents (Westenberg, Jonckheer, Treffers, & Drewes, 1998).

A brief account of the differences with the Loevinger description are provided here (for a full account of the similarities and differences with the Loevinger description of these ego levels, see Westenberg, Jonckheer, et al., 1998). The Impulsive child or adolescent did not display just aggressive or sexual impulses but also displayed empathic impulses and prosocial attitudes. The Impulsive child is preoccupied with aggression, but mostly in terms of being the victim and not in terms of being the perpetrator, and displays a general sense of vulnerability. Moreover, the oppositional and defiant attitude attributed to the Impulsive adult was not typical of the Impulsive child. Impulsive children appreciate concrete rules in specific situations, but due to their impulsivity they require supervision and regular reminders.

The research on children and adolescents also yielded a more balanced picture of the Self-Protective level. Consistent with the Loevinger description, control is of paramount importance, but the need for control is not displayed only through a manipulative and exploitive attitude toward others. In contrast, the Self-Protective child or adolescent prefers self-focused forms of control (e.g., a general denial of hurt feelings and disappointments), displays a self-reliant attitude, and has a live-and-let-live philosophy of life. Emotional and behavioral autonomy is valued more than controlling others. In contrast with the Loevinger description of Impulsive and Self-Protective
adults, children, and youth at these levels report positive interactions and appreciative relations with parents and friends.

Finally, the description of the Conformist level also was adjusted to be appropriate for children and adolescents. Central in the Loevinger description of this level is the mindless conformity to externally imposed and concrete rules of the social group of which the individual happens to be part. The Conformist child or adolescent, however, appears to adhere to a few ground rules, such as equality and reciprocity. He or she is likely to oppose specific rules that are inconsistent with those ground rules and will be inclined to shy away from nonegalitarian groups.

The differences were marginal for the Self-Aware level and beyond, probably due to the age overlap of participants at these levels in the Loevinger samples and the normative samples (Westenberg, Jonckheer, et al., 1998). The differences with the Loevinger model for the first three ego levels are attributed to the younger age of participants in the normative samples and to the greater representation of the lowest ego levels. Loevinger (1998) realized that by using adult samples, “One cannot extrapolate very far to ego levels that are underrepresented” (p. 24). On the basis of many low ego-level children and adolescents, however, “A more positive image of the earliest stages emerged” (Loevinger, Carlson, Westenberg, & Lasker, 1998, p. 52).

Many questions can be asked about the reliability and validity of the newly constructed SCT-Y, and some of those questions have been addressed already. The SCT-Y does very well in terms of the usual indices of reliability, showing high interrater agreement, internal consistency, and split-half and test-retest stability (Westenberg et al., 2000). In addition, Drewes and Westenberg (2001) demonstrated the robustness of the SCT-Y with respect to varying test instructions. The effects of two differing test instructions were studied with a split-half within-participants design. Respondents were asked to complete the first half of the SCT-Y under the standard instructions (“Complete the following sentences in any way that you wish”) and were asked to complete the second half under two modified instructions: (a) an instruction irrelevant to the ego development construct (a social desirability or “be good” instruction: “Complete the following sentences in such a way that you’ll make a very good impression on others”), and (b) an instruction highly relevant to the ego development construct (a high ego level or “be mature” instruction: “Complete the following sentences in as adult and mature a manner as you can”). As was expected, the “be good” instruction did not have an effect on ego-level scores, whereas the “be mature” instruction had a significant but small effect (an average raise of .19 ego level). The higher scores under the “be mature” instructions were interpreted to reflect the respondents’ optimal ego
level (best functioning), whereas the ego-level score under the standard instructions reflects their functional ego level (normal functioning).

The findings reported by Drewes and Westenberg (2001) are a first indication of the construct validity of the SCT-Y. The SCT-Y was not susceptible to an instruction that did not convey information relevant to the ego development construct (i.e., the “be good” instruction). In contrast, the SCT-Y was mildly susceptible to an instruction that was highly relevant to the construct of ego maturity (i.e., the “be mature” instruction). Another indication of the construct validity of the SCT-Y was provided by the findings of research on the relation between ego development and anxiety disorders in a population of children and adolescents referred to an outpatient psychiatric clinic (Westenberg et al., 1999). The two most prevalent and debilitating anxiety disorders in children and adolescents were related empirically to conceptually equivalent ego levels: (a) Separation anxiety disorder was empirically related to the Impulsive level (both share a number of key concepts, such as vulnerability and dependency), and (b) overanxious disorder was related to the Conformist level (both share the concern about the adequateness of behavior, appearance, or performance, and assurance seeking). Those relations were controlled statistically for socioeconomic status and IQ.

Those findings attest to the construct validity of the SCT-Y, but several additional issues still need to be addressed. A particularly pressing question is whether the revised scoring manual and new descriptions of the earliest ego levels might be an artifact of the written procedure used to study ego development in late childhood and adolescence. Would an oral mode of presentation be a more appropriate procedure for measuring ego development in late childhood and early adolescence? Would an oral procedure yield different, perhaps more elaborated responses, or would it lead only to differing ego level scores?

**Written as Compared to Oral Administration of the SCT-Y**

The standard administration procedure for the SCT-Y, as for the WUSCT, requires participants to write down their own completions, and the administrator is instructed to grant respondents sufficient privacy to do so. This procedure is consistent with the concept of ego development because it allows individuals to respond in their own way and pace and to display their own frame of reference without being guided by the administrator’s presence or reactions. In other words, the written procedure minimizes the demand characteristics of the test setting. Moreover, the written procedure is the most efficient way to collect SCT data (e.g., it allows for group testing). Yet the ques-
tion remains whether respondents, particularly children and young adolescents, would provide different types of responses and would obtain differing ego-level scores if the SCT-Y were to be administered orally. Some respondents might not be accustomed to expressing their thoughts and feelings in writing and/or might not have developed sufficient writing skills to do so. They might benefit from oral testing. In contrast, the written procedure generally would allow for more time to think about a response. More thoughtful and carefully crafted responses might lead to higher ego-level scores for the written mode.

To date, no study has been designed for investigation of an oral as compared to a written administration of the SCT-Y, but three such studies were conducted for the WUSCT (Hansell, Sparacino, Ronchi, & Strrodbeck, 1985; McGammon, 1981; Streich & Swensen, 1985). All three studies used the same design: One-half of the items were presented in the standard written mode, the other half were presented in the oral mode (counterbalancing the order of the presentation mode). Streich and Swensen (1985) studied three age groups: college age, community residents, and retired people \((n = 64\) in each group). They did not find a main effect for mode of presentation and did not find an interaction effect for age group by presentation mode. A significant interaction effect was observed for gender: “Women tended to score higher on the written half” (Streich & Swensen, 1985, p. 288) \((p < .05)\).

Hansell et al. (1985) studied the differences for written and telephone administration of the WUSCT in a mostly adult sample from a rural community \((N = 221)\). The telephone ego-level scores generally were lower than the written scores \((p < .001)\), and this effect was attributed to the greater time to reflect on and modify written responses. The difference between telephone and written scores was pronounced, particularly for women.

The only study in which adolescents were included was conducted by McGammon (1981), who studied a group of 6th and a group of 10th graders \((n = 40\) in each grade). The two presentation modes did not yield any ego-level differences for the boys, but there was a significant difference for the girls. For girls, the written mode yielded higher scores than the oral mode \((p < .01\) in both age groups). The interaction effect for age group was not significant: The 6th graders did not benefit more from either presentation than did the 10th graders. McGammon concluded that in the population sampled, “Starting at least with the sixth grade, boys and girls have developed sufficient writing skills to make oral testing unwarranted” (pp. 234-235).

In summary, the findings of those studies indicate that an oral mode of presentation of the WUSCT does not support the average adolescent or adult respondent to obtain higher ego-level scores. In fact, an unanticipated but consistent finding was that females obtained lower average scores with the
oral mode; they appeared to benefit from the written mode. That un-
anticipated finding needs to be studied more thoroughly. Moreover, a written/
oral study has not been conducted yet with respondents below the sixth grade.

**RESEARCH AIMS**

The general aim for the current study was to investigate possible differ-
ences between oral and written presentation modes for the newly constructed
SCT-Y for a sample of early adolescents (9.5 through 15.5 years of age,
Grades 4 through 9). Would oral responses be any different from written
responses, and would that difference lead to differing ego-level scores? Such
a study had not been conducted yet with the SCT-Y and as yet had not been
conducted with fourth- and fifth-grade students using the WUSCT. Below
the sixth grade, reading and writing skills might not have developed suffi-
ciently for a written administration of the SCT-Y; hence, the youngest partici-
pants might benefit from an oral presentation. This study was the first one
through which to take an explicit look at the effect of individual differences in
reading/writing skills in the youngest group (fourth- through sixth-grade stu-
dents) and to study the possible effect of a personal preference for either pre-
sentation mode. Interaction effects for gender were also studied systemati-
cally. This study was also the first for the study of the utility and reliability of
the measure under both presentation modes. The manual for the SCT-Y was
developed on the basis of written responses and might not be adequate for
classifying oral responses.

**METHOD**

**Participants**

One hundred twenty participants were recruited at two schools in a
middle-class suburb in Holland: three classrooms at an elementary school
(9 through 12 years of age, Grades 4 through 6) and three classrooms at a high
school (12 through 15 years of age, Grades 7 through 9). At each grade level,
20 participants were selected randomly from one classroom (10 girls and 10
boys) and were assigned randomly to the subgroups created by the research
design (in each grade, 5 girls and 5 boys received the oral administration first
and the written administration second and vice versa for the other 5 girls and
boys). The average age of the participants was 12.5 years of age ($SD = 1.77$;
range: 9.5 through 15.8 years of age; for boys, $X = 12.5$; for girls, $X = 12.4$).
Research Design

A split-half within-participants design was used, that is, each participant received half of the 32 SCT-Y items with the standard written instructions and received the other 16 items by the oral mode. All 120 participants thus served as their own control. Participants were not told that they would receive first a written and then an oral mode (or vice versa) to prevent their responses on the first half (oral or written) from being affected by knowing what would come next (written or oral). In addition, the order of the oral and written half of the SCT-Y was counterbalanced: 60 participants received the written mode first and the oral half second and vice versa for the other 60 participants, who received the oral mode first and the written half second (as noted previously, the counterbalancing was done equally within each grade and gender). By this procedure, it would be possible to document change within-participants while controlling for carryover and practice effects. Counterbalancing the order of the presentation mode also created a between-participants design: The 60 respondents receiving the oral version first could be compared with the 60 respondents receiving the written version first and vice versa for the second part.

To check whether the first or the second 16 items of the SCT-Y might be more susceptible to an oral or written procedure, the two halves of the SCT-Y also were counterbalanced: 60 participants received items 1 through 16 of the SCT-Y in the written mode and items 17 through 32 in the oral mode, whereas the other 60 participants received items 17 through 32 in the written mode and items 1 through 16 in the oral mode. The SCT-Y raters were blind to the presentation mode (all responses from both conditions were mixed and put in random order).

Instruments

Level of ego development was measured by means of the SCT-Y (Westenberg, Treffers, et al., 1998). The SCT-Y consists of 32 items, and the respondent is instructed to “complete the following sentences in any way that you wish.” The data were scored by the same procedures used to score the WUSCT (Hy & Loevinger, 1996; Loevinger, 1998): (a) For each respondent, the 32 responses were typed into a spreadsheet; (b) the responses then were sorted by item and were put in random order (i.e., all 120 responses to Item 1 were grouped together and randomized); (c) information on the participant and the conditions was hidden from view to allow for ratings out of context (i.e., blind ratings with respect to age, grade, and written-oral condition); (d) each response was rated by two independent raters using the scoring man-
ual for the SCT-Y (a rating consists of a literal match between the response and a response category in the scoring manual; see Westenberg, Jonckheer, et al., 1998); (e) the relatively few differences between the two raters were resolved by asking a third rater to rate these responses, to resolve the differences by a majority vote; (f) the responses and the ego-level ratings then were resorted to the original protocols, yielding two sets of 16 item ratings for each individual (one set for the oral mode and another for the written mode); and (g) the frequency distribution of the two sets of item ratings was converged into two total scores.

The Total Protocol Rating (TPR; i.e., level of ego development) was computed by converging the cumulative frequency distribution of the item ratings into a discrete ego-level score on the basis of the ogive rules, yielding an oral and a written TPR for each participant. In addition, an Item Sum Score (ISS) was computed by adding the 16 item ratings for both test halves, yielding an oral and a written ISS for each participant. Even though the ISS is not considered to be an adequate index of level of ego development, it was used to maximize the likelihood of finding differences between oral and written administration modes (i.e., a continuous variable is frequently more powerful statistically than is an ordinal variable). Incidentally, the distribution of item ratings was doubled to arrive at 32 item ratings for the written and oral test halves before the ISS and TPR were computed.

The reading/writing skills of the fourth-grade through sixth-grade students were assessed in two ways. First, the teachers were asked for their judgment on whether their pupils might experience significant difficulties in completing the SCT-Y in a written format, rated on a 5-point scale ranging from 1 = no, not at all through 5 = yes, definitely. Second, elementary education in the Netherlands includes a standardized system for tracking the language development of the children, consisting of five subscales covering three areas (reading, spelling, and writing). The six available scores (including the teachers’ judgment) were interrelated, as was shown by a Cronbach’s alpha of .89. On the basis of the six scores, the group was divided into three equal-sized groups: a group with relatively low reading/writing skills, an intermediate group, and a group with good reading/writing skills (n = 20 in each group). Such reading/writing data were not available for the seventh- through ninth-grade students, but on the basis of the McGammon (1981) findings it was assumed that by the seventh grade all schoolchildren would have developed sufficient writing skills for a written administration of the SCT-Y.

To study the effect of personal preference for either administration procedure, participants were asked two questions (after the SCT-Y had been completed): “Which procedure did you like best (was most fun to do)?” and “Which procedure was easiest for you?” Responses to both questions were
rated on two separate 3-point scales: 1 = the written procedure was liked best or was the easiest, 2 = no procedure was more fun or easier than the other, and 3 = the oral procedure was liked best or was the easiest.

RESULTS

The first issue to be explored was the question of whether oral responses would differ from written responses in terms of the type and the length of the response. Whether the type of the oral responses differed from the written responses was studied in terms of the comparative utility of the scoring manual of the SCT-Y in the oral as compared with the written presentation mode. Could orally elicited responses be classified readily by the current scoring manual developed on the basis of written responses?

In the written mode, an average of 92.8% of the responses (32 items, 60 responses per item) could be classified readily on the basis of the scoring categories provided by the scoring manual for the SCT-Y (range: 75% through 100%). In the oral mode, an even higher average of 95.6% of the responses (32 items, 60 responses per item) could be classified with the scoring manual (range: 80% through 100%). Thus, even though the manual was developed on the basis of written responses, it covered a larger percentage of the oral responses. However, according to a chi-square test that difference was not significant statistically.

Second, the potential difference between oral and written responses was studied also in terms of the length of the response (i.e., the number of words). The average length of a written response (\(\overline{X} = 5.31\) words) was lower than the average length of an oral response (\(\overline{X} = 5.75\) words), but that difference was not significant (\(t = 1.79, ns\)). Those findings indicate that oral responses are not essentially different from written responses in terms of type or length.

The second set of analyses concerned the reliability of the SCT-Y under both conditions. The first aspect of reliability studied was the interrater agreement between the two independent raters. The average interrater agreement across the 32 items (60 responses per item) for the written condition was 87.4% for perfect agreement (range: 72.4% through 98.3%) and 96.1% if allowing for one-stage disagreements (range: 91.3% through 100%). The interrater agreement for the oral condition was highly similar: 87.7% for perfect agreement (range: 71.7% through 98.3%) and 96.4% if allowing for one-stage disagreements (range: 87.2% through 100%). The Kappa index of interrater agreement ranged from .63 to .98 in the written condition (average Kappa was .78) and ranged from .62 to .98 in the oral condition (average Kappa was .82; all Kappas were significant statistically at the .0001 level).
summary, the intrarater reliability was equally high under both conditions and compared favorably with the level of rater agreement reported in other studies. The relatively few disagreements were resolved by a third rater (see Method section).

The second aspect of reliability concerns the internal consistency of the items under both conditions (Cronbach’s alpha). The internal consistency of the SCT-Y could not be computed across all 32 items because each respondent completed half of the items written and the other half orally. The results showed comparable internal consistency for both presentation modes: Items 1 through 16 displayed an alpha of .81 for the written mode and an alpha of .81 for the oral mode, and Items 17 through 32 displayed an alpha of .81 for the written mode and an alpha of .75 for the oral mode. If corrected for the number of items, these alphas would compare favorably with the alphas reported in the literature for the 36-item WUSCT (see Loevinger, 1998).

The third aspect of reliability concerns the split-half rank-order stability of the ego-level scores. Ego-level scores obtained on the oral half of the SCT-Y correlated significantly with the scores obtained on the written half: .77 for the ISS and .63 for the TPR ($p < .0001$). The correlations were not different significantly for girls or for boys or for the different age groups. Those correlations indicate that, by and large, individuals maintain their rank-order position across both presentation modes. Indeed, those correlations are hardly lower than the split-half reliability of the WUSCT administered entirely in the written mode. Novy and Francis (1992) reported a correlation of .79 for split-half ISS scores, as compared to a correlation of .77 observed in the present study.

The high utility and reliability of the scoring manual for both presentation modes allowed for the third set of analyses. Those analyses addressed the question of whether different presentation modes would yield differing ego-level scores. The findings indicated that the different modes did not yield differing ego-level scores. First, in both conditions, about half of the participants were at the Self-Protective ego level, about one-quarter were at the Impulsive level, and one-quarter were at the Conformist level. In other words, in the present sample the Self-Protective level was the modal level of ego development, regardless of presentation mode. Only 4 participants (3.3%) scored at the Self-Aware or Conscientious ego levels. Those cases were considered to be outliers and were added to the group of Conformist individuals. Therefore, the TPR scores ranged from 2 = Impulsive level through 4 = Conformist level.

Second, according to a repeated measures ANOVA, the within-participants main effect of presentation mode on ego-level scores was not significant statistically. The TPR and the ISS scores were remarkably similar for both pre-
sentation modes: (a) For the written mode the mean TPR was 3.08 ($SD = 0.76$) and for the oral mode the mean TPR was 3.15 ($SD = 0.67$; $F = 1.81$, $ns$), and (b) for the written mode the mean ISS was 105.10 ($SD = 16.4$) and for the oral mode the mean ISS was 105.16 ($SD = 15.2$; $F = 0.01$, $ns$). Across the board, an oral or written mode of presentation did not affect ego-level scores, and the Self-Protective ego level was the modal and the mean level of ego development in the present sample.

The results also were computed separately for the two differing orders of the oral and the written modes (oral-written or written-oral) to investigate possible order effects and study between-participants effects. The results presented in Table 2 indicate neither significant order effects nor significant between-participants effects.

Similarly, no interaction effects were observed for the order of the selected items (i.e., Items 1 through 16 or Items 17 through 32 of the SCT-Y). Therefore, the discussion of the following analyses will be based on the oral/written distinction, without further reference to the order of the items or the order in which the presentation modes were used.

The fourth set of analyses concerned the possible interaction effects of presentation mode by several individual difference variables: age/grade, gender, reading/writing skills, and preference for either presentation mode. As a test of the possible interaction effect of presentation mode by age, participants were grouped into three equal-sized age groups: 9.5 through 11.5, 11.5 through 13.5, and 13.5 through 15.5 years of age ($n = 40$ in each group; see Table 3). The interaction effect of presentation mode by age group was not significant statistically for the TPR but was significant for the ISS ($F = 3.31$, $p < .05$). However, none of the observed ego-level differences (i.e., ISS ratings) for the oral and written administration modes was significant statistically by separate $t$ tests. The interaction effect of presentation mode by grade level was not significant either, neither for the TPR nor for the ISS. In other words, no age group or grade level benefited significantly from either presentation mode. Naturally, age and grade level were related strongly to level of ego development, regardless of presentation mode. For the written procedure the correlations with age were .65 for the TPS and .67 for the ISS ($p < .0001$). For the oral procedure the correlations with age were .65 for the TPS and .69 for the ISS ($p < .0001$).

The reviewed studies in which the WUSCT was used indicated an interaction effect for gender: Girls and women scored higher on the written mode as compared to the oral mode, whereas no effect of presentation mode was observed for boys and for men (e.g., McGannon, 1981). However, that interaction effect was not tested statistically in those studies. A significant interaction effect of presentation mode by gender was not observed in the
findings of the present study: Neither the girls nor the boys scored significantly higher on the oral or written presentation modes (see Table 3). However, as was to be expected on the basis of previous research with the WUSCT (see Cohn, 1991), girls scored higher than did boys, regardless of presentation mode (see Table 3). Yet that main effect for gender did not reach statistical significance at the .05 level.

An interaction effect of presentation mode by reading/writing skills was not found, either. Information about individual reading/writing skills was available only for the fourth- through sixth-grade students. A repeated measures ANOVA did not yield a significant interaction effect, that is, at each of the three reading/writing levels there was no significant difference between the oral and written halves of the SCT-Y. In addition, reading/writing scores

### TABLE 2: Written or Oral Ego-Level Scores: Within-Subject and Between-Participants Analyses (means, with standard deviations in parentheses)

<table>
<thead>
<tr>
<th></th>
<th>Total Protocol Rating (TPR)</th>
<th>Item Sum Score (ISS)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Written</td>
<td>Oral</td>
</tr>
<tr>
<td>Group 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Written</td>
<td>3.12 (0.74)</td>
<td>3.20 (0.66)</td>
</tr>
<tr>
<td>Oral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 2</td>
<td>3.10 (0.68)</td>
<td>3.03 (0.78)</td>
</tr>
</tbody>
</table>

NOTE: Group 1 = first half of Sentence Completion Test for Children and Youth (SCT-Y) written \((n = 60)\), second half oral; Group 2 = first half of SCT-Y oral, second half written \((n = 60)\).

### TABLE 3: Written or Oral Ego-Level Scores by Gender, Grade, and Age: Within-Participants Analyses (means, with standard deviations in parentheses)

<table>
<thead>
<tr>
<th></th>
<th>Total Protocol Rating (TPR)</th>
<th>Item Sum Score (ISS)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Written</td>
<td>Oral</td>
</tr>
<tr>
<td>Boys</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Written</td>
<td>3.00 (0.74)</td>
<td>3.05 (0.65)</td>
</tr>
<tr>
<td>Oral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Girls</td>
<td>3.15 (0.78)</td>
<td>3.25 (0.68)</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.5-11.5</td>
<td>2.45 (0.55)</td>
<td>2.63 (0.54)</td>
</tr>
<tr>
<td>11.5-13.5</td>
<td>3.17 (0.70)</td>
<td>3.17 (0.54)</td>
</tr>
<tr>
<td>13.5-15.5</td>
<td>3.62 (0.49)</td>
<td>3.67 (0.48)</td>
</tr>
<tr>
<td>Total</td>
<td>3.08 (0.76)</td>
<td>3.15 (0.67)</td>
</tr>
</tbody>
</table>

### Table 2: Written or Oral Ego-Level Scores: Within-Subject and Between-Participants Analyses (means, with standard deviations in parentheses)

### Table 3: Written or Oral Ego-Level Scores by Gender, Grade, and Age: Within-Participants Analyses (means, with standard deviations in parentheses)
were uncorrelated with the oral/written difference scores \((r = -.07\) for the ISS; \(r = .03\) for the TPR). Apparently, individual differences in reading/writing levels do not contribute to a difference between oral and written ego-level scores. In other words, participants with relatively poor reading/writing skills did not benefit from an oral presentation, and respondents with relatively good reading/writing skills did not benefit from a written presentation. However, the reading/writing skills were related positively and significantly to ego-level scores and, surprisingly, were related more strongly to oral ego-level scores (ISS \(r = .54\); TPR \(r = .57\); \(p < .001\)) than to written scores (ISS \(r = .47\); TPR \(r = .42\); \(p < .001\)). If age and grade level were controlled, the correlation between reading/writing skills and ego-level scores remained significant at the .05 level.

The last set of data analyses concerns the respondent’s personal preference for either presentation mode. Participants were asked which presentation mode they felt was easier (the easy factor) and which one they liked best (the liking factor). Fifty-five participants indicated that the oral procedure was easiest (45.8%) and 53 respondents indicated that they liked the oral procedure best (44.2%). A similar proportion preferred the written procedure: The written procedure was easiest for 52 respondents (43.3%) and was liked best by 50 respondents (41.7%). A minority did not have a preference: 13 for the easy factor (10.8%) and 17 for the liking factor (14.2%).

On the basis of the three age groups used earlier, preference for either procedure was related significantly to age (easy factor: \(\chi^2 = 16.49, df = 4, p < .01\); liking factor: \(\chi^2 = 14.37, df = 4, p < .01\)). The oral procedure was preferred by the majority of the youngest age group (9 through 11.5 years of age): 27 members of this group thought it was easier (67.5%) and 26 members liked it best (65%). In contrast, the written procedure was preferred by the majority of the oldest age group (13.5 through 15 years of age): 23 members of this group thought it was easier (57.5%) and 21 members liked it best (52.5%). Interestingly, quite a few of the oldest group preferred the oral procedure: 15 thought it was easier to respond orally (37.5%) and 14 liked it best (35%).

The important question, however, was whether a preference for either administration mode would be related to differing ego-level scores. The results showed no interaction effect of presentation by the easy factor: (a) The oral scores were not higher than the written scores, not even for the participants who felt the oral mode to be easiest; and (b) the written scores were not higher than the oral scores, not even for the participants who felt the written mode to be easiest (same results for ISS and TPR scores). Similarly, no interaction effect was observed for presentation mode by the liking factor, at least not for TPR scores. For ISS scores, however, a significant interaction effect was observed. According to a repeated measures ANOVA, this interaction of
presentation mode by liking was significant at the .001 level ($F = 8.76$). The paired $t$ tests were significant also: (a) For the participants preferring the oral mode, the oral ego level scores ($\bar{X} = 102.51, SD = 16.22$) were higher significantly than the written scores ($\bar{X} = 98.23, SD = 16.30; t = 2.63, p = .011$); whereas (b) for the participants preferring the written mode, the written ego level scores ($\bar{X} = 110.52, SD = 15.0$) were significantly higher than the oral scores ($\bar{X} = 107.23, SD = 14.80; t = 2.66, p = .011$).

**DISCUSSION**

The findings from the present study indicate that the revised description of the lowest ego levels (Westenberg, Jonckheer, et al., 1998) and the revised scoring manual (i.e., the newly constructed SCT-Y) (Westenberg, Treffers, et al., 1998) are not an artifact of the written procedure used for studying ego development in (young) adolescents. Even though the scoring categories in the manual for the SCT-Y were developed on the basis of written responses, oral responses could be scored readily and reliably with the same scoring manual. In addition, oral responses were not more elaborate than were written responses. Those findings indicate that oral responses are not different essentially from written responses and would not have resulted in a different set of scoring manuals or stage descriptions.

With regard to the potential ego-level differences due to a written or oral presentation, the SCT-Y appears a very robust instrument, at least for this age group (9 through 15 years of age). Based on a split-half within-participants design, it was observed that ego-level scores were not affected systematically by presentation mode. The absence of significant and consistent written/oral differences was observed in all age cohorts, for both genders, at all reading/writing levels, and irrespective of the respondent’s preference. Even the participants with relatively limited reading/writing skills did not obtain significantly lower written, as compared to oral, scores.

The results indicate that the youngest respondents (9 through 12 years of age) did not benefit from an oral presentation and that the oldest respondents (12 through 15 years of age) did not benefit from a written presentation. Yet the majority of the youngest respondents preferred the oral mode, whereas the majority of the oldest respondents preferred the written mode. However, the preference for the oral or written mode was not related consistently to higher ego-level scores on the oral or written half of the SCT-Y, at least not for TPR scores. A significant interaction effect was found, however, for preference by ISS scores. Participants who preferred the oral mode did obtain higher oral ISS scores, whereas participants preferring the written mode did
obtain higher written ISS scores. Apparently, ISS scores are more susceptible to preference than are TPR scores. That finding supports the Loevinger (1998) assumption that TPR scores are less dependent on extraneous influences, such as motivation level and word count, and that ISS ratings need to be used with great caution.

The absence of an interaction effect for gender indicates that the SCT-Y is more robust than the WUSCT, at least for these young adolescents. Studies in which the WUSCT has been used revealed a consistent written/oral difference for females but not for males (i.e., females scored higher on the written half than on the oral half; Hansell et al., 1985; McGammon, 1981; Streich & Swensen, 1985). In contrast, the SCT-Y did not display that bias in favor of the girls for the written mode. On the basis of a meta-analysis, Cohn (1991) reported a main effect for gender: On average, females outscore their male counterparts. A female advantage was observed also in the present study but was not significant statistically. Those findings raised the question of whether the gender differences reported by Cohn (1991) actually might be due to a gender bias in the WUSCT (if presented in the standard, written mode). However, a large, normative study of ego development with Dutch children and adolescents, based on a written presentation of the SCT-Y, displayed a female advantage congruent with the female advantage reported by Cohn (1991; see Westenberg et al., 2000). In large or pooled samples, the female advantage emerges consistently, regardless of the particular instrument (WUSCT or SCT-Y) and regardless of nationality (American or Dutch). The absence of a significant advantage of the girls in the present sample simply might be due to unknown sampling factors. As Cohn (1991) showed through the meta-analysis, not all studies revealed a significant advantage for the girls.

The significant correlations between level of reading/writing skills and ego-level scores (written and oral ISS and TPR) resemble the reported relations with verbal intelligence: Ego level is related moderately and significantly to verbal intelligence (e.g., McGammon, 1981; Newman, Tellegen, & Bouchard, 1998; Westenberg & Block, 1993). However, although ego-level scores were related to verbal intelligence, that relation did not reflect written/oral differences (McGammon, 1981). Similarly, the present findings indicated that the level of reading/writing skills was unrelated to written/oral differences.

It might be argued that the absence of significant mean-level differences for the written and oral conditions might be due to a lack of sufficient power due to splitting the SCT-Y into two, less reliable halves. However, the present findings indicated excellent reliability for the two halves across both presentation modes. Moreover, in other studies in which the same split-half design was used, there has been documentation of significant ego-level differences.
between the two test halves. As noted previously, Drewes and Westenberg (2001) used the two halves of the SCT-Y to study the effect of the instruction to complete the sentence stems “in as adult and mature a manner as you can.” The latter instruction raised the TPR scores by a significant margin, presumably toward the respondent’s optimal ego level. Similarly, Blumentritt, Novy, Gaa, and Liberman (1996) used the two halves of the WUSCT to study the effect of the instruction to complete the sentence stems in “the most complex and thought-provoking way that you can.” The latter instruction raised the TPR scores by a statistically significant margin. In other words, the two test halves provide sufficient power for testing potential differences if the instruction is congruent with the ego development construct.

In summary, the findings indicate that the oral and written procedures virtually are interchangeable in terms of the respondents’ responses and ego-level scores, and that they both might be applied as the testing situation requires. Those and other findings with the SCT-Y (e.g., Westenberg et al., 1999) indicate that the Loevinger (1976, 1993) conception of ego development is accessible also in the early adolescent period by means of the sentence completion method. At the same time, however, important modifications are in order (see Westenberg, Jonckheer, et al., 1998). Many young adolescents are at the Impulsive or Self-Protective ego levels but do not fit the Loevinger description of those levels entirely. The majority is not hostile or manipulative predominantly but appears to be vulnerable or self-reliant. Young adolescents at the Conformist ego level do not follow very concrete rules rigidly but appear to adhere to several more abstract rules, such as reciprocity and equality in relationships.

The present findings and the findings from other studies (e.g., Avery & Ryan, 1988; Gfellner, 1986; for an overview see Cohn, 1998) indicate the Self-Protective ego level to be the modal level in the early adolescence period. According to the revised description of ego development, the most important aspect of the transition from the Impulsive to the Self-Protective ego level is the reversal of a basically dependent attitude toward a basically independent attitude (Westenberg, Jonckheer, et al., 1998). The Impulsive ego level is characterized by vulnerability and dependency on parents or other caretakers for impulse control and protection, and care generally. In contrast, the Self-Protective level is characterized by a sense of invulnerability and an emphasis on self-control and self-reliance. The Impulsive to Self-Protective transition fits the repeated observation that early adolescence is marked by a normative increase of independency (i.e., emotional autonomy and individuation; see Steinberg, 1999). Development from the Impulsive to the Self-Protective ego level provides an additional paradigm for studying the
course and dynamics of increasing independency in the early adolescence period.

In addition, the ego development paradigm also contributes to understanding of individual differences within the early adolescence period. Individual differences might be due, in part, to differential maturity, but not in a simple, linear manner. For example, independency is not just low at low ego levels and high at high ego levels, or vice versa, but is expected to display a non-linear pattern. On the basis of the revised conception of ego development, independency is expected to peak at the modal, Self-Protective ego level. In contrast, relatively immature young adolescents at the Impulsive ego level and the relatively precocious individuals at the Conformist ego level are expected to be less independent, albeit in differing ways and for differing reasons. The dependency of the Impulsive person is fueled by a basic sense of physical vulnerability, whereas the dependency of the Conformist individual is fueled by the need for belonging.

The trait approach to personality inevitably would confuse both types of dependency, mixing them up at the low end of the independency scale (or at the high end of a dependency scale). The developmental psychologist would not overlook the qualitative distinction between both kinds of dependency but might be inclined to overlook substantial differences in developmental maturity. It is the merit of the Loevinger (1976, 1993) conception and measure of ego development that it at once captures a developmental sequence and a dimension of individual differences in any age cohort (see Westenberg, Blasi, et al., 1998).

NOTE

1. The Washington University Sentence Completion Test (WUSCT) does include a separate protocol for children and adolescents (Form 2-77) (see Loevinger, 1998), but some of the items do not have a formally validated and revised scoring manual and none of the items or scoring manuals were validated specifically for use with children and adolescents. For a comparison between the items of Form 2-77 and those of the Sentence Completion Test for Children and Youth (SCT-Y), see Westenberg, Treffers, and Drewes (1998).

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