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COOPERATIVE GAMES: PROMOTING PROSOCIAL
BEHAVIORS IN CHILDREN

by

Abbie R. Finlinson

A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

Family and Human Development

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ABSTRACT

Cooperative Games: Promoting Prosocial
Behaviors in Children

by

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Utah State University, 1997Major Professor: Dr. Ann M. Berghout Austin
Department: Family and Human Development

Children who develop more prosocial behaviors tend to be more competent socially than those children who develop fewer prosocial behaviors. Group games are especially effective in the facilitation of prosocial behaviors. This study compared the number of prosocial or positive behaviors and negative behaviors displayed during cooperatively and competitively structured game treatments using the Observational Checklist and the Teacher Checklist. We controlled for possible differences in teacher nurturance through the Caregiver Interaction Scale. Participants included 20 boys and 19 girls (mean age = 4 years 7.3 months) enrolled in one of two classes at Utah State University's Adele and Dale Young Child Development Lab.

There were no statistically significant effects of treatment found according to The Teacher Checklist;

however, statistically significant differences in positive and negative behaviors were found on The Observational Checklist across treatment conditions. Specifically, after cooperative games, positive behaviors were higher than expected while negative behaviors were lower than expected. During competitive games, positive behaviors were lower than expected and negative behaviors were higher than expected. When the two factors on The Teacher Checklist, Aggression and Immaturity, were analyzed, no statistically significant relationships were found.

(78 pages)

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Abbie Gay Reynolds Finlinson

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PROBLEM STATEMENT

The ability to care for other people is an important part of social development. Being able to associate with others in positive, nonaggressive, cooperative ways provides the basis for success in friendships, marriage, and careers (Bay-Haines, Peterson, & Quilitch, 1994). People who care for others usually find friends easily. Others, who cannot fit into social groups, disrupt social interactions and can be judged socially and intellectually incompetent (Rogers & Ross, 1986).

One way to encourage the development of social skills is to provide opportunities for young children to develop prosocial behaviors. Prosocial behaviors are defined as actions that benefit or aid another without concern for reinforcement (Grineski, 1989a). Examples of prosocial behaviors include: generosity, sharing, sympathy, helping, protection, physical comfort, cooperation, rescue, and altruism (Zahn-Waxler & Radke-Yarrow, 1982).

Prosocial behaviors can play a vital role in forming positive interpersonal relationships (Babcock, Hartle, & Lamme, 1995). High altruistic behavior in children has been found to be positively related to a child's popularity among peers (Babcock et al., 1995). Children who adjust socially during their school years tend to become positive, socially well-adjusted adults (Rogers & Ross, 1986). Social competency in children can also predict academic and

career potential and future emotional and mental health (Rogers & Ross, 1986).

Since social competence can produce positive results now and in the future, it is logical that steps should be taken to facilitate social competence. The development of prosocial behaviors is one way to achieve this end. It is speculated that prosocial behaviors can be promoted through peer interactions and adult guidance and among other things, through group games that develop mutual interdependence between players (Grineski, 1989a).

Previous research linking prosocial behaviors with peer interactions during group games has limitations. At the time of this study, only Grineski (1989a), with a sample of 12 children, had the same children play both cooperative and competitive games to allow for comparison of both treatments within a group. Other studies had groups only play cooperative or competitive games. Also to date, only observational data were collected during research. No study used a standardized measurement such as the Teacher Checklist (source unknown) to compare children on the same behavior inventory before, during, and after treatment.

The present study attempted to address these concerns by having all groups participate in both cooperative and competitive games in order to compare their behaviors during and after each treatment. Also a standardized

behavior inventory was completed for each child before and after each treatment to allow additional comparison beyond observational data. To improve on Grineski's (1989a) study with only 12 participants, our sample included 39 children.

The goal of this study was to compare positive and negative behaviors during competitive and cooperative games using both a standardized behavior inventory and observational data. Our hypotheses were as follows:

H₁: Children will not differ in the display of aggressive (or negative) behaviors between competitive and cooperative game treatments.

H₂: Children will not differ in the display of prosocial (or positive) behaviors between competitive and cooperative game treatments.

H₃: Children will not differ in the display of aggressive (or negative) behaviors in the classroom following competitive and cooperative games treatments.

H₄: Children will not differ in the display of prosocial (or positive) behaviors in the classroom following competitive and cooperative games treatments.

LITERATURE REVIEW

Theory and Research on
Prosocial Development

Many theorists consider it impossible to expect prosocial behaviors from young children. Freudian theorists believed that young children want immediate gratification regardless of the needs and feelings of others. Children cannot begin to behave in prosocial ways until the age of 5 or 6, at which time the superego develops (Honig, 1982). By then, Freud (1927, 1931) believed children equated bad intentions with bad actions, which causes a sense of guilt and the need for punishment.

Piaget (1983) believed that not until the ages of 7 or 8 can a child gradually begin to decenter, allowing equilibrium between assimilation and accommodation, and making it possible for the child to take the point of view of others. In contrast, Zahn-Waxler, Radke-Yarrow, and Wagner (1992) believe that as soon as the second year of life, behaviors exhibiting concern for others emerge. Learning theorists, on the other hand, believe that prosocial behavior is gained by direct reinforcement and modeling (Radke-Yarrow, Zahn-Waxler, & Chapman, 1970)

Honig (1982) contended that prosocial behaviors are more complex than any one group of theorists believe. There are many factors that are associated with the development of prosocial behaviors. Prosocial behaviors

are encouraged by contact with nurturing adults who model prosocial behaviors. Children also need opportunities to identify a variety of their own feelings and others' feelings, help in considering the consequences of their actions with others, opportunities for responding to others in distress, and encouragement to think of alternatives to forceful means for resolving distressing and conflict situations (Honig, 1982).

The Need to Develop Prosocial Behavior

Babcock et al. (1995) have claimed that prosocial behaviors have been found to play an important role in forming positive social relationships. Children in preschool who display a wide range of prosocial behaviors are inclined to be liked more by their classmates than children who are aggressive in preschool. Even the mildest aggressive behavior in middle childhood predicts future antisocial behaviors (Bay-Haines et al., 1994). In addition, prosocial behavior is positively related to self-concept and personal happiness (Babcock et al., 1995). The single best childhood predictor of adult adjustment is how well a child gets along with other children (Babcock et al., 1995).

The Development of Prosocial Behaviors

Peer interactions differ from interactions with adults

because the children can interact as equals, which allows the children to assert themselves, present their own ideas, and argue different viewpoints (Goffin, 1987). Peer interactions take place between individuals with similar social, cognitive, and physical development (Goffin, 1987).

Through peer interactions, children confront real social problems. They benefit from the opportunities to respond to situations of distress or misfortune in which they can offer sympathy and help (Honig, 1982). They learn to identify their own feelings and others' feelings in happy, distressful, fearful, and angry interactions (Honig, 1982). During interactions, children learn to modify and discard behaviors to suit certain situations (Rogers & Ross, 1986). They also learn to consider the consequences of their actions. Peer interactions reinforce prosocial behavior because of the positive peer response to those actions (Rogers & Ross, 1986).

Honig (1982) indicates that prosocial development is more likely if adults model prosocial behaviors (cooperation, caring, sharing, altruism) both verbally and nonverbally. Children are more likely to imitate positive social interactions than negative social behavior (Rogers & Ross, 1986).

Adult guidance should provide consistent contact with a nurturing, attentive adult. The adult, ideally, is able to model actions of helping, concern, and altruism, as

often as possible (Honig, 1982; Honig & Wittmer, 1991). Adults also need to encourage children to think of altruistic alternatives to resolve distressing situations (Honig & Wittmer, 1991).

Several methods have been reported to facilitate prosocial behavior. The design of play materials has been shown to influence prosocial behavior. If a toy requires two or more persons to work together when playing, the result is more social interaction, compared to toys designed for individual children (Orlick, 1981).

According to Babcock et al. (1995), children's play centers, at school or day care, can also contribute to prosocial behaviors. Children playing in centers where products were made (writing, art, woodworking) displayed four times as many prosocial behaviors compared to playing in other centers where products were not an outcome (e.g., block area, computers, water table). Among those activities that were product oriented, activities that are open, with no one correct method (i.e., painting, drawing, free writing, clay) encouraged the most prosocial interactions of all.

Grineski (1989a) also offered some methods for facilitating prosocial behaviors. Multi-use toys free children from right and wrong, allowing them to use their imagination to explore toys. Play space that is ample and open allows children the freedom to spread out since they

do not have to fight over space with each other. Dramatic play allows children to explore their feelings and those of others without the stress of actual events with real consequences. Finally, group play and games (especially cooperative play and games) are an excellent way for children to learn mutual interdependence between players to achieve a desired goal.

Cooperative Games

Orlick (1982) explained cooperative games:

The concept behind cooperative games is simple: People play with one another rather than against one another; they play to overcome challenges, not to overcome other people; and they are freed by the very structure of the games to enjoy the play experience itself. No player need find himself or herself a bench warmer nursing a bruised self-image. Since the games are designed so that cooperation among players is necessary to achieve the objective(s) of the game, children play together for common ends rather than against one another for mutually exclusive ends. In the process, they learn in a fun way how to become more considerate of one another, more aware of how other people are feeling, and more willing to operate in one another's best interests. (p. 4)

Because cooperative games are based on cooperation, acceptance, involvement, and fun, children are free to exhibit prosocial behaviors without forfeiting victory (Orlick, 1978). Cooperative games and activities have been linked to increased self-esteem and peer acceptance (Bay-Haines et al., 1994).

Why Cooperative Games Rather than Competitive Games?

The goal structures of cooperative games are based on

mutual interdependence between players as they achieve a desired goal. Cooperative games foster interest in encouraging and helping others (Bay-Haines et al., 1994). On the other hand, competitive games achieve a desired goal at the expense of the other players. Competitive games create strong motivation to succeed as well as the desire in seeing the opponent fail (Bay-Haines et al., 1994). Cooperative games have the advantages of competitive games including physical development and the building of team spirit, without the disadvantages of competition (Alexander, 1986). Brown and Grineski (1992) found that while competition often hampered learning and performance, it also brings out negative and aggressive character traits and behavior. Failure in competitive situations can cause a decrease in self-esteem and confidence.

In a study conducted by Grineski (1989a), a group of kindergarten children played both cooperative and competitive games. Prosocial behaviors were observed and recorded. Of the 230 prosocial behaviors recorded, 96% were associated with cooperative games, while only 4% were associated with competitive games. During cooperative games children appeared to be happy and enjoying themselves. Conversely, during competitive games children appeared anxious and quiet, and at times they exhibited the antisocial behaviors of cheating, pushing, name calling, and accusing.

There are other advantages of cooperative games over competitive games. The structure of cooperative games frees children from the pressures of competition, and eliminates the need for destructive behaviors, which are behaviors used to win at any cost, including cheating and hurting the opponent physically and mentally. The design of cooperative games encourages helpful, fun-filled interaction (Orlick, 1982). Cooperative games also allow children to create freely; children are not required to act in narrow or preset ways. This promotes problem solving, curiosity, creativity, and originality in children's thinking (Orlick, 1982). Less experienced or skilled players are not punished by elimination. Instead, they are provided with the opportunity to gain additional experience, which improves their skills (Orlick, 1982). Children are free to make decisions, offer suggestions, and choose for themselves, which greatly enhances motivation (Orlick, 1982). Finally, children are free from physical and emotional harm. They are not hit, shoved, or pushed; they are free from destructive and aggressive behavior (Orlick, 1982).

Terry Orlick was involved in two studies (Orlick 1981, Orlick, McNally, & O'Hara, 1978) in which he examined the effects on children, ages 4 and 5, of exposure to cooperative games. Orlick found that with both 4- and 5-year-olds, cooperative behaviors increased in the classroom

after the children were exposed to a cooperative games program. This might be due to the fact that the children learned how to cooperate and were reinforced for cooperating. Orlick (1981) theorized that if children are exposed to role models (sports heroes, cartoon characters) who are uncaring, uncooperative, and aggressive, it may be natural for children to play this way unless they are taught another way.

Orlick and Foley (1979) exposed a group of 4 year olds to a program of cooperative games and had these results:

1. Three- and 4-year-old children can play and enjoy cooperatively structured games.
2. Three- and 4-year-old children are fully capable of cooperating and sharing with one another.
3. There is an increase in cooperative behavior during free time after children are exposed to cooperative games.

Grineski (1989b) obtained similar results from his program of cooperative games. He found that cooperative games resulted in higher rates of positive physical contact than free play, especially for children with physically or mentally challenging conditions. In his study, cooperative games also allowed the players to show higher rates of goal-related cooperative behaviors than did free play, especially for players with special needs. He also found cooperative games to be an effective intervention for

negative physical contact and negative verbal interactions.

Cooperative games thus appear to promote children's positive adjustment and development in several measurable ways. Throughout the early childhood literature, however, it is clear that children and teachers bring specific characteristics of interactive style and general affect to the early childhood classroom. These behavioral differences may affect children's responses to cooperative and competitive games. It may be that if children or teachers have more nurturing or aggressive personal styles, these characteristics may influence their measurable reactions to cooperative and competitive games. To our knowledge, researchers have not yet addressed this issue. We attempted to address this limitation in the following way. Before and after each of the game treatments, each child's level of prosocial and aggressive behaviors was measured, using a teacher-administered, observational checklist. We then subtracted pre behaviors from post behaviors to better understand treatment effects. Also, teachers were rated before the study to determine their level of warmth and quality of interactions with the children to factor out any possible differences between nurturant behaviors, an issue also not previously studied.

A second limitation is that researchers have not measured continuing effects in a standardized fashion. To address the second limitation, we attempted to assess

continued effects by testing children after each treatment using a standardized test. Also, at the time of this study, continuing effects had not been studied previously in groups of children playing both cooperative and competitive games. These effects had only been studied with groups playing either cooperative or competitive games.

In sum, the purpose of this study was to compare the number of prosocial behaviors displayed by children during cooperatively structured games to those in competitively structured games. The number of prosocial behaviors that were displayed after participation in cooperative and competitive games was also examined. As previously stated, it was hypothesized that children would not differ in the display of aggressive (or negative) behaviors between and after competitive and cooperative game treatments. It was also hypothesized that children would not differ in the display of prosocial (or positive) behaviors between and after competitive and cooperative game treatments.

METHODS

Sample

Participants included 20 boys and 19 girls, with one girl declining participation. The ages in groups 1 and 2 ranged from 4 years 0 months to 5 years 6 months (mean age = 4 years 7.2 months). The ages in groups 3 and 4 ranged from 4 years 1 month to 5 years 5 months (mean age = 4 years 7.5 months). Ethnically, 37 of the children were Euro-American, 1 African American, and 1 Arabic.

The parents of these children were community members, and Utah State University students, faculty members, and international students. Children from first marriage, two-parent homes made up 92% (36) of the sample, with the average number of siblings being 2 (range = 0-5). The mean age of the fathers was 34.7 years (range = 24-49, SD = 8.06), and the average age of the mothers was 31.51 years (range = 22-44, SD = 8.92). The educational background of the parents included 5 fathers and 10 mothers who were high school graduates, 12 fathers and 13 mothers with some college education, 11 fathers and 14 mothers who were college graduates, and 10 fathers and 2 mothers who had graduate degrees. Using Hollingshead's Four Factor Index of Social Status (Hollingshead, 1975), 33% (13) of the fathers were higher executives and major professionals (score 9), 21% (8) were skilled workers (score 4). Sixty-four percent (25) of the mothers were semiskilled workers

(score 3), and 10% were homemakers (score 0).

All children were enrolled in one of two classes at Utah State University's Adele and Dale Young Child Development Lab. Each class had 20 children who had been enrolled in the lab on a first come, first served basis. The children attended school Tuesday through Friday for 2 $\frac{1}{2}$ hours. The children spent approximately 2 hours each day in self-selected activities. Twenty-five children (64%) had attended a preschool or day care before their enrollment in the Child Development Lab, for an average of 6 $\frac{1}{2}$ months. Fourteen were presently enrolled in another preschool or day care in addition to the Child Development Lab. The teachers of each class included one head teacher who was a graduate student, four full-time student teachers, and at least one part-time student teacher.

Design

To structure the design for the experiment, treatments and weeks were balanced with each class receiving each treatment. Two groups in two classes were established, with 10 children in three groups and 9 in the fourth. Eight games were used, four cooperative and four competitive. On Table 1, the cooperative games are indicated by odd numbers: 1 - Nonelimination Musical Chairs, 3 - Partner Hoop, 5 - Long Long Jump, 7 - Fish Gobbler. The competitive games are indicated by even numbers: 2 - Musical Chairs, 4 - Hoop Ball, 6 - Jump A

Long, 8 - Simon Says. Week 0 was an observation week for all groups as the children played in self-selected activities.

Groups 1 and 2 played two competitive games one day a week for weeks 1 and 2. Groups 3 and 4 played two cooperative games 1 day a week for the same 2 weeks. Week 3 was a rest week; no games were played and all children were observed during self-selected activities.

Table 1

Schedule of Self-Selected Activities with Testing
(SSA/Test) and Treatments

	Group (N)	Week						
		0	1	2	3	4	5	6
North	1 (10)	SSA/Test	C	D	SSA/Test	A	B	SSA/Test
North	2 (10)	SSA/Test	D	C	SSA/Test	B	A	SSA/Test
South	3 (10)	SSA/Test	A	B	SSA/Test	C	D	SSA/Test
South	4 (9)	SSA/Test	B	A	SSA/Test	D	C	SSA/Test

Note. Treatments:

A: game 1, game 3;

B: game 5, game 7

C: game 2, game 4;

D: game 6, game 8

During weeks 4 and 5, groups 1 and 2 played two cooperative games 1 day each week. Groups 3 and 4 played two competitive games 1 day each of the same weeks. Each group had played all eight games by the end of week 5. Week 6 was a rest week and all the children were observed during self-selected activities.

The 25-minute game session was considered a regular part of the Child Development Lab curriculum. The head teachers and two student teachers played the games with the children. The order of presentation of the games was counterbalanced to compensate for order effects. Control was achieved by comparing the same children with themselves under different conditions of cooperative and competitive games.

Instruments

During the 2 weeks before the games were played, information on the children and teachers in each classroom was collected. This included The Teacher Checklist (source unknown), which scored children's adaptive and nonadaptive behavior with peers, and the Caregiver Interaction Scale (Arnett, 1989), which gave a measure of teacher nurturance. These same measures were administered week 3 and again week 6. The Observational Checklist of Children's Behavior (OCCB; Grineski, 1989b) was given all weeks. During weeks 0, 3, and 6, the OCCB was administered during self-selected activities. During weeks 1, 2, 4, and 5, it was

administered during the game sessions.

The Teacher Checklist (TC; source unknown; see Appendix B) is a paper and pencil checklist, containing two scales, Aggression and Immaturity. The inventory has 45 items about the child's actions and others' actions toward the child, which were rated on a 7-point scale. It was completed for each child by two of five teachers. The average score of the two raters was calculated to achieve a final score. The two teachers were determined by random assignment. All teachers were given a brief explanation about the study.

The Caregiver Interaction Scale (CIS; Arnett, 1989; see Appendix C) was completed for each student teacher and head teacher to determine the tone of the teacher's interactions with the children. The 26-item scale has four subscales: positive relationships, punitiveness, permissiveness, and detachment. In each classroom, two of five teachers (one head and four student) were randomly selected to complete the measures for each student teacher. The head teachers were rated by two student teachers. The raters were determined by random assignment. Head and student teachers were trained to administer the CIS by observing and completing the scale for one of the head teachers in the morning classes who were not part of the study. The results were discussed, but no interrater reliability was calculated. Also discussed were any

possible problems in scale administration.

The Observational Checklist of Children's Behavior (OCCB; Grineski, 1989b; see Appendix D) was used to count and categorize children's positive and negative behaviors during the games and self-selected activities for all weeks. During the group games, the interactions of each individual child were observed and recorded for 10 seconds. The observers were work-study students from the Family and Human Development Department at Utah State University and were trained by the author during the pilot study. The observers wore headphones that transmitted a beep every 10 seconds. Due to the large playing space, lack of availability of video cameras, and coding problems with overlapping videos, live observations were deemed the best method. The two observers used a checklist that included five behavioral categories:

Positive interaction that demonstrated help, support, assistance or encouragement toward another child:

1. Positive Physical Contact: for example, hugging, holding hands, kissing, patting someone on the back.
2. Positive Verbal Comments: for example, Wanna play?, I'll help, Are you all right?, That's good.
3. Goal-Related Cooperative Behaviors: Doing things where it is obvious that children are working together to accomplish a goal (for example, rolling a ball back and forth, carrying an object).

Negative interactions did not demonstrate help, support, assistance, or encouragement toward another child. These interactions may have demonstrated aggression, power, or lack of concern for another person:

1. Negative Physical Contact: for example, hitting, pushing, taking a piece of equipment, kicking.
2. Negative Verbal Comments: for example, That's not good; You can't do that; I don't want to play; Let's get away from her. (See Appendix D for full description.)

Each child was observed six times during the data collection session. The order of observation was random. An observation schedule was developed by drawing each child's name from a hat. During the training period, both observers observed the same child at the same time in order to establish interrater reliability. After each session, the observations of each observer were visually compared to guard against observer drift. To compare raters, several of the children's OCCBs were chosen at random, and the total number of observations in each section was counted. Visual comparison was possible due to the small number of observations for each child per session.

Cooperative Games and Competitive Games

Four pairs of games were played for the purpose of observation of behaviors (see Appendix E for descriptions of games). These games were selected after personal

communication with Grineski, and were used in his study (Grineski, 1989b). Each pair of games shared a common goal, but they achieved that goal through cooperative versus competitive means. The games were selected because they did not require skills too complicated for the children; many of the competitive versions are played at schools and children's parties.

Each pair of games had been tested in a small pilot study during Winter Quarter 1993. Ten children played each pair of games in the Child Development Lab. The play sessions lasted for 15 minutes. The games were tested to find the best way to conduct them, to check for any additional materials that might be needed, to gauge the children's reactions, and to discover if the children would enjoy playing them. The 10 children were not enrolled in the Child Development Lab during Spring Quarter 1993. The student teachers conducted the sessions while the author observed outcomes.

Ethical Considerations

The parents were informed about the goals of the study, and given information about the methods, about competitive games, and about the positive effects of cooperative games. They were asked to give informed consent with the option of withdrawing at any time without penalty.

A debriefing, consisting of 3 to 4 minutes of playing

Frozen Bean Bag Tag, was given to groups after playing competitive games. Frozen Bean Bag Tag is a non-competitive game of tag. Players balance a beanbag on their heads. If the bean bag fell off, the child became "frozen" and another player had to return the bean bag to the top of the "frozen" player's head to "unfreeze" him/her.

Methods and Procedures

Parent orientation for the Child Development Lab was held the first week of Spring Quarter 1993. During the orientation, the head teacher explained that a graduate student would be conducting a study in the North and South Labs, and that the study would be a comparison of competitive and cooperative games. Children would play two games each week for 4 weeks, including 2 weeks of cooperative games and 2 weeks of competitive games. Children would be observed during self-selected activities before and after each 2-week game session and also during all game sessions using the OCCB. The TC would be completed before and after each treatment session.

Parents were assured that children were free to leave their play whenever they felt uncomfortable or did not want to participate any longer. In addition, after the competitive game sessions, the children were debriefed by playing a cooperative game.

The head teacher then answered any questions and gave

each parent a packet containing an introduction to the study and information about cooperative and competitive games (Appendix A). Parents were asked to sign permission slips as soon as possible and return them to the Lab.

Week 0 of the study began the first week the children attended school. Each classroom was set up with observation chairs throughout the room. The chairs were used by students, teachers, and parents. Since the Lab was used for observations by a number of people, the children paid little attention to the observers. Two observers spent 1 hour in each lab observing the children during self-selected activities using the OCCB. Children were observed in random order for 3 minutes each. Random order was determined by drawing names out of a hat. Observers moved about the room when necessary. Also during week 0, two teachers completed the TC on each child. To determine which two teachers would complete checklists for each child, a number was assigned to each teacher (1-5), then a die was rolled twice for each child. If 6 was rolled, it was redone. The teachers had 5 days to complete the checklist based on their experiences with each child during the week. The same procedure was used to structure observations for weeks 3 and 6.

Week 1 began the game sessions. On Tuesday, group 1 and three teachers played treatment C, Musical Chairs and Hoop Ball for 20 minutes with 4-minute debriefing playing

Frozen Bean Bag Tag. Group 2 played game treatment D, Jump A Long, Simon Says, also for 20 minutes and a 4-minute debriefing playing Frozen Bean Bag Tag. (For a more extensive explanation of the procedure of all game sessions, see Appendix F).

On Thursday, group 3 played treatment A, Nonelimination Musical Chairs and Partner Hoop, for 24 minutes. Group 4 played treatment B, Long Long Jump and Fish Gobbler, also for 24 minutes.

During the following weeks, the same procedures were used for each treatment, debriefing, and rewards (see Table 1 for the schedule).

To test the hypotheses, a chi-square statistic and a descriptive analysis were performed using the data collected with the OCCB. In addition, to test H_3 and H_4 four ANOVAs, with two dependent variables (aggression and immaturity), were run using the TC. The scores were adjusted by subtracting week 0 from both weeks 3 and 6. The purpose of those analyses was to control for children's initial levels of immaturity and aggression against any gains made in the scores as a result of the treatments.

RESULTS

The dependent measures used in the following analyses were the child's scores on the Observational Checklist of Children's Behavior (OCCB) and the child's scores on the Teacher Checklist (TC).

Observational Checklist
of Children's Behavior

Each child had five OCCB frequency count subscores. Three of these were positive behavior scores (positive physical contact, positive verbal contact, positive goal-related contact) and two were negative behavior scores (negative physical contact, negative verbal contact). The sum of the two negative scores was subtracted from the sum of the three positive scores, yielding a single OCCB score for each child. To test all hypotheses, the OCCB scores were used in both a descriptive analysis and in quantitative analysis using chi-square and cross-tabulation.

Frequencies (Table 2) of positive and negative behaviors yielded the following results: There were more negative (aggressive) behaviors displayed during competitive games than during cooperative games; also there were more negative behaviors during competitive games than at any other time in the study. There were more positive behaviors than negative behaviors during all observations. Observations during self-selected activities yielded

Table 2

Total Positive Behaviors and Negative Behaviors During Pre-treatments, Treatments, and Posttreatments for North and South Labs

Group	Total Positive Sum	Total Negative Sum
Pretreatment	133.5	28.5
North	50 ^a	18.5
South	83.5 ^a	10.0
Cooperative	112	67.5
North	70.5	37.5
South	41.5	30.0
Postcooperative	126	15.5
North	63.5	11.5
South	62.5	4.0
Competitive	113.5	95.5
North	59.5	94.5 52.5
South	54.0	53.5 42.0
Postcompetitive	116	14.5
North	50.5	6.0
South	65.5	8.5
Total Sums	551 ⁰⁰¹	221.5 ⁰⁰

Note. ^a = $p < .018$. North $N = 20$, mean = 2.5, $SD = 1.338$.

South $N = 19$, mean = 4.39, $SD = 2.99$.

slightly more positive behaviors and less negative behaviors than during game playing.

Table 3 presents cross-tabulations between OCCB

scores, Treatment (Cooperative and Competitive Games), Class (North Lab and South Lab), and gender. Both North and South Labs had higher OCCB scores during cooperative games (North \bar{M} = 1.03, \underline{SD} = 2.56; South \bar{M} = .14, \underline{SD} = 3.08) than during competitive games (North \bar{M} = 0.65, \underline{SD} = 2.46; South \bar{M} = -0.87, \underline{SD} = 3.67).

To test for a relationship between treatment and positive and negative behaviors, the chi-square statistic was used (Table 4). Similar to cross-tabulation results,

Table 3

Means (Standard Deviations) for Positive OCCB Scores Minus Negative OCCB Scores During Cooperative and Competitive Games in North and South Labs

Treatment/Class	Overall	Lab	Male	Female
Competitive		0.65	1.33	0.77
North	-0.09	(2.46)	(2.92)	(2.47)
Competitive	(3.16)	-0.87	-0.78	-0.8
South		(3.67)	(3.48)	(3.46)
Cooperative		1.03	1.06	0.32
North	0.14	(2.56)	(2.66)	(2.35)
Cooperative	(3.08)	0.14	-1.56	-.25
South		(3.08)	(3.64)	(3.79)

Note. OCCB scores = positive sum - negative sum. The higher the score, the more prosocial behaviors displayed.

Table 4

Chi-Square Results of Observation Score, Negative and Positive Behaviors of North and South Labs, by Pre-treatment, Treatment, Posttreatment

	Sum of	Sum of	
Treatment	Positive	Negative	Row Total
Conditions	Behaviors	Behaviors	Row Percent
<hr/>			
Pre			
Count	134	29	163
Exp. Value	118.8	44.2	20
<hr/>			
Cooperative	112	68	180
	131.2	48.8	22
<hr/>			
Post	126	16	142
Cooperative	103.5	38.5	17
<hr/>			
Competitive	114	96	210
	153.1	56.9	25
<hr/>			
Post	116	15	131
Competitive	95.5	35.5	16
<hr/>			
Column Total	602	224	826
Column %	73	27	100

Note. $\chi^2(4, N = 826) = 88.58; p < .001.$ See Appendix G.

examination of cell frequencies indicated more negative behavior during competitive games than during cooperative games, $\chi^2(4, N = 826) = 88.58$ $p < .001$; cooperative 19.2 over expected; competitive 39.1 over expected. Conversely, cell frequencies indicated that during both cooperative and competitive games, positive behaviors were less than expected. Cell frequencies also indicated other differences as indicated below. First, the competitive games treatments yielded more negative behaviors than at any other time, with an increase of 39.1 over expected results. Second, observations during self-selected activities yielded more positive behaviors than expected (pretreatment 15.2 over expected; postcooperative 22.5 over expected; and postcompetitive 20.5 over expected; $\chi^2(4, N = 826) = 88.58$ $p < .001$).

Using the OCCB results discussed previously, only H_1 could be rejected. H_1 was rejected because we found that according to the total positive and negative OCCB sums, OCCB score means, and OCCB χ^2 results, competitive games yielded more negative behaviors than cooperative games did.

According to the results of the same analyses, there was not a difference in positive behavior during cooperative and competitive games, nor was there a difference between negative and positive behaviors during postcooperative and postcompetitive. These results allowed us to retain H_2 , H_3 , or H_4 .

Teacher Checklist

Each child had two TC subscores, Aggression and Immaturity, created after correlated variables were identified by a factor analysis. Aggression included 16 items, for example, this child says mean things to peers, always claims that other children are to blame in a fight, threatens or bullies others in order to get his or her own way, and so forth. Aggression had a Cronbach's alpha level of .88. Immaturity included nine items, such as, this child has trouble sitting still and concentrating, complains or whines a lot, acts silly or immature. Immaturity had a Cronbach's alpha of .91. To further test H_3 and H_4 , the two TC subscores were used in cross-tabulation analysis and analysis of variance.

Table 5 presents cross-tabulations between Immaturity scores, Treatment (Cooperative and Competitive Games), Class (North Lab and South Lab), and Gender. Overall, after the cooperative games, children had lower Immaturity scores than they did after competitive games (Cooperative \bar{M} = .69, \underline{SD} = 3.63; Competitive \bar{M} = 1.56, \underline{SD} = 8.06). However, since this difference was not statistically significant, we retained H_3 and H_4 .

Two ANOVAs used Immaturity scores as a dependent measure. Table 6 presents ANOVA 1, which was a 2(Treatment) x 2(Class) ANOVA with children nested within class. Table 7 presents ANOVA 2, an expanded model with

Table 5

Means (Standard Deviations) for Immaturity Scores for Males and Females Following Cooperative and Competitive Games in North and South Labs

Treatment/Class	Overall	Lab	Male	Female
Competitive		2.35	2.56	2.13
North	1.56	(10.60)	(8.72)	(12.36)
Competitive	(8.06)	.74	1.89	-.30
South		(4.12)	(3.86)	(4.27)
Cooperative		2.60	5.67	.09
North	.69	(10.87)	(9.62)	(11.63)
Cooperative	(3.63)	-1.32	-.33	-2.20
South		(4.92)	(3.97)	(5.71)

Note. The higher the score the more immature the behavior.

Table 6

ANOVA 1: Analysis of Variance for Immaturity Scores
2(Treatment) x 2(Class)

Source	df	MS	F	Sig. of F
Between subjects				
Class (C)	1	.43	.00	.88
Error	37	19.47		
Within subjects				
Treatment (T)	1	25.83	1.33	.26
C x T	1	15.83	.81	.37
error	37	(119.05)		

Note. Values enclosed in parentheses represent mean square errors.

gender added, which was a 2(Treatment) x 2(Class) x 2(Gender) design again with children nested within class. Since the same subjects in each class were involved in multiple measures, ANOVA 2 was a split plot ANOVA. In ANOVAs 1 and 2, there were no statistically significant main effects or interactions, which again allowed us to retain H_3 and H_4 .

Table 8 presents cross-tabulations between Aggression scores, Treatment (Cooperative Games and Competitive Games), Class (North Lab and South Lab), and Gender. As

Table 7

ANOVA 2: Analysis of Variance for Immaturity Scores
2(Treatment) x 2(Class) x 2(Gender)

Source	df	MS	F	Sig. of F
Between subjects				
Gender (G)	1	121.15	.99	.33
Class (C)	1	158.38	1.30	.26
G x C	1	4.34	.04	.85
Error	35	(122.24)		
Within subjects				
Treatment (T)	1	32.00	1.72	.20
T x G	1	36.93	1.98	.17
T x C	1	11.65	.62	.44
T x G x C	1	28.82	1.54	.22
Error	35	(18.66)		

Note. Values enclosed in parentheses represent mean square errors.

with Immaturity scores, overall the children scored lower after cooperative games than competitive games (Cooperative $M = -0.38$, $SD = 14.39$; Competitive $M = 1.31$, $SD = 12.50$). As with Immaturity scores, this difference was not statistically significant, leading us to retain H_3 and H_4 .

Similar to the previous two ANOVAs, Aggression scores as measured by the TC were used as the dependent measure in two ANOVAs. Table 9 presents ANOVA 3, which was a 2(Treatment) x 2(Class) ANOVA with children nested within class. Table 10 presents ANOVA 4, an expanded model with gender added, which was a 2(Treatment) x 2(Class) x

Table 8

Means (Standard Deviations) for Aggression Scores of Males and Females After Cooperative and Competitive Games in North and South Labs

Treatment/Class	Overall	Lab	Male	Female
Competitive		1.20	.33	1.91
North	1.31	(12.25)	(12.45)	(12.64)
Competitive	(12.50)	1.42	9.56	-5.90
South		(13.10)	(14.83)	(4.68)
Cooperative		1.95	4.44	-0.09
North	-0.38	(15.34)	(19.11)	(12.03)
Cooperative	(14.39)	-2.84	2.44	-7.60
South		(13.27)	(14.26)	(10.89)

Note. The higher the score the more aggressive the behavior.

Table 9

ANOVA 3: Analysis of Variance for Aggression Scores2(Treatment) x 2(Class)

Source	df	MS	F	Sig. of F
Between subjects				
Class (C)	1	277.72	.91	.35
Error	37	(61.61)		
Within subjects				
Treatment (T)	1	122.44	1.99	.17
C x T	1	60.13	.98	.33
Error	37	(305.39)		

Note. Values enclosed in parentheses represent mean square errors.

Table 10

ANOVA 4: Analysis of Variance for Aggression Scores2(Treatment) x 2(Class) x 2(Gender)

Source	df	MS	F	Sig. of F
Between subjects				
Gender (G)	1	980.26	3.52	.07
Class (C)	1	79.33	.29	.60
G x C	1	614.90	2.21	.15
Error	35	(278.22)		
Within subjects				
Treatment (T)	1	144.38	2.39	.13
T x G	1	160.68	2.66	.11
T x C	1	54.33	.90	.35
T x G x C	1	.59	.01	.92
Error	35	(60.51)		

Note. Values enclosed in parentheses represent mean square errors.

2(Gender) design with children nested within class. Once again, because the same subjects in each class were involved in multiple measures, ANOVA 4 was a split plot ANOVA. In ANOVAs 3 and 4, there were once again no statistically significant main effects or interactions. Similar to the previous ANOVAs, we again retained H_3 and H_4 .

Caregiver Interaction Scale

The CIS was used to determine if North and South Labs had any significant difference in teacher nurturance and affection. Using a one-way analysis, teachers were not significantly different in their positive relationships, punitiveness, permissiveness, and detachment when dealing with the children. Having determined this, the measure was not used in further analysis.

DISCUSSION

Similar to Grineski's work (1989a, 1989b), this study found more negative behaviors during competitive games. Chi-square results showed similar levels of positive behaviors during cooperative and competitive games, but 42% of the total negative behaviors occurred during competitive games. During cooperative games, the children also appeared to be having more fun. Fewer children chose to leave the games. Also, because children were not eliminated, they had a better opportunity to develop their skills. The children did not appear tense or anxious as they did during competitive games.

The OCCB frequencies of positive and negative behaviors showed a decrease in negative behaviors during self-selected observation. This is probably due to the fact that the children were free to choose their own playmates and activities, and chose to play with the children and activities they enjoyed most.

Overall, there were more positive and negative behaviors during game playing compared to self-selected activities, showing that the children interacted with one another more while playing games than they did when involved in other activities. Overall, there were three times as many positive behaviors as negative behaviors regardless of treatment.

The lack of any further statistically significant

effects between treatments may have been due to the shortness of treatment. Two weeks, 1 hour total of game playing, might be an insufficient period of exposure to note any further negative effects beyond those found through chi-square analysis. The effects may have been statistically significant with a longer treatment. Unfortunately, the Child Development Lab structure did not allow us to follow the same group of children for that long of a period. Because each child was only allowed two quarters in the lab, many left after Spring Quarter 1993.

It is possible that the debriefing after each competitive game treatment may have canceled out any effects. The debriefing was used, however, because it was felt that without it, the children may have been disappointed, upset, and frustrated with the outcomes of the competitive games.

The results of the four ANOVAs showed no statistically significant effects. The large variability in children's aggression and immaturity scores points to the need for teachers to consider this in the planning of their curriculum. The children in this study seemed more different in their behaviors than alike. Any activity that reduces the frequency of negative behaviors is an asset to the classroom. Curriculum should be designed to avoid situations that promote aggressive behaviors (i.e., competitive games; win-lose activities; activities with too

few materials, equipment, or space; activities that do not consider a variety of levels in experience, capabilities, or maturity; and activities with too much wait time, which causes boredom).

With all results, only H_1 could be rejected. The competitive games treatment had an increase of 41.2% in aggressive behaviors over cooperative games treatment. The other null hypotheses could not be rejected. Prosocial behaviors were similar during cooperative and competitive games. Also, levels of aggressive and prosocial behaviors were similar following cooperative and competitive games.

In conclusion, the chi-square results show the most aggressive behavior during the competitive games. This leads us to the belief that cooperative games are better for children because they exhibit fewer negative behaviors while playing them. Children seemed to prefer playing cooperative games and they also appeared to be happier and to be enjoying themselves more. During competitive games, on the other hand, the children often appeared to be anxious, quiet, withdrawn, and at times angry or upset.

During cooperative games, children are free to explore their own creativity and problem-solving skills because they do not have to risk elimination as they gain experience and improve their skills. Children are also subjected to fewer negative and aggressive peer behaviors, such as hitting, shoving, pushing, name calling, and

cheating, because they are not afraid of losing. Finally, children are not exposed to failure.

The results also support the necessity for educating our teachers and child care providers about the importance of facilitating prosocial behaviors. When there is an alternative to an activity that promotes aggressive or negative behavior, the alternative should be utilized. Most competitive games can be restructured to encourage cooperation while still providing skill development and team spirit. Prosocial behaviors should be encouraged with multi-use play equipment, ample play space, and games that foster imagination and free exploration of skills and feelings.

Parents also need to be informed of the alternatives to competitive activities. Parents should be made aware that it is possible to gain the benefits of competitive games (i.e., physical development, skill improvement, team spirit, and player cooperation to overcome challenges and achieve goals) without the disadvantages of competitive games. Competitive games can cause aggression, loss of self-esteem, elimination from play, cheating, and other types of negative behaviors. Cooperative games are a much better alternative in children's schools, sports, games, and other activities.

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APPENDICES

Appendix A
Parent Letter

Utah State University
Child Development Lab.
March 25, 1993

Dear Parents:

I am a graduate student completing a Master's degree in the Department of Family and Human Development. My research project is entitled: Cooperative Games: Promoting Prosocial Behaviors in Children. The purpose of this study is to compare children's prosocial behaviors (i.e., generosity, sharing, sympathy, helping, protection, physical comfort, cooperation, rescue, and altruism), during competitive games and cooperative games. I will be doing the research this quarter in the North P.M. Lab and the South P.M. Lab.

In this study the children will be observed during their free play time in the lab for one week. Then, beginning in April, the children will participate in a series of games during regular class time as part of the regular curriculum. The children will have one, 30 minute play session, a week for four weeks. The games they will play are: Non-Elimination Musical Chairs, Musical Chairs, Partner Hoop, Hoop Ball, Long-Long-Jump, Jump A Long, Fish Gobbler, and Simon Says.

The competitive games used in this study are played in many classrooms, at social gatherings and parties. These

games build large motor skills, coordination, team spirit, and game skills.

Cooperative games also build large motor skills, coordination, team spirit, and game skills; in addition they emphasize cooperation, mutual interdependence between players, and helping, without losing or being eliminated.

The research will not require any extra time or effort, from you or your child. This study will be safe for your child. Participation in this study is entirely voluntary and confidential. You may withdraw your child from the study at any time without penalty. Permission for your child to participate in this study is greatly appreciated. If you have any questions about this research, please feel free to contact either myself or my advisor, Dr. Ann Austin.

Sincerely,

Abbie R. Finlinson
Head Teacher North P.M.

Abbie R. Finlinson
Graduate Student
750-1525 (work)
752-2615 (home)

Ann Austin Ph D.
Associate Professor
750-1527

March 25, 1993

I, _____ agree to allow my child
_____, to participate in the
research regarding cooperative games. I understand that
this will involve my child participating in a series of
games during regular class time at Utah State University's
Child Development Lab. I understand that I may withdraw
from this study at any time without penalty.

signed: _____

date: _____

Appendix B
Teacher Checklist

Child's Name _____ Teacher's Name _____

Child's Code _____ Age _____ Lab _____

TEACHER CHECKLIST

NOTE: For each of the following statements please circle the number that best applies. Use the following scale to determine the best number.

Circle 1 if this statement is NEVER true of this child
 Circle 2 if this statement is RARELY true of this child
 Circle 3 if this statement is SOMETIMES true of this child
 Circle 4 if this statement is OFTEN true of this child
 Circle 5 if this statement is VERY OFTEN true of this child
 Circle 6 if this statement is USUALLY true of this child
 Circle 7 if this statement is ALMOST ALWAYS true of this child

1. This child is very good at understanding other people's feelings. 1 2 3 4 5 6 7
2. This child starts fights with peers. 1 2 3 4 5 6 7
3. This child is good at games and sports, a good athlete. 1 2 3 4 5 6 7
4. Other children actively dislike this child and reject him or her from play. 1 2 3 4 5 6 7
5. This child is too shy to make friends easily. 1 2 3 4 5 6 7
6. This child gets angry easily and Strikes back when he or she is threatened or teased. 1 2 3 4 5 6 7
7. Other children like this child and Seeks him or her out for play. 1 2 3 4 5 6 7
8. This child has trouble sitting still or concentrating. 1 2 3 4 5 6 7
9. This child acts stuck up and thinks he or she is better than the other children. 1 2 3 4 5 6 7

10. This child gets teased because of physical appearance. 1 2 3 4 5 6 7
11. This child performs poorly in math. 1 2 3 4 5 6 7
12. This child says mean things to peers, such as teasing or name calling. 1 2 3 4 5 6 7
13. This child tries to tell other children how things should be done. 1 2 3 4 5 6 7
14. This child has problems with personal hygiene, smells bad, or looks dirty or messy. 1 2 3 4 5 6 7
15. This child makes a lot of comments that are not related to what the group is doing; many of these comments are self-related. 1 2 3 4 5 6 7
16. This child is self-conscious and easily embarrassed. 1 2 3 4 5 6 7
17. This child is a leader, and can tell others what should be done but is not too bossy. 1 2 3 4 5 6 7
18. This child always claims that other children are to blame in a fight and feels that they started the trouble. 1 2 3 4 5 6 7
19. This child complains or whines a lot. 1 2 3 4 5 6 7
20. This child does not stand up for himself or herself when someone picks on them. 1 2 3 4 5 6 7
21. This child usually wants to be in charge and set rules and give orders. 1 2 3 4 5 6 7
22. This child usually plays or works alone. 1 2 3 4 5 6 7
23. This child acts silly or immature. 1 2 3 4 5 6 7
24. This child uses physical force, or threatens to use physical force, in order to dominate other kids. 1 2 3 4 5 6 7
25. This child performs poorly in reading. 1 2 3 4 5 6 7

- | | |
|--|---------------|
| 26. This child gets his or her feelings hurt easily. | 1 2 3 4 5 6 7 |
| 27. This child seeks the teacher's attention too often. | 1 2 3 4 5 6 7 |
| 28. When a peer accidentally hurts this child (such as by bumping into him/her), this child assumes that the peer meant to do it, and then overreacts with anger and fighting. | 1 2 3 4 5 6 7 |
| 29. This child is very aware of the effects of his/her behavior on others. | 1 2 3 4 5 6 7 |
| 30. This child never seems to have a good time. | 1 2 3 4 5 6 7 |
| 31. This child does things that other children think are strange or inappropriate. | 1 2 3 4 5 6 7 |
| 32. This child has trouble completing assignments. | 1 2 3 4 5 6 7 |
| 33. This child threatens or bullies others in order to get his or her own way. | 1 2 3 4 5 6 7 |
| 34. This child is physically attractive. | 1 2 3 4 5 6 7 |
| 35. This child makes odd noises or unusual comments. | 1 2 3 4 5 6 7 |
| 36. This child tries to dominate classmates and pushes self into classmates work groups. | 1 2 3 4 5 6 7 |
| 37. This child is timid about joining other children and usually stays just outside the group without joining it. | 1 2 3 4 5 6 7 |
| 38. This child bothers other kids when they are trying to work. | 1 2 3 4 5 6 7 |
| 39. This child exaggerates and makes up stories. | 1 2 3 4 5 6 7 |
| 40. This child gets other kids to gang up on a peer that he or she does not like. | 1 2 3 4 5 6 7 |
| 41. This child show off. | 1 2 3 4 5 6 7 |

42. This child is anxious and insecure in social situations. 1 2 3 4 5 6 7
43. This child gets impatient when other children do not do things the way he or she thinks they should be done. 1 2 3 4 5 6 7
44. This child is good to have in a group, shares things, and is helpful. 1 2 3 4 5 6 7
45. This child is frequently absent from school. 1 2 3 4 5 6 7

Appendix C
Caregiver Interaction Scale

CAREGIVER INTERACTION SCALE

Observer: To what extent are each of the following statements characteristic of this caregiver? For each item circle one of the numbers indicated: 1 = not at all, 2 = somewhat, 3 = quite a bit, 4 = very much.

- | | | |
|-----|---|---------|
| 1. | Speaks warmly to the children. | 1 2 3 4 |
| 2. | Seems critical of the children. | 1 2 3 4 |
| 3. | Listens attentively when children speak to her. | 1 2 3 4 |
| 4. | Places high value on obedience. | 1 2 3 4 |
| 5. | Seems distant or detached from the children. | 1 2 3 4 |
| 6. | Seems to enjoy the children. | 1 2 3 4 |
| 7. | When children misbehave, explains the reason for the rule they are breaking. | 1 2 3 4 |
| 8. | Encourages the children to try new experiences. | 1 2 3 4 |
| 9. | Doesn't try to exercise much control over the children. | 1 2 3 4 |
| 10. | Speaks with irritation or hostility to the children. | 1 2 3 4 |
| 11. | Seems enthusiastic about the children's activities and efforts. | 1 2 3 4 |
| 12. | Threatens children in trying to control them. | 1 2 3 4 |
| 13. | Spends considerable time in activity not involving interaction with the children. | 1 2 3 4 |
| 14. | Pays positive attention to the children as individuals. | 1 2 3 4 |
| 15. | Doesn't reprimand children when they misbehave. | 1 2 3 4 |
| 16. | Talks to the children on a level they can understand. | 1 2 3 4 |
| 17. | Punishes the children without explanation. | 1 2 3 4 |

- | | | | | |
|---|---|---|---|---|
| 18. Exercises firmness when necessary. | 1 | 2 | 3 | 4 |
| 19. Encourages children to exhibit prosocial behavior, e.g. sharing, cooperating. | 1 | 2 | 3 | 4 |
| 20. Finds fault easily with the children. | 1 | 2 | 3 | 4 |
| 21. Doesn't seem interested in the children's activities. | 1 | 2 | 3 | 4 |
| 22. Seems to prohibit many of the things the children want to do. | 1 | 2 | 3 | 4 |

Appendix D
Observational Checklist of
Children's Behaviors

OBSERVATIONAL CHECKLIST OF CHILDREN'S BEHAVIOR

 POSITIVE INTERACTIONS demonstrate help, support,
 assistance or encouragement toward another child

PHYSICAL CONTACT

Examples: hugging, holding hands, (affection), helping someone who has fallen, kissing, patting someone on the back, grabbing someone, holding someone.

VERBAL COMMENTS

Examples: Wanna play? I'll help you! Do you need help? Are you all right? I fell down, before, too! Do you wanna use this? Thanks! Let's do it again! That's good!

GOAL-RELATED COOPERATIVE BEHAVIORS

Doing things or accomplishing tasks where it is obvious the children are working together to accomplish a goal. May not include Positive Contact or Verbal Interactions. Examples: Children propelling a ball back and forth, or carrying an object together.

 NEGATIVE INTERACTIONS do not demonstrate help, support, assistance, or encouragement toward another child. These interactions might demonstrate aggression, power, or lack of concern for another child.

PHYSICAL CONTACT

Examples: hit, push, slap, punch, pulls hair, takes a piece of equipment, throws object a another child, kicks, squeezes hand hard.

VERBAL COMMENTS

Examples: You can't do that! That's not good! You do that funny! I don't want to play with you! I'm going to hit you! Let's get away from her!

Date_____ Teacher_____ (Grineski, 1989b)

Appendix E
Pairs of Games

Pairs of Competitive and Cooperative Games

GOAL: TO SIT WHEN THE MUSIC STOPS

GAME ONE: NONELIMINATION MUSICAL CHAIRS. Each child sits on a chair, the chairs are placed back to back in a circle. When the music starts the children move around the circle. After one chair is removed the music is stopped. All the children must sit down, either on a chair or in a lap. The game continues until one chair remains.

GAME TWO: MUSICAL CHAIRS. Each child sits on a chair, the chairs are placed back to back in a circle. When the music starts the children move around the circle. After one chair is removed the music is stopped. Each child sits in a chair, the child remaining without a chair is eliminated. The game continues until there is one player remaining.

GOAL: TO TOSS A BALL INTO A HOOP.

GAME THREE: PARTNER HOOP. Pairs of players work together to score a maximum number of points. One player is the thrower and the other is the catcher. The thrower throws a beanbag into a hoop held by the catcher who is standing eight feet away. The catcher may move toward the ball after it is thrown to catch it. Each beanbag that pass through the hoop scores one point. After ten tosses the players change positions.

GAME FOUR: HOOP BALL. Individual players attempt to score a maximum number of points. Each player throws eight bean bags into a hoop placed ten feet away. Each bean bag inside the hoop scores a point. The player with the most points is the winner.

GOAL: TO JUMP VERTICALLY FOR DISTANCE

GAME FIVE: LONG, LONG JUMP. Teams of players jump in turn; they collectively attempt to achieve a predetermined distance. When the distance is reached the team wins.

GAME SIX: JUMP A LONG. Individuals beginning at the same place jump together. The player who jumps the farthest is the winner. Equal distance jumps are repeated until a winner is declared. The game is repeated five times.

GOAL: TO MOVE AS DIRECTED

GAME SEVEN: FISH GOBLER. Players stand together in one area; upon the command of the "Fish Gobbler" the players work together to move as directed.

The commands include:

- * Ship: run to one end of area
- * Shore: run to opposite end of area
- * Fishnet: all players hold hands to make a large circle, "net"
- * Sardines: all players lie on floor and

touch

- * Wave: all players join hands and move bodies up and down
- * Submarine: all players form a line and lift leg and hold nose
- * Shark: all players form a line and make a large mouth and a dorsal fin with their arms

GAME EIGHT: SIMON SAYS. Upon the command of "Simon" the player must move as directed, but only when the directive is preceded by "Simon Says.....". Players who respond to a directive not preceded by "Simon Says....." are eliminated. The last player still playing is the winner.

Appendix F
Methods and Procedures

Week 1 began the game sessions. On Tuesday at 1:00 p.m. group 1 joined the head teacher and two other teachers at the "rug". The rug was a large carpeted area inclosed on three sides by walls and on the fourth by a piano and shelf of blocks. The first group participated in treatment C and played game 2, Musical Chairs, first. Ten chairs were placed facing outward in a circle. A child sat in each chair. The teacher told the children when the music began to play, they should all stand up and walk around the circle. Then the teacher would take away one chair. When the music stopped everyone should find a chair and sit down, if they couldn't find a chair they had to stop playing and go sit down with the other teachers. The other teachers were sitting on the floor off to one side of the area. The game continued until only one chair and one child were left. The children were cautioned to be careful not to trip and not to push and shove each other.

The game was then played for twelve minutes, eight times through. To give variation to the game, the children were told to move around the circle in various locomotor patterns, for example, skipping, hopping, baby steps, etc.. If for any reason a child did not want to continue playing they were allowed to sit with the other two teachers.

For the second twelve minutes, the children in group 1 played Hoop Ball. The teacher divided the group into pairs. One partner was given a large hoop, and the other

was given five balls. Two pieces of tape were placed on the carpet eight feet apart. The teacher had the partner holding the hoop stand behind one piece of tape, and hold the hoop out without moving. The other partner would throw each ball and try to throw it through the hoop, counting each ball that passed through the hoop. The children were told to keep score and see which partner could make the most points. After the first partner threw all the balls the second partner would throw the balls.

Each partner had five chances to throw the balls. To vary the game the hoop was held in different positions, for example, vertical, horizontal, touching the ground, up high, etc..

After the treatment the children were debriefed by playing Frozen Bean Bag Tag. All of the children balanced a bean bag on their heads, if the bean bag fell off then the child must freeze. To become unfrozen another child had to return the bean bag to the top of the others head. This game was played for four minutes, then each child was given a sticker to wear on their hand as a thank you for playing.

The second group came to the rug at 1:30 p.m.. The second group participated in treatment D. For the first twelve minutes the children played Jump A Long. The teacher had all of the children line up side by side. Then the teacher told the children when she said go all of them

would jump as far as they could. They must stand on two feet then jump, without running first. Then jumps would be compared to see who jumped the farthest. All the children jumped eight times total, comparing their jumps to the others each time. To add variety jumping styles were alternated, forward jumps, backwards, one legged and frog jumps.

The second twelve minutes were devoted to Simon Says. The teacher explained that she would tell the children to do an action, but they should only move if the teacher said "Simon says..." first. If anyone moved without "Simon says..." they had to leave the game and sit with the other teachers. The game would continue until only one child remained. The other two teachers watched the children for movements. The game was played a total of five times. To add variation the teacher asked for suggestion for different actions from the children.

Following treatment D, group 2 was also debriefed by playing Frozen Bean Bag Tag and received stickers as rewards for helping.

On Thursday of week 1, group 3 game to the rug at 1:00 p.m. with their head teacher. Group 3 was involved in treatment A and played Non-Elimination Musical Chairs first. Ten chairs were placed facing outward in a circle, the teachers told the children to sit in a chair. Then the teacher told the children to stand up and walk around the

circle when the music began to play. The teacher explained that she would take away one of the chairs, then when the music stopped everyone should sit down, and two children would have to share a chair. Each time the music played the teacher would take away another chair until only one was left, then everyone would have to share the same chair. The game was played a total of 5 times in twelve minutes.

The second twelve minutes the children played Partner Hoop. The children were divided into pairs, then one partner was given a hoop and the other was given five balls. The children were placed eight feet apart with their positions marked by tape on the carpet. The teacher told the children that the children with the balls could throw the balls through the hoops, and the children with the hoops could move the hoops to help the balls pass through the hoops. They should count each time the ball went into the hoop, and keep track of all the points they could make together. When the first partner finished their five balls, the second partner could throw the balls. Each partner had five chances to throw the ball and a total score was kept for all throws. After the session all the children received a reward sticker for playing.

Group 4 came to the rug at 1:30 for treatment B. First the children played Long Long Jump for twelve minutes. The teacher had all of the children line up in a line behind one another. Then she had the first child

stand and jump as far as they could. The second child jumped from the landing spot of the first, and so forth until all ten children had jumped. The final landing spot was marked with tape. Then the children all jumped again to see if they could jump collectively farther the second time. All children jumped four times as a team.

The next twelve minutes were filled by playing Fish Gobbler. The teacher asked the children to pretend that the carpet was an ocean, the wall was the beach and the opening between the piano and shelf was a "ship". The teacher explained that when she said ship everyone should run to the opening, if she said shore everyone should run to the wall. When the teacher called out "fishnet" everyone should make a circle and hold hands. The call "sardines" meant everyone should lie on the floor next to each other. "Wave" meant to hold hands and wave their bodies up and down. "Submarine" meant that everyone should hold their nose and sink to the floor. When "shark" was called all the children should make a large mouth and a dorsal fin by holding their arms together over their heads.

The game was played continually, to vary the actions the children made suggestions of their own, for example, crab walking, octopus swimming, starfish positions etc.. When the time was up all the children received a sticker.

During the following weeks the same procedures were used for each treatment, debriefing, and rewards. Week 2,

Group 1 played treatment D, group 2 played treatment C, Group 3 played treatment B, and Group 4 played treatment A. Week 3 was a free week. Week 4, Group 1 played treatment A, Group 2 played treatment B, Group 3 played treatment C, and Group 4 played treatment D. Week 5, Group 1 played treatment B, Group 2 played treatment A, Group 3 played treatment D and Group 4 played treatment C. Week 6 was a free week.

Appendix G

Table 11

Table 11

Complete Chi-Square Results of OCCB Score

Treatment Conditions	Sum of Positive Behaviors	Sum of Negative Behaviors	Row Total Row Percent
Pre			
Count	134	29	163
Exp. Value	118.8	44.2	20
Row Pct.	32	18	
Col. Pct.	22	13	
Residual	15.2	-15.2	
Cooperative	112	68	180
	131.2	48.8	22
	62	38	
	19	30	
	-19.2	19.2	
Post	126	16	142
Cooperative	103.5	38.5	17
	89	11	
	21	7	
	22.5	-22.5	
Competitive	114	96	210
	153.1	56.9	25
	54	46	
	19	42.9	
	-39.1	39.1	
Post	116	15	131
Competitive	95.5	35.5	16
	88	12	
	19	7	
	20.5	-20.5	
Column Total	602	224	826
Col. Percent	73	27	100