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Cooperative and Competitive Games: An Examination of the Effects of Goal Structures on Social Development

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COOPERATIVE AND COMPETITIVE GAMES:
AN EXAMINATION OF THE EFFECTS OF GOAL STRUCTURES
ON SOCIAL DEVELOPMENT

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Cooperative and competitive games:

An examination of the effects of goal structures on social development

The use of cooperative and competitive practices in our society has become a source of great debate. Kohn (1992) argues, “From our earliest days, we are busily absorbing an uncritical acceptance of competition. We are being primed for the classroom and the workplace” (p. 27), while others argue that competition makes an activity enjoyable (Epstein & Harackiewicz, 1992; Tauer & Harackiewicz, 1999, 2004). Kohn clearly states his position in this debate; “The more closely I have examined the topic, the more firmly I have become convinced that competition is an inherently undesirable arrangement, that the phrase *healthy competition* is actually a contradiction in terms” (1992, p. 9). However, Kamii and DeVries argue, “... We do not believe that the negative effects that often result from poorly handled competition should blind us to the positive effects competitive games *can* have” (1996, p. 145). Kamii and DeVries claim that competitive games can aid in development, since rules must be made and followed in the playing of competitive games, and since the nature of competitive games leads to certain strategic lines of thought. It seems that Kohn would have competitive practices abolished in our society, while others attempt to reveal the value of competition.

This debate over how our culture should be structured has caught the interest of researchers, who are now attempting to examine empirically the benefits and the drawbacks of cooperation and competition in our society. While cooperation and competition can affect many aspects of our lives, many researchers have chosen to focus on social development, especially how development can be influenced by cooperative or competitive games.

Competitive and cooperative situations can be defined by the goal structure, or the objective of the activity. In a competitive goal structure, individuals are working against one

another to meet their goal (Johnson & Johnson, 1982; Kohn, 1992; Nelson & Peterson, 1991; Okebukola, 1985). Kohn (1992) describes competition as “mutually exclusive goal attainment” or “MEGA”; this means that only one person can achieve their goal, while all others must fail (p. 4). While the term competition is often associated with games or sports, it can also be used in a variety of other situations, such as the classroom or the workforce. In a cooperative goal structure, individuals are working together to meet their goal (Johnson & Johnson, 1982; Kohn, 1992; Nelson & Peterson, 1991; Okebukola, 1985). Cooperation can be evident in the classroom and the workforce, as well as in the playing of games. There also exists a situation which is somewhat of a compromise between competition and cooperation, known as inter-group competition. In this type of situation, the success of one person is dependent on the success of others and is also dependent on the failure of others (Okebukola, 1985; Tauer & Harackiewicz, 2004; Yu, 2001). For example, in a typical basketball game, the success of one team member is dependent on the success of the rest of the team members, but it is also dependent on the failure of members of the opposing team.

It is the purpose of this review to examine the results concerning social development in the context of cooperative and competitive games. First, research supporting the use of cooperative games will be discussed, including studies that have findings relating to aggression, and then research supporting the use of competitive games will be discussed. A personal position statement on the value of cooperative and competitive games for social development will be presented as well.

Evaluation of Current Literature

Literature in Support of Cooperative Games

Zan and Hildebrandt (2003) found more high-level social interactions in first graders playing a cooperative game than those playing a competitive game. In this study, children's interactions during cooperative and competitive games were recorded and coded according to Selman's model of enacted interpersonal understanding (Selman & Schultz, 1990). This model includes different levels of two measures, negotiation strategies and shared experiences. Negotiation strategies occur when the interpersonal dynamic is in disequilibrium, or when the individuals are involved in some form of dispute or opposition, and shared experiences occur when the interpersonal dynamic is in equilibrium, or when the individuals are interacting in a pleasant manner. Both negotiation strategies and shared experiences are coded on a three point scale. Level 0 interactions are the most basic, in which a child is unable to recognize that others may have a perspective that is different from their own. In Level 1 interactions, children are able to take on a limited understanding of another's perspective; while in level 2 interactions, children can easily understand and consider the perspectives of others. Level 2 interactions are considered high-level interactions in first grade children. In this sample, the children displayed more level 2 negotiation strategies and shared experiences while playing the cooperative game than when playing the competitive game. It was also found that children were more slightly more likely to display level 0 shared experiences, which are typically characterized by silliness during cooperative games. Although these low level interactions are impulsive, they are not harmful, and the silliness seems to indicate that the children are enjoying themselves. However, the participants in this study were all enrolled in classrooms that stressed cooperation in their

teaching methods. The results may have differed if participants from a traditional classroom setting had been included.

In a study conducted by Maras, Lewis and Simonds (1999), altruistic behaviors became more frequent in five and six year old girls that played cooperative games. Children played two games either cooperatively, competitively or individually, and were given a pre-test and post-test measure of their attitudes toward altruism. Although there was no difference between the pre-test and the post-test in the boys that participated in the study, the girls showed a significant difference. The girls that had played the games cooperatively became more altruistic, while the girls that had played the games competitively or individually became less altruistic.

Rogers, Miller and Hennigan conducted a study in 1981 that examined the effects of a cooperative games intervention on cross-ethnic interactions in elementary school girls. Observers recorded participant's behaviors on the playground for two weeks prior to the intervention in order to establish a baseline. In the two week intervention period, the girls were encouraged to play cooperative games with other girls of a different race. Observers recorded behaviors on the playground again after the intervention in order to obtain the results. The number of cross-racial interactions among the girls in the study increased immediately, and though it declined over time, the number of interactions at four weeks after the intervention was still greater than the baseline. However, this study utilizes a design that makes it difficult to draw conclusions from the data. It cannot be determined what caused the increase in cross-racial interactions, since the design did not include a control group. Had the study utilized an experimental design, it would be easier to draw conclusions about the cause of the changes.

In a study by Finlinson, Austin and Pfister (2000), preschool children's behaviors were observed during cooperative and competitive games. The results of the study indicate that more

positive behaviors occurred during the cooperative games and more negative behaviors occurred during the competitive games. However, the study has some serious methodological issues that should be addressed. First of all, the system used for coding the behaviors seems to be flawed. The authors noted that the children's observed behaviors were coded according to five behavioral categories: positive physical contact, positive verbal comments, goal-related cooperative behaviors, negative physical contact and negative verbal comments. While one of the five categories from the checklist was targeting cooperative behaviors, none of the categories specifically targeted competitive behaviors. It is likely that competitive behaviors would not be recorded, since they do not fit one of the outlined categories, unless they contained elements of one of the negative categories. Also, the baseline for the study was established from data collected during the first week of the school year. Typically, children's behaviors that take place in the classroom during the first week of school are not indicative of their normal behaviors. This would indicate that the baseline was not an accurate portrayal of these children's normal behaviors, and therefore it is not appropriate to compare the results of the study to this baseline. While this study had the potential to add to the collection of evidence in this area, the flaws in the design of the study make it difficult to rely on the accuracy of the data.

There are also many factors that can influence the outcomes of research conducted on cooperative and competitive situations. For example, Segal, Connelly and Topoloski (1996) noted that there was increased cooperation among female pairs as compared to male pairs aged 8 to 11. Although mixed gender pairs were not included in their study, there is other evidence suggesting that females are more likely to cooperate than males, at least during the preschool years. (Dyer & Moneta, 2006).

Aggression. In 1994, Bay-Hinitz, Peterson and Quiltch studied the effects of competitive and cooperative games on preschool children's observable play behaviors. These researchers specifically looked for aggressive and cooperative behaviors. Aggressive behavior was defined as a physical or verbal behavior involving a destructive action toward a person or object, and cooperative behavior was defined as a physical or verbal behavior directed at another child that involved a shared reciprocal, mutual or helpful quality. It was found that the children were more likely to display aggressive behaviors and less likely to display cooperative behaviors after playing competitive games. In some cases, these effects were seen even when the game had been played during the previous day. However, while four classrooms were involved in the study, these results were found in only three of the classrooms. It is possible that the sociomoral atmosphere of the fourth classroom differed from the other three classrooms. Since the researchers noted no differences between these classrooms, it is difficult to draw conclusions as to the reason for these inconsistencies. Also, this study used a shortened competitive games condition at the request of participating teachers, since the classroom atmosphere had been so drastically altered by the competitive games. This alteration to the design of the study makes it impossible to determine if the frequency of aggressive behaviors would have increased or decreased if the condition had been extended to the same length as the cooperative condition.

Anderson and Morrow (1995) completed a study in which the relationship between aggression and competitive or cooperative video games was examined in undergraduate students. Participants in the study were assigned to play the video game Super Mario Brothers either in competition with another person, or in cooperation with another person. In this video game, it is not necessary to kill every virtual opponent on the screen; many of the creatures can be avoided without harm to the player. Therefore, the researchers measured the level of aggression by a kill

ratio, which was the total number of creatures killed divided by the total number of creatures encountered. The participants that played the video game competitively had a kill ratio that was sixty percent higher than those playing the game cooperatively. It is important to note, though, that the participants were not allowed to communicate during the study. Due to this detail, the results of the study could not be influenced by social interactions.

In 1981, Phillips published a study in which children between the ages of 6 and 14 who were receiving treatment for emotional disturbance participated in competitive, semi-competitive or non-competitive recreational activities, while the levels of aggression were measured using behavior checklists. For the purpose of this study, Phillips defined competitive recreation as an activity in which an individual's or a group's success determined that another individual or group would fail. Phillips defined semi-competitive recreation as activities in which the participants were allowed to choose their own teams and encouraged to take turns. The participants also received less supervision during these activities, and so the participants were able to deviate from the goals of winning or losing, if they chose to do so. Non-competitive recreation was defined as activities that had no objective goals and required no supervision of the participants, such as watching television. An aggression checklist was used by observers to measure aggressive behaviors during the recreational activity. It was found that higher levels of aggression occurred during the competitive recreation than during the semi-competitive or non-competitive recreation. However, only twelve participants were used in this study, making generalizing the results to the general population difficult. Also, the researcher did not mention whether age was a factor in the results. Since the participants' ages varied greatly, it seems plausible that age may have influenced the participants' behaviors. It is also difficult to make assumptions with this data, since all the participants were receiving treatment for emotional disturbance.

Although the previous three studies that have been discussed seem to point to the use of cooperative games, there is evidence that differences in aggressive behaviors may not occur in some groups. Zan and Hildebrandt (2003) found no difference in aggressive behaviors between children who play competitive games and those that played cooperative games. As mentioned above, in this study, behaviors were coded according to Selman's model of enacted interpersonal understanding (Selman & Schultz, 1990). Level 0 negotiation strategies can be defined as aggressive behaviors, but there was no difference in the frequency of these behaviors during the play of cooperative and competitive games. In 2005, Zan and Hildebrandt found no differences in aggressive behaviors during the playing of cooperative and competitive games. However, the participants in both of these reports were students in constructivist classrooms. The constructivist model of education emphasizes cooperation in the classroom everyday (DeVries & Zan, 1994, p. 62), and so these students were possibly predisposed to cooperate. If this study were replicated with students from traditional classrooms, the results might differ, despite the findings of Bell (1999).

Bell (1999) attempted to replicate the study presented by Bay-Hinitz, Peterson and Quiltch in 1994. However, Bell decided to examine cooperative and aggressive behaviors in both constructivist and traditional classrooms while first grade students played cooperative and competitive games. Although it was hypothesized that the traditional classroom would display more aggressive behaviors during the competitive games, the results of the study showed no differences between the classrooms in either of the games conditions. Bell explains, however, that the teacher of the traditional classroom was attempting to become a more constructivist educator. While both classrooms had been evaluated and the classroom labeled traditional had

indeed displayed the characteristics of a traditional classroom, there may have been some unique characteristics in this particular classroom.

Literature in Support of Competitive Games

Nelson and Peterson conducted a study in 1991, which consisted of boys between the ages of 8 and 17 playing a dice game either cooperatively or competitively and then attempting to complete a construction task as a group. Although the researchers had predicted that the groups would be more productive in the group task after playing the game cooperatively, this hypothesis was not supported. Instead, the groups tended to be more productive after playing the game competitively, although this result did not quite reach statistical significance. However, these results occurred in a specialized population. The participants in this study were boys that lived in a residential treatment facility for psychosocial disorders, but were without diagnosed mental illnesses. Also, the boys that participated in the study were between 8 and 17 years old, and were randomly assigned to their groups for participation. This implies that the groups consisted of participants that had large differences in their level of maturity. It seems that these differences would make it difficult to work effectively as a group, which would make the cooperative tasks more difficult than competitive tasks. Also, other literature suggests that boys are more inclined to compete than to cooperate, and since only boys participated in this study, it makes sense that the results favored competition (Dyer & Moneta, 2006; Maras, Lewis & Simonds, 1999; Segal, Connelly & Topoloski, 1996).

In another study, conducted by Tauer and Harackiewicz (2004), pre-adolescent children were assigned to one of three conditions: pure cooperation, pure competition or inter-group competition, in which they used a basketball court to complete a free throw task in order to allow the observation of the effects of assigned condition on intrinsic motivation. Intrinsic motivation

is defined as “the desire to take part in an activity for its own sake” (Tauer & Harackiewicz, 2004, p. 850) and was measured by a self-report scale in this study. Pure cooperation groups worked together to achieve a certain number of free-throws; pure competition groups worked against one another to get the highest number of free-throws, and inter-group competition groups worked together to get a higher number of free-throws than the opposing team. The researchers found that participants in the pure cooperation condition tended to have more enthusiasm among their peers, while participants in the pure competition condition tended to perceive greater challenge in the task and to value their own competence. However, participants in the inter-group competition condition displayed the positive characteristics of the other two conditions, leading the researchers to believe that inter-group competition gave participants the best of both worlds.

In a study by Epstein and Harackiewicz (1992), psychology students that scored higher on a measure of achievement orientation tended to prefer playing the word game “Boggle” competitively, while those that scored lower on the achievement orientation measurement tended to prefer playing non-competitively. Tauer and Harackiewicz (1999) also found that psychology students with a higher achievement motivation tended to enjoy playing “Boggle” competitively more than those with a lower achievement motivation, regardless of whether they won or lost, and the results were consistent even when the participants were not informed whether they had won or lost at all. These two studies seem to suggest that competition can be an enjoyable experience for some individuals, but it is not necessarily enjoyable for all individuals.

However, when Bell (1999) examined cooperative and competitive games in first grade students, the children did not display a significant difference in preference for cooperative or competitive games. Specifically, about 51% of the participants reported that they preferred cooperative games, and 49% reported a preference for competitive games. Similarly, Groves,

Heyer and Jones-Ponder (2000) found that first and second grade students reported no significant differences in preference for cooperative or competitive games. There is an age difference between the participants in these two studies, and the two “Boggle” studies, which may account for the differences in results. However, neither Bell (1999) or Groves, Heyer and Jones-Ponder (2000) measured achievement orientation, and so it is difficult to compare these results to those of the studies that did measure achievement orientation (Epstein & Harackiewicz, 1992; Tauer & Harackiewicz, 1999).

Although there is already a great deal of evidence on the topic of cooperation and competition, additional research is still needed in order to clarify some issues. While there has been some research conducted on gender differences in cooperation and competition there is no clear answer to questions about how these differences effect children’s social development. Some researchers have noted gender differences in cooperative and competitive games (Dyer & Moneta, 2006; Maras, Lewis & Simonds, 1999; Phillips, 1981; Segal, Connelly & Topoloski, 1996), while others have found no existing differences in males and females with regard to cooperative or competitive conditions (Anderson & Morrow, 1995; Epstein & Harackiewicz, 1992). These types of games obviously have influence on children’s social development, but the nature of this influence is still unclear.

Personal Position Statement

As evidenced by the succession of reports above, I have read through a great deal of literature on the topic of cooperation and competition, and how it can effect social development. From the evidence I have gathered on the subject, much of which is listed above, I feel that I can say with confidence that I have shifted to the pro-cooperation side of this debate. While I have found no evidence that competition alone is harmful to a child’s development, as has been

suggested by some, I do believe that cooperation has more benefits for development than competition.

According to the literature, playing cooperative games during childhood has the potential to increase the interpersonal level of social interactions (Zan & Hildebrandt, 2003), and increase the frequency of altruistic behaviors (Maras, Lewis & Simonds, 1999). Competitive games have also been suggested to increase levels of aggression, making cooperative games a more peaceful alternative (Anderson & Morrow, 1995; Bay-Hinitz, Peterson & Quiltch, 1994; Phillips, 1981).

Despite the evidence to support the use of cooperative games, some of which dates back over twenty years now, it seems that competitive games are still more widely used than cooperative games, even in the classroom. Possibly this is because of the availability of commercial competitive games, or the obscure nature of cooperative board games. However, it may also be due to the fact that people believe that competition is many things that it is not. Kohn (1992) describes four common myths that people tend to hold about competition. The first myth is that competition is unavoidable, that it is a part of human nature. The second myth, that competition gives us a motivation to do our best. Third, that competition is the only context in which we can enjoy ourselves. And fourth, that competition helps to build a person's confidence and character. I believe that these myths go a long way in describing the competitive nature of our culture. What changes might we see in our society if instead of unconsciously passing these myths along to our children, we taught them to cooperate and to value their peers?

Future researchers should continue to explore the uses and limitations of cooperative and competitive games. First of all, there is limited information available on how cognitive development is influenced by cooperative and competitive games. It is also unclear whether gender plays a role in cooperation and competition. Lastly, the relationship between aggression

and competition is unclear as well. Where several studies found higher levels of aggression in competitive games (Bay-Hinitz, Peterson & Quiltch, 1994; Anderson & Morrow, 1995), others found no difference between cooperative games and competitive games with regard to aggression (Bell, 1999; Zan & Hildebrandt, 2003, 2005).

While there is some evidence to support the use of competitive practices, the evidence supporting the use of cooperative practices seems to weigh much heavier. Hopefully, future research will bring even more clarity to this issue, providing clear answers for teachers and child development specialists as to which techniques are the most beneficial for the children with whom they work. In order to get to that point, however, we shall have to depend on the work of researchers to uncover the necessary answers.

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