

Assessment of a Peer-Helping Game Program on Children's Development

Maite Garaigordobil
Agustín Echebarría
País Vasco University, Spain

Abstract. This study examined the effects of a friendly and cooperative game program on child development in children ages 6 and 7. A pretest/intervention/posttest design was used with a sample of 125 experimental and 53 control subjects. Social behavior in the classroom, self-concept, and academic learning maturity were measured. Treatment consisted of 22 play sessions carried out over one academic year. The program's games encourage children to cooperate and share, as well as to develop symbolic play. Results of variance analyses suggest that the intervention stimulated significant improvement in social behavior in the classroom (increasing behaviors of leadership, cheerfulness, sensitivity, and respect, and decreasing aggressiveness, apathy and anxiety), and in some aptitudes for academic learning (verbal and numerical skills). Although self-concept scores also increased, this change was not significant.

This research assesses the effects of a game program made up of two components: cooperative interaction and symbolic play. It was based on results of numerous studies from various epistemological approaches that have analyzed the close links between play and integral development. These researchers have concluded that play is an activity vital to human development (Bruner, 1986; Elkonin, 1978/1980; Fisher, 1992; Garaigordobil, 1990, 1992a, 1992b, 1995; Gordon, 1993; Isenberg & Quisenberry, 1988; Piaget, 1945/1979; Piaget & Inhelder, 1969/1984; Vygotsky, 1933/1982).

Research on friendly and peer-helping games suggests that these games benefit social development. Some observational studies have demonstrated that structured game programs stimulate an increase in spontaneous cooperative behavior among

kindergarten children during unstructured free time in the classroom (Orlick, McNally & O'Hara, 1978), among kindergarten children during free play in a playroom (Jensen, 1979) and among preschool children during free play in a gym (Orlick & Foley, 1979).

In an experimental study, Orlick (1981) evaluated the effects of a cooperatively structured game program on sharing and happiness while playing games, using a sample of 5-year-old children. Subjects were children in four intact, half-day kindergarten classes from two different schools. Each school had one experimental and one control group, both of which were taught by the same classroom teacher. Experimental groups were exposed to an 18-week cooperative game program, and control groups were exposed to a traditional game program of equal duration. Pre-measures and post-measures on a candy-sharing task revealed that children in the cooperative game program increased their sharing behavior significantly more than did those in the traditional game program. Overall happiness when playing games outside of school increased for all groups. Later, after employing a five-week, cooperative game program with 19, 7- to 10-year-old subjects,

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Mender, Kerr & Orlick (1982) concluded that the program had also increased the cooperative social responses of learning-disabled children and improved their motor abilities.

A study by Blazic (1986) found that, as a result of participation in a cooperative game program, the games class accelerated in the development of cooperative interactions in the classroom, as compared to the two non-games classes. Specifically, these interactions included acceptance of self and others, inclusion of self and others in class activities, and the development of a positive classroom environment. He indicated that the nature of the games program complements other positive social processes and that maturation, class familiarization, and the teacher's own affective orientation contribute to the students' positive interpersonal development.

Grineski (1991) studied the extent to which cooperative games promote prosocial behavior interactions in young children with and without impairments. Findings from this study suggested that cooperative games stimulated: (a) greater frequency of positive physical contact than free play, especially in handicapped children; (b) higher rates of goal-related cooperative behaviors; (c) a decrease in negative physical contact and negative verbal interactions; and (d) positively affected player performance.

Taking all of this research into consideration, one could state that a style of play behavior that includes cooperation and symbolic activity is important to children's personal and social development. The current study takes an eclectic theoretical approach, not too distant from either Vygotsky or Orlick. These approaches have demonstrated the relevant influence cooperative interaction among peers has on socialization and on cognitive development.

The main purpose of the present research was to assess the effects of a friendly-cooperative game program, which included symbolic activity, on social behavior among

peers in the classroom, as well as on aptitudes for academic learning and self-concept. This study had three main hypotheses. First, the game program would bring about improvement in experimental groups as compared to control groups in social behavior in the classroom, by stimulating such behaviors as leadership/initiative, cheerfulness, social sensitivity, respect/self-control, and social adaptability; and by reducing behaviors such as aggressiveness/stubbornness, apathy/withdrawal, and anxiety/shyness. Second, the intervention would improve aptitudes for academic learning, such as verbal comprehension level, numerical aptitude, perceptible aptitude and global maturity. Finally, the game program was expected to improve self-concept.

Method

Participants

The sample consisted of 178 children, ages 6-7 (1st grade in elementary school) from eight classrooms in the province of Guipúzcoa, Northern Spain. The children in these classrooms had already been placed randomly with the sole aim of obtaining an even number of students in every class. There were 125 randomly chosen children (6 groups) in the game program, and 53 (2 groups) were designated as controls.

The groups were selected based on two criteria. First, they were chosen from among different schools—public and private, rural and urban. Therefore, the pupils came from several socio-cultural and economic environments. Second, the teacher's characteristics were taken into account, mainly due to the special requirements of this research. The teachers had to be able to carry out systematically one game session a week throughout the whole school year. They also had to attend a training course every two weeks, in which they were taught how to conduct the sessions in the classroom. This obviously meant that both the experimental and the control teachers had to be positively motivated a priori.

Selection of the eight teachers was carried out by the author on the basis of personal interviews.

Two control groups were randomly chosen out of the eight groups of subjects. The groups remained unchanged throughout the school year. The experimental groups were exposed to the game program in their own school during their usual school hours. Thus, they had no special attention outside of their regular schedule that would have affected the internal validity of the experience. While the experimental subjects were undergoing the game sessions, the control groups were carrying out their usual school activities, such as mathematics and grammar, which did not use game approaches.

Instruments

A number of instruments were used to measure factors of social behavior in the classroom, self-concept and academic learning maturity. Children's social behavior was rated by teachers using the Socialization Battery (BAS) (Silva & Martorell, 1983). This questionnaire assesses the frequency of such behaviors as leadership/initiative, cheerfulness, social sensitivity, respect/self-control, aggressiveness/stubbornness, apathy/withdrawal, anxiety/shyness, and general social adaptability in school. The teacher records every time the child has demonstrated one of the 118 social behaviors. A raw score is then obtained for each behavior. Reported alpha coefficients ranged from .87 to .99. Test-retest reliability ranged from .51 to .80.

The Self-Concept Scale for Children (M-Z) (Martinek & Zaichkowsky, 1977) was also administered. This scale is a non-verbal instrument, designed to be free of cultural influences. It is employed to rate children's self-concept. The scale consists of 25 sheets, each containing two pictures. One shows an example of good self-concept and the other of bad. Children choose the one they believe better represents them. One point is scored for each choice of good self-concept. The over-

all Hoyt Estimate of Reliability was computed to be .88.

Finally, the Aptitudes for Academic Learning Battery (BAPAE) (De la Cruz, 1982) was administered to determine academic learning maturity. This battery explores children's verbal comprehension level, numerical aptitude, perceptive aptitude and global maturity for academic learning. The battery contains five tasks: (a) vocabulary, (b) spatial relations, (c) mathematic problem-solving, (d) shape consistency, and (e) spatial orientation. The Spearman-Brown formula was used to assess the battery's reliability. A coefficient of .88 was obtained. Individual raw scores were obtained for all variables on each of the three instruments, and combined in an interval scale.

Procedure

This study was conducted over one academic year. At the beginning of the school year, a pretest was carried out in all eight groups. Afterwards, the six experimental groups had one session of the game program a week for eight months. Finally, the posttest was performed at the end of the school year.

The pretest stage of the study was carried out as follows. After a 20-day observation period, each teacher evaluated each child's social behavior with peers in the classroom using the BAS. The M-Z Self-Concept Scale and BAPAE were administered collectively in small groups of four children. Once the pretest phase was completed, each teacher, with the assistance of a collaborator, implemented the weekly intervention program in the classroom throughout the school year. The pretest replicated the teacher data collection process.

The research team consisted of 17 professionals (psychologists and teachers) who underwent a group training session every two weeks. They were also guided by the author when visiting their classrooms. Training focused on theoretical concepts related to the game program, and on the methodology required for its

application. It was held with both experimental and control teachers together.

Treatment

Treatment consisted of the application of the friendly-cooperative, peer-helping game program. It was conducted in 22 game sessions in each classroom once a week over the school year. Each session lasted 60-90 minutes, during which time four or five games took place. All sessions were held in a large, barrier-free classroom on the same day of the week and at the same time.

The program (Garaigordobil, 1992a) used 54 games having 5 distinctive characteristics: (a) Participation—everybody takes part, nobody is left out or loses; (b) Acceptance—every player has a significant and necessary role in the game; (c) Cooperation—the structure of the game leads players to help each other towards obtaining a common goal, a group goal; (d) Fiction—play is an imitation of real life, “let’s pretend we’re...snakes, trains, bells, or blind”; and (e) Pleasure—the aim is for children to have fun while interacting in a constructive, positive way with their peers at school.

The games were arranged into six categories, according to the difficulty of each game and the main social factor it involved. The first category consisted of introductory games meant to stimulate getting to know group members. One example is “The Gesture Game,” in which players take turns standing in the center of a circle, saying their names and making a gesture that identifies them.

The second category included verbal and non-verbal communicative games that promoted both communication among the group and active peer-listening skills. An example of this category is “The Nonsense Game.” The players sit in a circle and whisper questions and answers in their partners’ ears. The first player asks the person on their right a question, for instance, “What is a hat for?” And the partner answers, “To wear on your head.” The one who answered whispers another question to the next player, for example, “What is a

train for?” And the child on the right answers, “To travel places.” The game continues until every player has asked a question and answered one. Then each child repeats out loud the question they were asked by the person on their left and the answer they were given by the one on their right, for instance, “He asked me what a hat was for, and she answered, “To travel places.” The result is utter nonsense, which everybody enjoys.

The third category included games with the aim of giving and receiving help. One such game is “The Blind Person,” which is played in pairs. One partner plays the blind person, and the other helps them move around the classroom without running into any obstacles, which were set in place after the child was blindfolded. The guiding player stands behind the blind person and has to give them directions by lightly touching their shoulders. Players take turns as leader and follower.

Games in the fourth category were meant to stimulate confidence in oneself and others. For example, in “The Wall” all players stand side by side about two meters in front of an obstacle, thus, forming a human wall. One player is blindfolded and placed 7-8 meters in front of the wall. The blindfolded player runs fast towards the obstacle, and the rest have to stop them gently so that they do not crash into the obstacle.

The fifth category included cooperative games that cannot be played correctly if the players do not help each other to achieve group goals. An example of this is “The Word Bazaar.” Players are divided into groups of five. The goal is to construct five sentences, one sentence each, using words contained in five envelopes that are distributed one envelope per player. Players have to exchange words amongst themselves, but everything has to be done in silence. The cooperative category also included some cooperative body games, such as one in which four or five players form a turtle with their bodies and, by coordinating their movements, crawl around the class-

ASSESSMENT OF PEER-HELPING GAME

room avoiding other turtles. The last category included cooperative drama games, which promoted children's cooperation and emotional expression through drama.

The structure of the sessions was as follows: (a) children sat on the floor in a circle for 5 to 10 minutes while the teacher reminded them of the aim of the games (to play in a friendly, cooperative way and to help each other) and explained how the first game is to be played; (b) the children took part in 4 to 5 consecutive game activities; and (c) children spent 5 to 10 minutes discussing the positive and negative points of the sessions (e.g., how much they enjoyed themselves, everybody's participation, difficulties they'd had in organization, to what extent they followed the rules, how much they cooperated, whether any player was excluded).

The game sequence in each session was organized by the teacher who was leading the treatment and by the outside observer who collaborated by recording all interactions observed in each session in a notebook, filled in a narrative style. The teacher and observer selected the games and decided on the order of presentation. This flexibility was permitted so as to adapt to the

specific features of each group and the events in previous sessions.

Results

A multivariate analysis of variance (MANOVA) was performed in order to check the equivalence of the experimental and control groups in the pretest. The group means on the 13 variables are presented in Table 1. There were no significant differences, $F(1, 176) = 1.21, p < .29$. The control and experimental groups were equivalent on the pretest. However, the two groups were significantly different on two of the 13 variables, and approaching significance on one other variable. These variables were: Aggressiveness, $F(1, 176) = 3.36, p < .06$, Apathy/Withdrawal, $F(1, 176) = 8.49, p < .01$, and Anxiety/Shyness, $F(1, 176) = 29.36, p < .001$. All of these variables refer to negative behaviors. On all three variables, the experimental group had higher scores than the control group (see Table 1).

After testing equivalence between the experimental and control groups in the pretest, another MANOVA was carried out, in order to study changes in the 13 variables that took place between the pretest and the posttest in both groups.

Table 1
Means and Standard Deviations on Pretest-Posttest for all Variables

Variables	Experimental group ^a				Control group ^b				Entire Sample ^c			
	Pretest		Posttest		Pretest		Posttest		Pretest		Posttest	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Leadership*	19.8	14.0	30.6	11.9	20.9	11.5	23.5	12.3	20.1	13.3	28.5	12.5
Cheerfulness*	25.6	7.0	29.6	26.1	26.0	7.5	26.1	6.1	25.7	7.1	28.5	5.4
Sensitivity*	13.8	8.5	25.1	18.9	15.8	9.2	18.9	7.4	14.4	8.7	23.2	9.4
Respect-Self-control*	37.5	10.8	43.7	9.0	38.5	13.5	38.5	14.0	37.8	11.7	42.2	11.0
Aggressiveness*	7.7	8.2	4.8	6.2	5.2	7.4	8.5	10.1	6.9	8.0	5.9	7.7
Apathy-Withdrawal*	9.2	10.8	3.1	5.0	4.4	7.6	4.9	6.7	7.7	10.2	3.6	5.6
Anxiety-Shyness*	11.3	.7	6.9	6.6	4.3	5.2	6.4	4.4	9.2	8.4	6.8	6.0
Adaptability*	33.4	7.2	38.0	4.6	34.0	7.2	34.3	7.3	33.6	6.8	36.9	5.8
Verbal comprehension*	13.4	3.2	16.3	2.0	15.1	2.9	16.2	2.6	13.9	3.2	16.3	2.2
Numerical aptitude*	11.7	4.0	15.6	2.9	13.4	4.2	15.6	3.3	12.2	4.1	15.6	3.0
Perceptive aptitude	37.2	8.5	43.2	5.6	37.5	7.6	42.3	6.4	37.3	8.2	42.9	5.9
Global maturity*	62.4	13.2	75.1	8.9	66.1	10.4	74.2	9.7	63.5	12.5	74.8	9.1
Self-concept	20.8	4.1	22.9	2.8	20.6	4.2	21.6	3.4	20.8	4.1	22.5	3.0

$n^a = 125$. $n^b = 53$. $n^c = 178$.

* time x group interaction $p < .01$

This MANOVA combined a between-within design (Multivariate Pillais $F = 7.29, p < .001$).

There was a significant univariate difference between the pretest and posttest on all variables except for aggressiveness. On the posttest, there were higher scores for the variables of leadership, cheerfulness, sensitivity, respect, adaptability, verbal, numerical and perceptive capacity, self-concept, as well as for the global index. By contrast, there were lower scores for aggressiveness, apathy and anxiety. These changes may be regarded as reflecting natural changes due to maturation that took place over the experimental time period.

However, these changes were different for the experimental and control groups (pre-post interaction by treatment effect). Except for perceptive aptitude, $F(1, 174) = 1.91, p < .30$, and self-concept, $F(1, 174) = 2.81, p < .10$, all of the remaining interaction effects were significant. The pattern shows greater difference in the experimental group's pre-post scores than the difference in the control group's scores on leadership, cheerfulness, sensitivity, respect, adaptability, verbal and numerical capacities, self-concept and the global index. Furthermore, the experimental group had significantly lower scores on aggressiveness, apathy/withdrawal, anxiety/shyness. We may conclude that the treatment had a significant positive effect, greater than the effect that could be attributed to the natural process of maturation.

Discussion

This psycho-educational game program, which included action, communication, and cooperative interaction among subjects, and which highlighted the idea of help and cooperation among peers by avoiding aggression, may improve socialization in the classroom. It promoted a significant increase in behaviors of leadership, cheerfulness, social sensitivity and respect-self control. It also led to a decrease in aggressiveness, apathy/withdrawal and anxiety/shyness behaviors and improved children's global adaptation. These findings are con-

sistent with a number of studies that have suggested that friendly-cooperative games contribute to positive socialization (Blazic, 1986; Garaigordobil, 1995; Grineski, 1991; Mender, Kerr & Orlick, 1982; Orlick, 1978a, Orlick, 1978b, Orlick, 1981, Orlick, 1988).

Recently, there has been greater awareness of the important role social skills play in academic performance (Santos, 1988; Slavin, 1990; Stevens & Slavin, 1991). Recent studies show that development and reinforcement of students' social competence not only contributes to human development, but also helps in educational tasks and favors increased motivation related to better academic performance. These results may be a consequence of work carried out within an interactive, communicative, cooperative, learning framework, where, at the same time, some other unquestionably relevant cognitive-affective processes are taking place as well. Correlational studies (Garaigordobil, 1993; Wentzel, 1993) have also found significant relationships between prosocial behavior and academic achievement.

The findings of the present study open up new directions of research on children's play. Some areas to explore, for example, would be: (a) comparison between the different repercussions of friendly, cooperative games and competitive games; (b) assessment of the impact this type of program has on other developmental variables; (c) design-evaluation programs for different age ranges; (d) analysis of the impact these games have on therapeutic groups.

One of the main goals of education is that pupils achieve their highest level of human development. However, too often, schools only consider academic learning, forgetting other factors involved in child development. This is why the findings of this study have implications for reforms designed to improve social and personal development. The results support the positive effect of an educational prosocial treatment program. They also provide teachers with a tool to promote the social integration of problem children.

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