

Part IX

Cooperation, Competition, Aggression, and Bullying

Although, as discussed in the previous section, children can often be helpful and engage in prosocial behavior, so also they can engage in aggressive and bullying behaviors. In fact, cooperative and competitive behaviors can be intimately interwoven. Jacques Richard, Ada Fonzi, Franca Tani, Fulvio Tassi, Giovanni Tomada, and Barry Schneider discuss the possible definitions of both cooperation and competition, and ways in which they can be measured or assessed in childhood. They then overview our knowledge of the developmental origins of, and changes in, these behaviors. Culture is an important influence; Anglo-American children have often been found to be more competitive than other cultural groups. Gender is another important factor. The authors then relate the cooperation/competition construct to developmental outcomes such as performance, motivation, and quality of peer relationships.

There is a very substantial literature on aggressive behavior, reviewed by Marion Underwood. The title of her chapter refers to two very salient issues in the current literature: sex differences and types of aggression. Physical (and to some extent verbal) forms of aggression have long been recognized, and also a prevailing gender difference with boys showing more physical aggression. While this finding is not denied by more recent research, the definition of aggression has come to be expanded, to include more subtle forms of intent to harm others. These other forms have been described as indirect, relational, or social aggression, and social exclusion is an important example. Girls, certainly relative to physical aggression and perhaps absolutely, do experience these latter forms more than boys. Underwood carefully picks her way through these issues, and the evidence for developmental changes. She also reviews a body of research suggesting that both physical aggression, and indirect/relational/social aggression, have negative developmental outcomes. She notes some discordant findings and views here, however; and in adolescence too, there is evidence for some adaptive features of aggression which have been ignored in much research until recently (e.g., Cairns, Cairns, Neckerman, Gest, & Gariepy, 1988; Pellegrini & Bartini, 2001).

Bullying refers to a subset of aggressive behavior – in which a more powerful person or persons repeatedly attack a weaker. As with aggression generally, bullying can take various forms, which have different age and sex profiles. Ken Rigby surveys the research on bullying in childhood, which has grown greatly in volume over the last 10–15 years. He considers the various approaches to studying bullying, and gives examples of both qualitative and quantitative studies. The structural features of bullying, including motivations of the perpetrators, reactions or coping strategies of the victims, and attitudes of the peer group generally, are given detailed consideration. As Rigby indicates, the research is helping to inform school-based interventions to try to reduce this form of behavior, which if continued for long periods can be very damaging to the victims and the school climate generally.

References

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Cooperation and Competition

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Definitions of Competition and Cooperation

In much of the social-psychological and educational literature, competition is viewed as something harmful that can lead to negative consequences for children's psychosocial development, whereas cooperation is described as competent social behavior that entails many positive consequences (e.g., Foster, 1984). In spite of this common view, children from many cultures are continually encouraged to be competitive in various domains such as school and sports. Many individuals consider competition an important and healthy element in children's development (Roberts, 1992). One possible explanation of such contrasting positions is that there are as many different definitions of competition and cooperation as there are opinions regarding their effects on children.

Competition and cooperation can refer to characteristics of social situations or to the psychological states of the participants in them (Van Avermaet, 1996). For example, a competitive or cooperative structure can be imposed on children playing with a ball. In one instance, there may be strict rules and one child may be required to try to achieve a specific outcome at the expense of another child, as in a tennis match. In another instance, children may be expected to work together to try to reach a common result, as in two children throwing a ball to one another during baseball practice with the aim of developing their throwing skills. The first situation would be described as a competitive situation and the second as cooperative. However, the children involved in the activities may or may not adopt the goals, attitudes, and behaviors that correspond to the apparent external demands of the situation. For example, one of the children in the supposedly cooperative situation (i.e., baseball practice) may try to throw the ball harder than his or her partner in an attempt to be perceived as a better player by the coach. In this example, even though the

child was participating in an activity that should elicit cooperative behaviors, his or her goals and behaviors were competitive. To complicate things even further, most situations involving social interactions are not as clearly defined as competitive or cooperative, and many may in fact contain elements of competition *and* cooperation. Perhaps for these reasons, Smith (1996, p. 81) describes competition and cooperation as “often interwoven in intricate ways in their behavioral expression.”

Some definitions of competition and cooperation refer to the characteristics of social situations. For instance, Van Avermaet (1996) suggested that the extent to which the *outcomes* of a specific activity are the same for participants A and B vary along a continuum, ranging from complete positive correspondence, which leads to cooperation (i.e., if participant A performs an action that produces a specific result, participant B will obtain the same result) to total negative correspondence, which leads to competition (i.e., if participant A performs an action that brings about a specific result, participant B loses the opportunity to obtain the same result). Most activities would be situated somewhere along the continuum between total competition and total cooperation.

Charlesworth (1996) and other proponents of evolutionary biology propose a definition of competition and cooperation that is based on *resource allocation*. These researchers perceive competition as a strategy adopted to gain a limited resource in which several participants are interested, whereas they view cooperation as a collaborative effort with another to gain a shared resource. Cooperation is even described at times as one possible competitive tactic used to obtain valuable physical, social, or informational resources (Charlesworth, 1996). Thus, the presence of competition or cooperation would be determined by the consequences of social behavior on the allocation of resources. In other words, if two individuals agree to cooperate in order to gain resources, it may be inferred that competition has actually taken place if the resources are not obtained equally by both individuals. For example, two coworkers might decide to cooperate on a common project, but each because of his or her own individual desire of being promoted. If only one of the two receives a promotion, Charlesworth (1996) would argue, their “cooperation” actually constituted a competitive strategy.

Conversely, an example of a definition of competition and cooperation that refers to the psychological state of the participants is one that is based on the *goals* of the participants in social interaction. There is competition when the goals are incompatible and mutually exclusive, and there is cooperation when the goals are compatible and interdependent (Butt, 1987). However, according to some researchers, the idea that all participants cannot reach the same outcomes or accomplish the same goals in a situation may not constitute an adequate definition of competition (e.g., Roberts, 1992). Indeed, in some situations involving competition, the attainment of specific goals by one of the participants does not necessarily prevent the others from attaining some of these goals. In a spelling bee, for instance, Child A might achieve the goals of winning the contest, speaking in front of an audience, and gaining self-confidence, and at the same time, Child B might also attain the goals of speaking in front of an audience and gaining self-confidence. Consequently, Roberts (1992, p. 185) describes competition as “an evaluative system of normative social comparison in which being competent is important.”

All of the definitions presented above are based on a unidimensional concept of competition. This unidimensional view may explain why some people perceive competition as either totally healthy or totally unhealthy. Tassi and Schneider (1997) propose a multidimensional

mensional definition of competition according to which it is possible to compete for different reasons, which lead to different consequences. They distinguish between *other-referenced* competition (i.e., competing in order to be proven superior to others) and *task-oriented* competition (i.e., competing in order to do well at something). Others have also adopted this multidimensional view of competition. For instance, Griffin-Pierson (1990) makes a distinction between *interpersonal* competition, which she portrays as a desire to do better than others or win, and *goal* competition, which she describes as an endeavor to achieve excellence. Similarly, Ryckman, Libby, van den Borne, Gold, and Lindner (1997) define two types of competitive attitudes: People who exhibit a *personal development* competitive attitude generally try to improve their skills regardless of the outcome, whereas those who manifest a *hypercompetitive* attitude usually possess a strong desire to achieve a specific outcome regardless of the necessary means required. These multidimensional models assume that some form of competition can exist without the desire to outperform another person or obtain a greater share of resources than someone else. Some classic theorists, however, would not use the term “competition” in that way. As Kohn (1992, p. 6) puts it: “Competition is fundamentally an interactive word, like kissing, and it stretches the term beyond usefulness to speak of competing with oneself.” Furthermore, according to Sherif (1976), it is possible to compete against a socially shared standard (e.g., trying to run 100 meters faster than the national record), but comparing with oneself (e.g., trying to run 100 meters faster than your previous best) does not constitute competition because there is no social comparison involved.

Methodological Issues in the Study of Cooperation and Competition

Researchers have devised methodologies that either: (a) manipulate the competitive or cooperative nature of specific situations in order to study their effects on children’s behaviors; or (b) measure children’s individual preferences for competitive or cooperative interaction. There are at least two commonly used methods to manipulate the competitive or cooperative nature of children’s games or tasks. The first technique consists of using competitive, cooperative, or individualistic instructions when explaining the objective of the task (e.g., Butler, 1990; Schmidt, Ollendick, & Stanowicz, 1988). For example, Butler (1990, p. 203) gave the following competitive instructions to half the participants in her study: “Try and make the best copy of this drawing. Try and make the best copy in your group. I shall collect your copies to judge who made the best copy,” and the following individualistic instructions to the other half: “Try to copy the drawing as closely as you can. I am collecting all the pictures that children copy with stickers.”

Another strategy for controlling the competitive or cooperative nature of the activity consists of using cooperative, competitive, or individualistic reward structures (e.g., Hom, Berger, Duncan, Miller, & Blevin, 1994; Newcomb, Brady, & Hartup, 1979). In their study of the effects of reward on intrinsic motivation, Hom et al. (1994) informed children in the cooperative group that the amount of candy they would each receive depended on their team’s performance, whereas children in the individualistic group were told that the reward was linked only to their own individual performances.

Children's preferences for cooperative or competitive interaction have been assessed mainly with dyadic games, forced-choice resource allocation measures, and questionnaires. Madsen, Kagan, and colleagues pioneered the use of dyadic games (e.g., Kagan & Madsen, 1971; Madsen, 1971) and forced-choice resource allocation measures (e.g., Kagan & Knight, 1979) in their cross-cultural studies of children's competition and cooperation. The marble-pull game (Madsen, 1971) is the earliest of the dyadic games, and most of the other games are structured according to the same general principles. In the marble-pull game, a plastic cup is placed over a marble on a table. Two strings are attached to each side of the cup. If both children pull on their strings in opposite directions at the same time, the cup separates in two pieces and the marble is released. When this happens, no one collects the marble. If one child pulls toward his or her side and the other releases the string, the cup does not separate and the first child can capture the marble. The game is played over repetitive trials and the marbles obtained by each child are later exchanged for prizes. The only way marbles can be obtained equally is if children cooperate by taking turns.

In forced-choice measures of resource allocation, children are asked to choose between different possible allocations of tokens. The distribution of tokens can either favor themselves, another peer, or neither. Choices favoring oneself are considered competitive, whereas selections privileging another peer, or neither, are considered cooperative. Tokens are also later exchanged for prizes. Dyadic games and resource-allocation measures enable researchers to directly observe children's cooperative/competitive behaviors and preferences. However, this is often done in laboratory settings in the presence of examiners and may not necessarily present an accurate picture of children's behaviors in naturalistic settings with their peers.

Because of this, some researchers assess children's competitive or cooperative preferences by self-report questionnaires (e.g., Engelhard & Monsaas, 1989), and by peer or teacher ratings of competitive and/or cooperative behaviors (e.g., Kerns & Barth, 1995; Tassi & Schneider, 1997). Although self-reports and ratings may offer greater insights into the day-to-day competitive and cooperative behaviors of children with their peers, they do not permit direct observation on the part of the researchers who must rely on the accuracy of the informant. Tassi and Schneider (1997) argue that peer ratings, compared to self-reports, may provide more accurate data on children's competitive and cooperative behaviors.

In spite of their respective limitations, all of those innovative methodologies have assisted researchers in studying the relationships between competition/cooperation in children's behaviors and various relevant variables. The rest of the chapter is devoted to the presumed origins and possible outcomes of children's cooperation and competition.

The Origins of Competition and Cooperation in Children's Behaviors

In this section, we review studies that trace the emergence of competitive and cooperative behaviors in children's interaction.

First manifestations of competitive and cooperative behaviors

According to Piaget (1950), cooperation emerges during the later stages of children's moral development, whereas Vygotsky (1978) maintained that cooperation appears earlier. Their theories have prompted developmental researchers to investigate preschoolers' peer interaction. Verba (1994) observed 1- to 4-year-old children who were engaged in spontaneous joint activity with objects during free play. Verba reported many examples of early cooperation and competition, such as "putting forward ideas that they tried to have their partner adopt, pooling their creative efforts in an atmosphere of good will, taking conflicting stands, and attempting to resolve disagreement (p. 277)."

Reports of early peer cooperation are also found elsewhere. Garnier and Latour (1994) observed 2-, 3-, and 4-year-old children during free play. They assessed *gregariousness*, or the formation of subgroups; the nature of *play*, ranging from no cooperation to high cooperation; and, the degree of interdependence between the members of the subgroups. No differences were found between age groups for all three dimensions of cooperation. There was evidence of cooperation in all age groups which, according to the authors, suggests that cooperation emerges well before the later stages of childhood social development.

There may be important mediating variables that affect the emergence of cooperation in young children. Cauley and Tyler (1989) reported a significant association between preschoolers' self-concepts and their cooperative behaviors as assessed by teacher evaluations and direct observations. Preschoolers with more positive self-concepts were more cooperative than peers with less positive self-concepts. A group of Italian researchers studied the contributions of several intra-individual and contextual factors in promoting cooperative behavior in preschoolers and school-age children. Several processes were found to contribute: capacity for symbolic play, an internal sense of security, and school environments that promote autonomous resolution of conflict with peers. Dogmatism in mothers' child rearing was negatively associated with cooperation (Fonzi, 1991).

Individual differences in cooperative behaviors may also be related to parent-child relationships, which have been found to be associated with children's peer relationships (e.g., Cohn, Patterson, & Christopoulos, 1991). Kerns and Barth (1995) investigated the associations between early parent-child relationships (i.e., attachment) and preschool children's friendly-cooperative behaviors with peers. They found a positive association between security in paternal attachment (as measured by a Q-set sorting task) and teacher ratings of friendly-cooperative behaviors; A similar association was not obtained for maternal attachment. Given the study's cross-sectional design, the researchers were not able to identify causal relationships between the variables. Longitudinal data would be useful in determining, for instance, the implications of early parent-child relationship qualities for subsequent peer cooperation and competition.

Perceived power in parent-child relationships may also be linked to cooperative or competitive behaviors. A study by Bugental and Martorell (1999) showed that 6- to 10-year-old children whose mothers and fathers perceived that they did not have more power than their children demonstrated more verbal competition during competitive and learning activities with their peers than children of parents with high perceived power. Verbal competition was defined as "statements of self praise and friend derogation" (p. 265). Here

again, the study would have greatly benefited from a longitudinal design given the bidirectional links between parent–child interactions and peer interactions.

Developmental changes

As stated earlier, social comparison is considered by many to be an inherent feature of competition. Children younger than ages 7 to 9 years may not be able to adequately extract information from social comparison for the purpose of self-evaluation (Ruble, 1983). Children's sensitivity to such information may greatly influence their decisions to pursue competitive or cooperative interactions with their peers. Therefore, there are compelling reasons to expect differences in the manifestation of competitive or cooperative behaviors as children become older.

Research on developmental changes in the display of competitive and cooperative behaviors has produced inconsistent findings. Some studies indicate that competitive behaviors increase as children become older (e.g., Madsen, 1971; McClintock & Nuttin, 1969), whereas other research shows that older children are more cooperative than younger ones (e.g., Handel, 1989; Stingle & Cook, 1985). In McClintock and Nuttin's (1969) study, 8-, 10-, and 12-year-old children played a dyadic game in which maximum rewards went to children who cooperated rather than competed. Children were given neutral instructions that did not specify whether they should compete or cooperate. Although children of all age groups demonstrated more competitive than cooperative behaviors, older children manifested more competitive behaviors than younger ones. Similarly, Stingle and Cook (1985) provided neutral instructions to 5-, 8-, and 11-year-olds who played a dyadic game that rewarded cooperation more than competition. However, in this study, 8- and 11-year-old children showed greater cooperation than 5-year-old children. The game used in Stingle and Cook's (1985) study was more elaborate and seemed to demand greater coordinated effort in order to cooperate than in the McClintock and Nuttin (1969) study. Older children in Stingle and Cook's (1985) study may have been more skillful in coordinating their endeavors, making them appear more cooperative. In any case, further research should attempt to elucidate the links between children's ages and their competitive/cooperative behaviors.

Although research has not yet determined whether older children are more or less competitive/cooperative than younger ones, there may be developmental differences in the way children respond to competitive or cooperative tasks. Older children have been found to be able to adapt to competitive and cooperative tasks by changing their strategies and behaviors according to the competitiveness of the immediate situation (Kagan & Madsen, 1971; Schmidt et al., 1988). In Kagan and Madsen's (1971) study, 9-year-old children competing for prizes under cooperative instructions were less competitive than age-mates who had received individualistic instructions. In contrast, 5-year-old children's competitiveness was not influenced by the experimenter's instructions. Similarly, Schmidt et al.'s (1988) study showed that 11-year-old children playing a game were more competitive under competitive instructions and more cooperative under cooperative instructions, whereas 8-year-old children's competitiveness and cooperativeness were not affected by instructions.

Older children's greater flexibility in the use of competitive or cooperative behaviors may be explained partly by their greater awareness of the social comparison that is involved in competition and their ability to evaluate their own performances more objectively. In one study, 5-, 7-, and 10-year-old children were asked to copy drawings under either individualistic or competitive instructions (Butler, 1990). The drawings were judged by the children themselves and by adult judges. In the competitive condition, younger children tended to overestimate their drawing abilities, whereas older children's appraisals of their own work were equivalent to those of the adult judges. This difference was not observed in the individualistic condition, where older and younger children's evaluations of their own work were approximately equal to the adult ratings. Older children were more objective than the younger ones in their social comparisons with their peers, which may explain why this developmental effect was only observed in the competitive condition. In the individualistic condition, children used the model, rather than their peers' drawings, as their basis for comparison.

Thus, no clear picture has yet emerged from existing research regarding developmental differences in competitive and cooperative behaviors. However, older children seem more adept at coordinating their cooperative or competitive behaviors in order to meet the demands of the situations in which they are placed.

Culture

Given the differences that may exist between various cultures in terms of children's socializing experiences and the social values that are imparted to them, cultural differences in children's cooperative and competitive behaviors may be expected. Most but not all cross-cultural research on children's cooperation and competition reports such differences.

A great number of cross-cultural studies involving Anglo-American, Mexican, and/or Mexican-American children have been conducted by Kagan, Madsen, and their associates (e.g., Kagan & Madsen, 1971; Kagan & Knight, 1979; Madsen, 1971). The methodology used to assess competitive and cooperative preferences in most of those studies consisted of a forced-choice measure of resource allocation; the participants were mostly between ages 5 and 12 years. Their studies have consistently reported more cooperative, and fewer competitive, behaviors among Mexican and Mexican-American children than among their Anglo-American counterparts. Furthermore, Mexican children were found to be more cooperative and less competitive than Mexican-American children (Kagan & Madsen, 1971). Thus, children from a collectivistic culture such as Mexico appear to value cooperation more highly than Anglo-American and even Mexican-American children, both of whom are raised in an individualistic culture that generally values competition. This is further supported by the finding that third-generation Mexican-American children showed a greater preference for competition than their second-generation peers (Kagan & Knight, 1979).

Cross-cultural research comparing American and Chinese children is not as conclusive. Sparkes (1991) studied the cooperative and competitive behaviors of Chinese and American 3- to 5-year-old children. Pairs of same-culture children played an adaptation of Madsen's (1971) marble-pull game. Essentially, each player tried repeatedly to bring a round plastic disc over to his or her side of the board using blocks attached to strings. The disc could

only be moved if both children cooperated and decided in advance to which side they would move it. If both children pulled at the same time towards their respective sides on a given trial, the disc would be released and no one would capture it. The disc would then be replaced and the trial would start over. Competition was deemed to have taken place when the children failed to bring the disc to one side on more than 5 occasions throughout 10 trials, whereas cooperation was inferred if they failed to bring the disc to one side on 5 or fewer tries during the 10 trials. Chinese pairs of children demonstrated more competitive behaviors than their American counterparts. This finding is unlike that of Domino (1992) who used a different methodology with older children. In his study, 10- to 12-year-old Chinese and American children's competitive and cooperative preferences were measured using a token-allocation procedure identical to the one used in the previously reported studies by Kagan, Madsen, and their colleagues. In Domino's (1992) experiment, American children gave more competitive and fewer cooperative responses than Chinese children. These conflicting results may be an artifact of the different samples and dissimilar methods used or may reflect a cross-cultural developmental difference given the different ages of the children in both experiments.

In summary, most cross-cultural research on children's competition and cooperation compared Anglo-American children with children from other cultures. In general, Anglo-American children were found to be more competitive, although there is at least one exception (Sparkes, 1991). Unfortunately, all of those studies were conducted in laboratory settings using dyadic games or resource-allocation measures that, as stated previously, may not be indicative of children's day-to-day behaviors with their peers.

Gender differences

In most cultures, the socialization of girls differs from that of boys. This may lead to important differences in cooperation and competition. Boys are frequently described as more competitive and less cooperative than girls (Pepitone, 1980). Strube (1981) conducted a meta-analysis on gender differences in competition across cultures. The analysis included 95 articles published prior to 1978 with children from cultures such as Anglo-American, Mexican/Mexican-American, African American, Israeli, Indian, and Canadian. Results of the meta-analysis showed that boys were significantly more competitive than girls in the Anglo-American, Indian, and Mexican/Mexican-American cultures. Conversely, girls were more competitive than boys in the Israeli culture. Finally, no differences between boys and girls were obtained for the African-American and Canadian cultures. These findings suggest that the common belief that boys are more competitive than girls may be accurate for some, but not all, cultures.

Other studies have investigated gender differences in children's strategies during cooperation and competition. For example, Charlesworth and Dzur (1987) observed 4- and 5-year-old children's behavioral strategies when placed in a situation of scarce resources (i.e., a cartoon viewer that could only be viewed by one child at a time). Children were divided in groups of four same-sex peers. The cooperation of two more children was required in order for one child to view the cartoon: one to press a button that turned on the light and another to turn a crank that set the film in motion. This ingenious set-up permitted the

observation of children's strategies in a situation that often produced a combination of competitive and cooperative responses. The researchers found no differences in viewing time between boys and girls, suggesting that both sexes were equally capable of cooperating and competing. However, boys and girls used different strategies to gain access to the viewer: Boys used more physical strategies (e.g., pushing, grasping), whereas girls used more verbal tactics (e.g., requesting, giving commands). In addition, boys displayed more positive affect than girls when competing for the resource. Accordingly, LaFrenière (1999) argued that female–female competition does exist, although it is usually different from that of boys: It is more subtle, less overt, less physical, and not as fun for the competing participants.

Similar studies using mixed-sex groups (e.g., LaFrenière & Charlesworth, 1987) showed that preschool boys obtained more viewing time than girls. The authors proposed that the more subtle, verbal strategies of girls may not be as effective with boys as with other girls, whereas the more direct, physical strategies of boys are efficacious with both sexes. This explanation may account for the common contention that boys usually appear more competitive than girls in naturalistic settings.

In summary, gender differences in children's competition and cooperation seem to vary according to culture. Furthermore, the popular belief that boys are more competitive than girls may be explained by the different strategies used by members of both sexes when competing or cooperating for a resource, and by the presence of greater positive affect when boys compete.

Possible Outcomes of Children's Competition and Cooperation

Being placed in competitive versus cooperative settings, or displaying competitive versus cooperative behaviors, may have different implications. Here we review studies that have addressed the possible outcomes and correlates of children's competition and cooperation. Causal links are difficult to establish given the bidirectionality between competitive/cooperative behaviors and possible outcomes.

Academic, motor, and athletic performance

Franken and Brown (1995) proposed that one of the reasons people like to compete is that it enables them to improve their performance. In his pioneer study of the effects of competition on the performance of cyclists, Triplett (1897) found that cyclists competing against one another recorded faster times than cyclists racing against time. However, a review by Johnson, Maruyama, Johnson, and Nelson (1974) indicated that greater achievement and success occur in cooperative situations than in competitive or individualistic settings.

Mixed results have been found regarding the effects of competition and cooperation on children's academic and motor performance. Engelhard and Monsaas (1989) examined the link between 8-, 10-, and 12-year-old children's self-reported cooperative attitudes and their academic performance. Their results showed that successful students were less

cooperative than unsuccessful students and generally preferred working alone. Their findings are not surprising given the competitive and individualistic atmosphere that is frequently found in children's classrooms and it would be very unsubstantiated to conclude that cooperation among children leads to poor academic performances. It is probable that successful students in competitive school environments have learned that it is better to work individually and are being rewarded accordingly. However, a study by Brown and Abrams (1986) revealed that 12-year-old children taking academic tests (i.e., math and English) under cooperative instructions performed better than those who received competitive instructions. Similarly, Johnson and Johnson (1979) reported greater achievement in some academic tasks (e.g., problem solving, knowledge acquisition) from 10-year-old children in cooperative conditions than children in either competitive or individualistic conditions. No significant differences were found between groups on other academic tasks (e.g., knowledge retention).

In another study of academic performance and cooperation, Gillies and Ashman (1998) placed 6- and 8-year-old children into groups of four (i.e., one high ability, one low ability, and two medium ability students) for 6 weeks of either structured cooperative learning or unstructured group learning. Children in the cooperative learning groups received instruction and training in cooperative skills and behaviors, whereas the other children did not receive such training. Results for 8-year-olds indicated that children in the cooperative-learning groups used more advanced cognitive and language strategies, scored higher on an academic test, and showed greater gains in word-reading ability than children in the unstructured learning groups. For 6-year-old children, a significant difference in favor of the cooperative learning groups was obtained only in the use of more advanced cognitive and language strategies. Children's gender may be an important mediating link between competition and academic performance. Johnson and Engelhard (1992) reported that 11- and 12-year-old boys with high academic achievement had a lower preference for competition, whereas high achieving girls had a higher preference for competition.

Other studies have investigated the effect of an arbitrarily chosen competitive or non-competitive condition on children's motor performance. Butler (1989b) assessed the quality of 5-, 7-, and 10-year-old children's drawings following competitive versus noncompetitive drawing conditions. The pictures of competing children were rated as of lower quality than those of noncompeting children at ages 7 and 10 only. No differences in quality were observed at age 5. According to the author, the findings suggested that the social comparison inherent to competition hindered the performance of the older children in the study, whereas the younger children may not have been aware of, or sensitive to, information obtained by social comparison. Newcomb et al. (1979) paired 6- and 9-year-old children for a block-tower building task. Half of the children were exposed to cooperative and competitive reward systems, whereas the other half was exposed to cooperative and individualistic reward systems. Results showed that performance (i.e., number of successful towers and number of blocks positioned on successful towers) was greater during the cooperative condition. Hom et al. (1994) observed 10-year-old children solving block puzzles under either a cooperative reward structure (i.e., rewards were dependent on the team performance) or an individualistic reward structure (i.e., rewards were based on individual performance). Results showed that children from the cooperative condition solved the puzzles significantly faster than children from the individualistic condition. Conversely,

in one study with 10-year-old children, no motor performance differences were obtained for competitive versus noncompetitive task instructions during a cardhouse building activity (Shwalb, Shwalb, & Murata, 1991).

The discrepant findings reported above may result from differences in the nature of the activities in which children took part. Competition and cooperation may have dissimilar effects on children's performance depending, for example, on the degree of difficulty of the task. In support of this hypothesis, Lambert (1989) conducted a study in which 9- to 12-year-old children participated in physical activities of varying levels of difficulty. In the easier activity, children tried to throw darts as accurately as possible toward a specific target. The more difficult activity consisted of a long jump in which children tried to jump as far as they could from a slightly elevated platform. For both activities, children were first placed in a noncompetitive environment (stage 1) followed by a competitive one (stage 2). The dependent variable consisted of the increase of athletic performance between stages 1 and 2. Children's self-reported anxiety level was measured prior to their participation in the activities. Results indicated that children who had reported higher anxiety levels showed a greater increase in performance on the easier activity than children who had indicated lower anxiety levels. However, for the more difficult task, children who had reported lower anxiety levels had greater performance increases than children with higher levels of anxiety. Thus, competition seems to have different implications for children's athletic performance depending on task difficulty and on children's psychological characteristics.

Motivation

According to Deci and Ryan's (1985) cognitive evaluation theory, individuals with higher levels of intrinsic motivation for a specific activity possess greater feelings of competence and self-determination, and generally participate in the activity because they find it to be enjoyable and stimulating. Conversely, their theory posits that individuals who are extrinsically motivated have an external locus of causality for their participation in the activity and an elevated sense of incompetence.

Data from existing research on the implications of cooperation and competition for children's motivation have suggested that cooperation is generally associated with higher levels of intrinsic motivation, whereas higher levels of extrinsic motivation are often related to competition. In Hom et al.'s (1994) study (see previous section), children who solved block puzzles under the cooperative reward structure showed greater post-task intrinsic motivation than children from the individualistic reward structure condition. Intrinsic motivation was defined operationally as the amount of time children spent playing with the blocks in a period during which they were free to choose from various activities. In a similar study, Butler (1989a) observed the intrinsic motivation of preschool, 7-, and 10-year-old children following competitive and noncompetitive art activities (i.e., competitive vs. individualistic instructions). Intrinsic motivation was also defined as the time spent performing the activity during free time. Results showed that 10-year-old children displayed greater intrinsic motivation following the noncompetitive art activities than after the competitive ones. However, no significant differences between groups were observed for the younger children. Once again, the author argues that young children (i.e., before

the age of 7) may not have fully attained the capacity to compare their abilities with others and thus their intrinsic interest in the activity would be less affected by a competitive setting.

The competitive or cooperative orientation of children's school programs may also affect their motivation. Benninga et al. (1991) assessed, using self-report measures, 7- to 10-year-old children's motivation for prosocial acts and for academic work using self-report measures. Children from academic programs that encouraged competition reported higher extrinsic and lower intrinsic prosocial motivation than children from academic programs that advocated cooperative learning. However, no differences in academic motivation were found between children from the two types of programs.

Theory and research suggest that children prefer to undertake challenging situations when attempting to show mastery over their environments (e.g., Deci & Ryan, 1985). Consequently, children's preference for situations of competition or cooperation may be influenced by the opportunity provided to demonstrate mastery in challenging tasks. Handel (1989) observed the cooperative responses of 5- to 12-year-old children during a marble-pull dyadic game that produced maximum rewards to children who cooperated; competitive responses in the game always led to few or no rewards. All of the children participated in a simple version of the game (i.e., no challenges were available for children who cooperated) and a complex version of the game (i.e., even the cooperative responses were challenging for the children). Results showed that children displayed significantly more cooperative responses during the complex game than during the simple game.

Thus, existing research shows that cooperation seems to foster children's intrinsic motivation, whereas competition may undermine it, especially with older children. Furthermore, children are more likely to cooperate when given the opportunity to demonstrate competence by cooperating in challenging tasks.

Peer relationships

As stated earlier, many theorists and researchers view cooperation as a joint effort to gain shared resources, whereas they consider competition as an attempt to gain limited resources at the expense of others. Consequently, peer relationships could potentially be enhanced by cooperation and disrupted by competition. In Sherif, Harvey, White, Hood, and Sherif's (1961) extensive study, 11- and 12-year-old boys taking part in summer camps were divided into two groups and observed during intense, intergroup competitive and cooperative conditions. They observed strong negative interpersonal behaviors (e.g., verbal insults, destruction of property) between the two groups during the competitive conditions and reduction of those negative behaviors during subsequent cooperative conditions. However, the negative interpersonal behaviors were especially observed directly following the competitive conditions, during which time experimenters deliberately triggered hostile feelings by setting up situations that frustrated the groups. Nevertheless, their study was instrumental in showing that children's social behaviors can be influenced by competitive and cooperative situations.

Although competitiveness may be related to peer dislike, some studies examining the

associations between competition and sociometric status have suggested that this may not always be the case. Defining competition as a multidimensional construct, Tassi and Schneider (1997) measured 8-year-old children's competitive orientations using peer informant measures. Popular children scored significantly higher on task-oriented competition (i.e., competing in order to do well at something) than average children who, in turn, scored significantly higher than rejected children. Conversely, unpopular rejected children scored significantly higher on other-referenced competition (i.e., competing in order to be proven superior to others) than average or popular children. Similar results were also obtained using teacher ratings of competition in a more recent study (Tassi, Schneider, & Richard, 2001). Thus, competition seems to lead to peer rejection only when children try to outdo others when they compete. Here again, gender effects may be important mediators. Steinkamp (1990) reported the relation between preschoolers' competitiveness as rated by teachers and the children's friendship nominations and sociometric status. Boys gave higher sociometric ratings to highly competitive girls, whereas girls gave higher ratings to less competitive boys. No connection between competitiveness and social status emerged for same-sex sociometric nominations.

Some data suggest that participating in cooperative activities can decrease the negative social behaviors manifested by low-accepted and aggressive boys during peer interaction. For example, popular and unpopular (Gelb & Jacobson, 1988) or popular and aggressive (Tryon & Keane, 1991) 9-year-old boys were observed while attempting to join two other children already engaged in competitive or cooperative play. Results of the study by Gelb and Jacobson (1988) showed that the unpopular children were more likely than the popular participants to break rules, disrupt play, and appeal to authority, but only during competitive play. During cooperative play, the unpopular children demonstrated fewer of those negative social behaviors and were more accepted by their peers. In the study by Tryon and Keane (1991), popular children were accepted more readily than aggressive children during competitive play. Popular children also used more socially oriented interventions (e.g., showing agreement or pleasure with one of the group members) than aggressive children when approaching the dyad at play. Differences between groups were much smaller during cooperative play.

Results from Gelb and Jacobson's (1988) study presented in the preceding paragraph suggested that cooperation can have beneficial effects for peer acceptance. This has also been demonstrated elsewhere. Anderson's (1985) study revealed that 10- to 15-year-old learning-disabled boys favorably identified as classmates whom they liked a greater number of their peers following participation in cooperative-learning activities than before the cooperative situation was set up. In a study by Smith, Boulton, and Cowie (1993), 8- and 9-year-old children participated for one year in either cooperative-learning groups in the classroom or traditional-teaching groups. Although no significant differences were observed between the cooperative-learning and the traditional-teaching groups in terms of changes in children's sociometric status, an increase in children's "liking" ratings was noted following participation in the cooperative-learning groups. Thus, participating in cooperative activities may not lead to immediate changes in children's peer status (i.e., a "rejected" child will probably not become "average" or "popular" following cooperation), but may have a more gradual effect on general acceptance among peers. One of the reasons that acceptance may be higher following cooperation is that children seem to manifest more

prosocial behaviors, such as asking for and giving reciprocal help, when cooperating (Garaigordobil, Maganto, & Etxeberria, 1996), and more aggressive behaviors when competing (Bay-Hinitz, Peterson, & Quilitch, 1994).

Dorsch and Keane (1994) suggested that competition may have different effects on children's social behaviors depending on their feelings of success during the activity. In their study, peer-rejected and -accepted 8-year-old children played competitive or cooperative computer games with or against a fictitious other child (i.e., each child was told that his or her computer was connected to another machine on which a child of the same age was playing). After failure on competitive games, socially rejected children reported more aggressive social strategies than socially accepted children. A difference in social strategies between the two groups in the Dorsch and Keane (1994) study was not observed following success in competitive games, nor following success or failure in cooperative games. Thus, the negative effects of competition on children's social behaviors were only witnessed following failure on the game.

Competition for resources by friends may have destructive consequences for the equity of the relationship, considered by many (e.g., Walster, Walster, & Berscheid, 1978) as an essential characteristic of friendship. Sullivan (1953) proposed that competition between friends may impede intimacy and lead to a break-up in the relationship.

Janosz and LaFrenière (1991) organized a competitive contest that resulted in a winner and a loser within dyads of preschool friends and nonfriends. Following that contest, dyads were placed in situations of limited resources where only one toy was available for the two members of the dyad. No differences in competitive or cooperative behaviors used to acquire the toy were found between winners and losers of the previous contest. However, dyads of friends demonstrated more cooperative and less competitive behaviors than dyads of nonfriends. Furthermore, winners in friendship dyads were more willing to offer the toy to their partner during subsequent play than winners in nonfriendship dyads. In another study of social interactions in situations of limited resources, Werebe and Baudonnière (1988) observed the play activity of same-sex triads of preschool children consisting of two friends and one familiar peer. The triads were placed in a toy-filled room containing two sets of every type of toy or object. Competition was defined as attempts by one child to acquire an object from another child. Although friends were no more or less competitive than nonfriends, children made significantly more offers to give an object to their friends than to the nonfriends, suggesting a greater desire for cooperation with the friends.

Despite the consistent finding of greater cooperation and less competition between friends than between nonfriends, some competitive children may have many friends. In Steinkamp's (1990) study, reported on the previous page, preschool children perceived as highly competitive by their teachers were named as friends by their classmates more than low-competitive children. One possible explanation for this finding is that children may compete differently with friends than with nonfriends. There is some empirical evidence of this. For example, Fonzi, Schneider, Tani, and Tomada (1997) observed dyads of 8-year-old friends and nonfriends engaged in a car-race competition with clear prestated rules. During the competition, dyads of friends showed greater positive affect and greater adherence to the rules than did dyads of nonfriends.

Ideas for New Research

In many studies reviewed in this chapter, researchers investigated global and diametrical distinctions between competitive and cooperative behaviors. Although such research provided important data, the results of some studies suggest that it may be useful to examine in greater detail the processes by which children compete or cooperate. For example, differences in the processes involved in competitive behavior are reported between girls and boys (Charlesworth & Dzur, 1987); popular and unpopular children (Tassi & Schneider, 1997); and, friends and nonfriends (Fonzi et al., 1997). As part of this focus on process, the goals and motivations involved in competition and cooperation, as embodied in the multidimensional models discussed earlier, need to be examined.

More research is also needed on the mediating role of personal variables (e.g., cognitive, social, emotional) in the emergence and maintenance of competitive and cooperative behaviors. Among the few studies in which such potential mediators have been investigated, findings include greater cooperation in children who show high cognitive flexibility (Bonino & Cattelino, 1999), lower empathy in highly competitive boys (Barnett, Matthews, & Howard, 1979), and greater achievement in competitive situations by children with an internal locus of control (Nowicki, 1982). Further advances in understanding the possible origins and outcomes of children's competition and cooperation will likely stem from process-oriented research tracing the interplay among cognitive, social, and other personal variables that are linked to competitive and cooperative behaviors.

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