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Immediate Effects of Film-mediated Cooperative Games on Children's Prosocial Behavior

By

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Thesis

Submitted to the School of Graduate Studies
in Partial Fulfillment of the Requirements
for the Degree of Master of Science in Kinanthropology
in the School of Human Kinetics and Leisure Studies,
University of Ottawa

May, 1981
Ottawa, Ontario

Sharing

Some toys are very close to me,
My tricycle and bear
Are almost parts of me myself
So please don't make me share
If you do, I'll cry and fuss
You'll hit me with your hand
And we will have a scene when really
You don't understand
That I'm too young, I'm insecure
I fear that part of me
Will go away and not come back
Don't force, encourage me
That giving comes when I am ready
Sharing is an art
That comes from happy confidence
And overflowing heart

by Anne Johnstone from
I Need You When I Need You, Mom
by Myself, 1979, (printed by
printers ink, Barrie).

Acknowledgements

I wish to acknowledge the help of Mrs Betty Usher, program coordinator of the Duffer Doo Preschool Program, for her consistent collaboration. Also many thanks to the play leaders who were very cooperative during my four months of observation and experimental treatment. For proof-reading the manuscript and many hours of thoughtful and loving discussions, I am indebted to Edna Montague.

To my thesis committee, thank you: Bob, John, Jim and Terry keep up your terrific work.

Dedication

I wish to dedicate this thesis to all the children of the world for helping me understand life and to my family, Anne-Marie, Yvette, Léopold, Paulette, Richard, and Eveline whose love made it possible.

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Abstract

The purpose of this study was to investigate the immediate effects of film-mediated cooperative games on children's prosocial behavior. A total number of seventy-seven (N=77) preschool children between the ages of two and four served as subjects. The experimental treatment consisted of showing groups of children either slides or videotapes of cooperative games over a five week period. Control groups were shown animated films for an equal period of time. The children were systematically observed each week immediately after the interventions in order to assess the extent to which they modeled cooperation. An average score for the modeling of cooperation was tabulated for the five weeks of treatment. A second dependent measure was also taken which consisted of the extent to which children were willing to donate to a friend after the fifth week of treatment. These two measures were analyzed with multivariate analysis of variance (MANOVA) and Bonferroni confidence intervals. A post hoc 2 X 3 nonorthogonal MANOVA was utilized to assess the age independent variable. The results indicate that the videotape treatment was more effective in teaching prosocial behavior in comparison to the film treatment. The post hoc MANOVA analysis revealed that older children were more cooperative than younger children. Possible

applications of videotape modeling for prosocial behavior are discussed and recommendations are made for future research with young children.

Chapter 1

Introduction

Positive socialization has always been one of the stated aims of most educational, therapeutic, sport or recreational programs, and recent research would indicate that cooperative games are one means of prosocial socialization (Orlick, 1978a; Orlick, 1975b; Orlick & Foley, 1979). With the help of cooperative games, it is believed possible to teach young children prosocial behaviors.

The focus of this research is on the effects of visual modeling of children's cooperative game playing and their subsequent behavior. This problem is important and appropriate for several reasons. Research has shown that current television programming may be contributing to mounting tension and aggression. Therefore new alternative programming is needed to alter this trend. With respect to possible content material research has shown that the proportion of children's prosocial behavior increases both in play and in the classroom following active participation in leader directed cooperative games. Considering the high cost of play leadership, it becomes important to determine the efficacy of video modeling of cooperative play on children's imitative behavior.

Skinner (1978) has emphasized the need for greater scientific approaches to studying our society and the need for more positive reinforcement of altruistic behaviors. Pursuing the same line of thought, Bandura (1977) elaborated on the use of television to teach modeling of helpful behaviors. His empirical studies have revealed the important effects of observational and symbolic encoding in children's imitative socialization development.

This study was designed to evaluate the direct impact of film-mediated cooperative games since no such studies have yet been done. If this initial inquiry showed positive results, long term assessment and generalization of prosocial behavior would then be a logical follow-up.

Some studies (Rushton, 1976; Rushton & Wheelwright, 1980) have shown a high correlation between cooperation and donation behavior. Therefore a measure of the possible short term effects of cooperation on donation after the interventions could provide useful data about the relationship between these variables. It is important to note that the prosocial measure of donation is not direct imitation but a variable related to cooperation.

If it is shown that the immediate effects of film-mediated cooperative games do enhance cooperation and

do result in more donation behavior; then, perhaps teachers in the preschool and school environment could utilize videotape reels or cassettes, slides or films to foster modeling of cooperative behavior in the gymnasium, the classroom and the school yard during recess and lunch periods (Partington, personal communication, 1978). Commercial television might be able to adapt the cooperative games and play materials to effect, favourably, children's prosocial behaviors (Provost, 1980). If immediate effects are evident perhaps these visual aids could be used to help teachers and play leaders control group behavior in specific situations on a short term basis. In fact if programs such as these are demonstrated to be effective, even on a short term basis, they could provide data support for more widespread implementation.

Statement of the Problem

The purpose of the study was to investigate the immediate effects of film-mediated cooperative games on children's prosocial behavior.

Research Hypotheses

A. The groups viewing cooperative games on videotape reels (VTR) will engage in more subsequent modeling of cooperation during free play and in more donation to friends than groups viewing slides of the same cooperative

games.

B. The groups viewing cooperative games on videotape reels will engage in more subsequent modeling of cooperation during a free play period and in more donation to friends than groups viewing non related animated films.

Limitations

Several limitations arose during experimental treatments of the different groups.

1. The groups' viewing of the cooperative games on the slides and videotape reels created certain viewing problems for those participants who watched from an angle.

2. Videotaping of all children in the play area was sometimes very difficult because only one camera was available. The experimenter had to consider the viewing angle of the camera and the physical set up not to interfere with the play leaders' regular sessions. In some instances, it was impossible to take pictures of children playing alone under tables or of children who moved into the storage and kitchen rooms. However in all the groups, the camera was scanned from right to left and vice versa to include the greatest possible number of children.

3. The attention span of children appeared to be

limited to three minutes during viewing sessions, perhaps because of the size of the groups, the distractions by the play leaders, the other children, and some mothers. To evaluate time duration, the researcher assessed different groups' attentional span with a stop watch during pre-experimental observation periods.

4. From time to time changes in the play leaders' schedule (e.g., dentists, visits) disrupted the regular program and the children's behavior. More running and yelling were subjectively observed by the experimenter during these sessions.

Operational Definitions

Prosocial behaviors include both donation and cooperation.

Donation behavior. Donation behavior in this experiment is defined as the number of lollipops (0-10) shared by the children with their friends without any expectations of an external reward.

Cooperation behavior. Cooperation is when a child interacts with another or many children to accomplish a goal together. In trying to solve or accomplish a task, there can be verbal or physical helping. Any physical or verbal gestures of a collaborative nature are considered to

be cooperative behaviors.

Modeling. Modeling is the direct and immediate imitation of a behavior observed via the media of films, slides or videotape reels.

Cooperative games viewing groups. Two groups of children who viewed a projection of cooperative games with the use of slides; and two groups of children who viewed a projection of cooperative games with the use of videotape reels.

Animation film groups. Two groups of children who viewed non related animated films.

Free play period. A period of time in which the children from all six groups had access to the identical play material seen in the audiovisual presentation of the cooperative games. The children were left alone to play with the equipment as they desired.

Chapter 2

Review of the Literature

The review of literature deals with four main areas. The first section focuses on studies pertaining to the general topic of television models. The second section includes studies which explain the effects of cooperative games on children's positive socialization. The third section presents studies relevant to the effects of film-mediated modeling on children's prosocial and altruistic behaviors. The final section analyses play measurement instruments.

Television Models

With the help of television, children can learn to imitate certain behaviors. For example, violent and aggressive social models (Bandura, Rose & Rose, 1963a), sport models (Leith & Orlick, 1973) and film material (Bryan & Schwartz, 1971) have provided different stimuli which children imitate from television. In a most comprehensive review of literature, Liebert, Neale and Davidson (1973) systematically compared the scientific data on the early effects of television on children and found that prosocial and aggressive behaviors were imitated.

Much research analyzes the effects of violence and aggression on children's behavior. Fortunately some more recent studies are underway (Bandura, 1977) which attempt to teach children prosocial modeling skills with the help of television and Orlick (1978b) has suggested the use of television for mass social change and impact.

Bandura (1971b) discusses the potential utility of modeling in motoric reproduction processes. If cues and reinforcing stimuli operate in situational games or sports environments; then maybe they can easily trigger off the mechanism for imitation in other situations as well. He states, "To facilitate development of motor skills, delayed self-observation through videotape procedures is increasingly employed. In most every day learning, people achieve rough approximations of desired behavior by observation; their initial behavioral enactments are then further refined through self-corrective adjustments on the basis of informative feedback from performance" (Bandura, 1971a, p.40).

Bandura's work (1971a) clearly illustrates the social impact of television, which often replaces the traditional models of parents and teachers. "In view of the efficacy of pictorial modeling and the large amount of time people spend watching televised productions, mass

media plays an influential role in shaping behavior and social attitudes. And, with further developments in communication technology whereby any desired activity can be portrayed on request at any time on remote television; parents, teachers and other traditional models may occupy less prominent roles in the social learning process as increasing use is made of symbolic modeling influence" (Bandura, 1971a, p. 41-42).

Television is thought to be the most rapid and efficient way for implementing social change on overt behavior and cognitive attitudinal values. Since adults watch television an average of forty-four hours per week and children under five watch an average of twenty-three and a half hours of television a week (Waters, 1977), television can have a tremendous influence on our lives.

Social learning theorists (Bandura, 1963; Bandura, Rose & Rose, 1963b; Bandura & Walters, 1963; Berkowitz, Corwin & Hieronimus, 1963) have studied the effects of symbolic modeling with the use of videotape playback. Their findings with subjects ranging in age between two and six have revealed tremendous potential for modeling with children. Children have imitated adults hitting bobo dolls, peers caressing dogs and snakes which they feared previously, and other children resisting temptation; but,

these initial studies were limited to laboratory settings.

Field experiments, interviews, diaries of televison habits, surveys and behavioral observations have led to some other interesting conclusions. Waters (1977) has interviewed children of different ages with respect to how television operates in their lives: Here are some of their views,

> Television is perfect to tune out the rest of the world. But I don't relate with my family much because we're all too busy watching television. (14 years old, Los Angeles)

> You see so much violence that it's meaningless. If I saw someone really get killed, it wouldn't be a big deal. I guess I'm turning into a hard rock. (11 years old, Denver)

> I'd rather watch T.V. than play outside because it's boring outside. They always have the same rides, like swings and things. (9 years old, San Francisco)

> Sometimes when I watch an exciting show, I don't blink my eyes once. When I close them after the show, they hurt hard. (15 years old, Lake Forest)

> When I see a beautiful girl using a shampoo or a cosmetic on T.V., I buy them because I'll look like her. I have a ton of cosmetics. I play around with them and save them for when I'm older. (13 years old, Glastonbury, Conn.)
>
> It bugs me when someone is watching with me. If your friend is bored, you have to go out or make conversation. That's hard. (10 years old, New York)

In a very controversial research article, Gerbner (1976) discusses the effects of viewing violent programs like Kojak, Starsky and Hutch, and Mannix. A prime factor according to this author is the amount of time spent watching these programs. Four hours per day is the level for possible negative conditioning effects. He states that according to his research people who watch television for more than four hours per day become television addicts and are subjected to violent crimes and aggressive acts that lead to subliminal conditioning. They become less outgoing, more distrustful, suspicious and passive.

A recent monograph by Hrycaiko, McCabe and Moriarity (1978) analyzes television role models in relation to sport and physical activity. They assessed the televison role models of little league baseball players, minor league lacrosse

players and children attending summer hockey schools. To do so they utilized a series of questionnaires on the player's attitude and beliefs, television diaries and observations on behavioral performance. Their study has operationally defined sport related verbal, non-verbal and physical aggression as well as prosocial behavior. The major findings were that television viewing is heavier in the winter and the evening; that children like to watch sports, cartoons and comedies; that sports perceived as prosocial were track and field, swimming and gymnastics; and that all the categories of players favored the amateur model. From these findings, the authors concluded that, "prosocial media input increases prosocial behavior among player viewers; prosocial teams are more verbally aggressive; television is a large part of kids lives; aggressive sports are watched more often; kids love cartoons and comedies; baseball players liked the amateur model; hockey and lacrosse players imitated the pro model; and, non-aggressive behavior was listed higher in preference" (Hrycaiko, McCabe & Moriarity, 1978, p. 89).

In an interesting study, Leith and Orlick (1973) compared three groups of children watching different films. There was one control group, who watched no film ; one experimental group who watched a boxing movie; and

another experimental group who watched a gymnastic film. After psychological testing with an instrument which the children helped to develop, the authors concluded that the children watching the boxing movie that lasted for only three minutes were more predisposed to aggressive behavior. Therefore to resolve the problem of mounting tension and aggression, Orlick has suggested the creation of new cooperative games to offer an alternative to the excessive competition to which children are presently being exposed.

Cooperative Games

The concept of cooperative games presents a possible solution for some of children's television programming. Orlick (1978a, 1978b) encouraged the concept by explaining the basic structure and goals of these games. There are four major elements to be considered for the creation of cooperative games. The first is to cooperate in the attainment of a common goal for a group of people. All the persons involved in the game are aiming for the same goal. For example, the objective of collective score volleyball is to tabulate a commom cumulative score for the number of passes completed by each team over the net. If the fixed objective is fifty passes then each team works together to obtain that score. The second element is involvement. No one is eliminated from the games. The classic example is

the musical chairs game where a child is eliminated by removing another chair each time the music stops playing. In the cooperative musical chairs version, players have to share a space on the chair with a friend. The third element is participation by all. Everyone present is invited to play. The final element is fun. Bouet and Orlick (1974) elaborated on the concept of fun. People consider a social event as fun when there are lots of smiles, laughter, physical closeness and challenge.

Orlick (1974b) recognizes the potential of the sports environment for shaping behavior. The author talks about the gradual shaping of success in sports to encourage mass participation. A controversial topic in the learning of cooperative games is the time and readiness for children to play together and share. Orlick and Foley (1979) report that cooperatively structured games can be played and enjoyed by preschoolers of three and four; also, that preschool children are fully capable of cooperating and sharing with other children; and that cooperative games appeared to be accompanied by increases in cooperative behavior in free play outside the structured games.

To understand the social goals of games, Orlick, McNally and O'Hara (1978) detailed a definitional diagram of the means and the ends of play. These definitions are

only guidelines because many variables are interactive in the process of playing a game.

1. Competitive means - competitive ends: Everyone is competing against everyone else from the outset to the the end. The objective is to beat someone else or everyone else, and the means by which you attempt to do this is by competing against them. Examples are a class race where the first person across the finish line is declared the winner; a group of individuals all fighting to gain sole possession of one ball to be 'King of the Mountain' or 'Winner on the Spot'.

2. Cooperative means - competitive ends: People engage in cooperation with a group and competition outside the group. Team members are cooperating to beat (or better compete against) another team. An example is any competitive game where teamates help one another in pursuit of a victory and where members of one team share the win and members of the other team share the defeat.

3. Individual means - individual ends: One or more people are pursuing an individual goal without cooperative or competitive interaction and without direct evaluative reference to others. Examples are

individual movement activities, creative problem solving where there is no incorrect movement response, and trail skiing along a scenic route.

4. Cooperative means - individual ends: Persons are cooperating and helping each other so that each can achieve an individual end. For example, individual athletes can watch one another, give one another feedback or teach one another new skills so that each person can learn, improve and perform better. The means are shared, the ends are not. To ensure cooperative interdependent means and input from each member, situations can be set up where the athletes pair off to watch one another run through routines giving appropriate constructive feedback.

5. Cooperative means - cooperative ends: Team members are cooperating with each other from the outset to the end, regardless of what team they happen to be on. 'Opposing' team members, if they exist, work together to achieve a common goal. The means as well as the ends are shared. Cooperative interdependence is ensured between teams but not necessarily among all team members within a particular group. An example is collective volleyball where the objective is to keep the ball on the volley as long

as possible. A rule could be introduced for each person to touch the ball on each side. In these games, everyone is helping one another for everyone's gain. (Orlick, McNally and O'Hara, 1978, p. 204-205)

Also to encourage early sports participation by children, Orlick (1974a) has emphasized the role of family participation in a sports environment. Families who play together are more apt to teach their children the value of sports participation. It seems that the preschool years are an ideal time to start. In elementary schools, Provost (1975, 1979) has found that cooperative games give children a high success ratio while playing games. When success is felt, the involvement contributes more to the psychological well-being of the participants.

Competition in school is a highly rewarded activity in almost all academic subjects. Unfortunately the competitive ethic has caused many problems in interethnic schools (Stephan & Kennedy, 1975), in competitive sports (Orlick, 1978b; Provost, 1980) and to the overall enjoyment of learning (Wilke, 1978). "The goal was being number one, getting grades and praise, and people who didn't get the glory naturally resented those who did. So instead of being filled with interested and excited children thinking and talking (and shouting) about something, the classroom was

filled with children worrying about competition, thinking who's going to win and oh, him again, I can't stand that show off" (Wilke, 1978, p. 96).

Orlick (1975) has stated that the sports environment has a capacity to enhance or to destroy. To improve the quality of children's lives, games of social acceptance and cooperation that allow each child to win something of value, need fostering (Orlick, 1976; Orlick & Botterill, 1975; Provost & Villeneuve, 1980a).

Among five year old children, Orlick (in press-b) has demonstrated the positive effects of a cooperatively structured program on sharing behavior and game playing happiness. The cooperative games program increased the sharing behavior significantly more than the traditional games program. Overall happiness increased for both groups in the playing of games outside of school for the period of study. Also, Orlick (in press-a) examined spontaneous cooperative interaction during recess for four year old preschool children. Three programs were compared to assess their effects on recess interaction. Children in the cooperative games program showed a significant increase in cooperative interaction while those in the traditional games program and the free play program, showed no such increase. A doctoral dissertation by Jensen (1979) showed

similar positive results for kindergarten children.

With the help of cooperative games, sharing behaviors can be enhanced in children. Perhaps televised cooperative games can be used to help to teach children prosocial behaviors. As stated by Liebert, Neale and Davidson (1973),

> All of us must bear the responsibility for what is being taught on television. Accepting it squarely can lead to programming which serves the highest values of society - a medium which is truly in the public interest. In the past, children have seen and learned violence on television's window and today they continue to do so. In the future, they might, instead learn constructive solutions to the problems they will face,which will it be. THE CHOICE IS OURS. (p. 171)

Prosocial and Altruistic Behaviors

Mussen and Eisenberg (1977) maintain that prosocial acts are learned behaviors that are situational and can generalize to different occasions. They define prosocial behavior as, "actions that are intended to aid or benefit another person or groups of people without the actor's anticipation of external rewards" (Mussen & Eisenberg,

1977, p. 3-4).

Socially adaptive, cooperative, altruistic and prosocial behavior can be learned by focusing on appropriate models. Different cultures have taught their children to be gentle, loving, cooperative, generous, pacific and highly responsive to the needs and feelings of others. Such cultures include the Arapesh, the Hopi, the Australian Aborigines, the Inuit and the Kibbutz children (Mussen & Eisenberg, 1977).

Chinese child rearing is characterized by collective upbringing without competition aimed against others (Orlick, 1978b). Children develop a "we" feeling, as their vocabulary is geared to group lifestyle, "Let's help each other, OK gang, let's go in turns, mine is ours, ours is mine, we learn from you and you learn from us so we learn from each other" (Orlick, 1978b, p. 73).

Aronson (1980), and Aronson, Bridgeman, Geffner (1978) have created a cooperative structure of learning called the jigsaw method to teach prosocial behavior in the classroom. In jigsawing each player receives part knowledge of a biography or a game, and together as a team they assemble their sections to learn all the material. This method has heightened interpersonal attraction, liking of others and

of school. With the help of the jigsaw method, the racial integration program is working better in some Los Angeles schools. Provost (1979) found the same technique successful in games and sports to foster cooperative and helpful behavior.

In the learning of prosocial and altruistic behavior, children differentiate readily between words and deeds (Bryan, 1970, 1975; Bryan & London, 1970; Bryan, Redfield & Mader, 1971; Bryan & Walbek, 1970). It is the deeds, rather than the words which have impact on children. Several experiments by Bryan and his co-workers have revealed significant effects on modeling donation to charity. An interesting finding is that children will readily imitate the doers but not the talkers. In one experiment (Bryan, 1970), the children completely disregarded adult speeches to imitate their actions.

Aronfreed (1968) points out the importance of modeling on the development of internalized social conduct. The moral development of children is affected by modeling and children will internalize better if words and deeds are the same. Prosocial behavior is learned more easily through this process. Therefore, children are not in a conflict situation of asking themselves what should I do.

Research by Rushton (1976) has elaborated on the socialization process and the altruistic behavior of children. Some variables that influence children in their altruistic behaviors are age, moral judgment and role taking abilities. To affect altruistic behavior, the environment must provide altruistic models and verbal socialization along with the right amount of positive reinforcement. Some examples of measuring altruism utilized by Rushton are donation of possessions to a charity or a friend, considerations of others in a table game and naturalistic behaviors of helping and sharing. Rushton and Teachman (1978) detailed an experiment with six independent variables: 1-positive reinforcement and self-attribution, 2-positive reinforcement and no attribution, 3-positive reinforcment and external attribution, 4-no reinforcement, 5-punishment, 6-no model and no reinforcement. An analysis of these variables revealed an increasing effect on helping behavior to a charity bowl donation (from 6 to 1), with positive reinforcement and self-attribution having the highest score. At the end of this treatment condition, the experimenter commented on the child's helping behavior by saying, "So the reason you shared was because you are a generous kid. That's terrific".

In an earlier study by Rushton and Owen (1975), the authors analyzed the immediate and delayed effects of television modeling and preaching on children's generosity. They discovered that the preaching and modeling condition was highly effective in fostering donation behavior. The immediate effects for television and live modeling were similar but on a two-week retest, the live model had been more durable for the effects desired.

Prosocial Television Studies with Young Children

Sprafkin , Liebert and Poulos (1975) studied 30 first graders exposed to 1 of 3, half hour television shows. These were a Lassie program where a boy was helping a dog, a devoid similar situation and a Brady Bunch family situation. The evaluation of prosocial behavior was a board game for self-gain as well as an opportunity to help puppies in distress. Children exposed to the show where the boy helped the dog, helped for more significant time. They concluded that, "The effects of television on behavior are mediated by specific modeling cues and the interpretation of these cues by the child, rather than general format and other global considerations" (Sprafkin , Liebert and Poulos, 1975, p. 126).

A field experiment by Paulson (1974) established a social goals evaluation program on the television show,

Sesame Street. Different studies have already proven beneficial effects of Sesame Street in teaching the cognitive skills for reading and writing. The purpose of this study was to compare two groups of children with a view and a non-view program of social cooperation. "Cooperation referred to situations that actively involved two or more individuals in interaction. The child recognizes that in certain situations it is beneficial for two or more individuals to work together toward a common goal" (Paulson, 1974, p. 228). The viewers of the cooperative program were more cooperative in their behavior during a free play period. The author states that , 1-instructional social objectives must be clearly identified and carefully defined, 2-transfer of training model has to be developed and tested via live action, 3-and script writers should encourage verbal prompting techniques like, "some for you, some for me, that's sharing".

The pioneers of prosocial studies on televison, Friedrich and Stein (1973, 1975) have studied kindergarten children under many experimental conditions. They are mainly interested in the effects of verbal labelling and role-playing on learning prosocial behavior from television. In one experiment, the 5 conditions were: 1-neutral television and irrelevant training; 2-prosocial

television and irrelevant training; 3-prosocial television and verbal labelling; 4-prosocial television and role-playing; 5-prosocial television and both role-playing and generalization of prosocial behavior. The results supported learning and generalization of prosocial behavior; and that training enhanced verbal learning and affected actual helping behavior. Verbal labelling had greater impact on girls and role-playing on boys. Prosocial television, verbal labelling and role-playing were positively related.

Another field experiment by Roberts, La Greca and Raymond (1978) investigated the effects of actual commercial broadcast television. They discovered that watching a prosocial children's program tends to increase positive social behaviors of helping and sharing. The programs analyzed were Make-A-Wish, Flintstones, and a created model program. The experimentally developed tape had significant effects on the creativity scores of college student participants. Although these particular programs are ostensibly designed for children, the results with adults have implications for television programming in general. The authors remark that, "interesting and entertaining television programs can also contain positive educational aspects which can benefit the viewer" (Roberts,

La Greca & Raymond, 1978, p. 7). The importance of parental guidance with young children to mediate prosocial learning from television was reported by Aitken and Greenberg (1976). If parents comment on the program they are watching with their children, they can help them to discriminate between aggressive and prosocial behavior.

For children, the elicitation of altruistic behavior is more towards donation and sharing than rescue activity with other kids (Bryan & London, 1970). A most influential variable is the background of self-reinforcement mechanisms in eliciting sharing behavior. Children do learn some norm which dictates their aiding behavior; and, allegiance to this norm increases with age until nine and ten. To intensify positive effect, the verbal preaching needs to be great and happen close to the act of altruism. "Modeling effects can be obtained without administering direct rewards to the examplar as manipulating his affective states" (Bryan & London, 1970, p. 210). While the family constellation can support empathy by demonstrations of helping activities; children's judgments of models' niceness are determined by the models' preaching and practice similarity.

Immediate intervention and social reinforcement help children to distinguish the appropriate model behavior.

Barton and Osborne (1978) have developed a positive technique to teach classroom sharing. "The positive practice principle states that when an error or disruptive action occurs the individual be required to practise the correct manners of behaving" (Barton & Osborne, 1978, p. 234). The positive practice technique resulted in more than a threefold increase in physical sharing of toys. These results suggest that a teacher or parent can systematically facilitate physical sharing among young children in the classroom by the use of positive practice. The opportunity to interact is promoted by scheduling activities and providing play materials which maximize contact between the participating children. Sharing was observed between children from two to three years of age.

According to Chittenden (1947), sharing is a learned process and acquired slowly through experimentation. She maintains that teachers, parents and television must focus on "the process of becoming" to allow for social change. The environment created must be conducive to physical and social sharing. Chittenden emphasizes the use of vocabulary in teaching sharing behaviors. "The room in which we play (or work) is our responsibility. All of us in the group can work together to put away things" (p. 187). Also, the teachers or models can actively participate

in the process of helping and sharing.

Parish (1977) has studied the enhancement of altruistic behaviors in children through the implementation of language conditioning procedures. Children were invited to watch slides of peers helping each other. Interspersed between each slide was another slide with a positive connotation to reinforce the behavior shown on the preceeding slide. Some of the words used were Christmas, birthday, wonderful, terrific and fantastic. The amount of success obtained by Parish was enough to elicit altruistic behaviors similar to the ones seen on the slides.

Doland and Adelberg (1967) studied the modeling effects and reinforcement of desirable prosocial responses in preschoolers. "A safe and effective way to increase sharing is to provide the child with a generous model who earns reinforcement for his desirable prosocial response" (Doland & Adelberg, 1967, p. 700). Girls were more responsive to the incentive of social approval from an adult. Similar modeling of sharing was tested by Elliot and Vasta (1970) with children between the ages of 2 and 6. They have analyzed vicarious reinforcement, symbolization, age and generalization. With increasing age, the children appear to be more helpful in their behaviors and understand

the moral implications more easily.

A study by Collins and Getz (1976) compared three groups of children watching a television drama. One group watched a wildlife documentary, another group watched a model respond constructively to an interpersonal conflict, and the third group watched an aggressive solution in the conflict situation. They assessed the frequency and duration of help and hurt responses with the Buss aggression machine. The results show that the models of constructive coping had a greater frequency of prosocial responding. The frequency and duration of hurt responses was greater in the aggressive subjects who watched the aggressive solution.

In a field experiment, Coates, Pusser and Goodman (1976) compared the influence of Sesame Street and Mister Rodgers' Neighbourhood programs on preschoolers. Sesame Street had no significant effects on positive reinforcement and punishment to peers, adults and social contacts. The Mister Rodgers' group had significant effects with respect to giving positive reinforcement to social contacts.

Evers and Schwarz (1973) studied the modification of social withdrawal in preschoolers. Their technique consisted of showing a 23 minute film depicting appropriate social behavior in a nursery school. Social interaction

was defined as smiling at, touching, talking to, and playing with a child or an adult. The modeling effects of the film maintained and improved the socialization of the isolate children. The behaviors were maintained by positive reinforcement from the teacher and the peer group.

Felsenthal (1975) has discovered that television serves as playmate, teacher and companion for many children. Humans, cartoons and muppets provide models which can teach a variety of socially desirable behaviors: kindness to others, respect for racial differences, empathy, conflict resolution, justice and fair play. He proposes that television can teach prosocial behaviors by helping children enter social groups and cope with failures.

The use of videotape to modify shyness and social withdrawal in preschool children has been found to be effective (Keller & Carlson, 1974; O'Connor, 1969, 1972). With the help of similar symbolic methods, experimenters have been able to facilitate social interaction especially when there was peer reinforcement. The videotapes teach children to smile, laugh, give physical contacts and tokens. In the videotapes children share play materials and talk to each other. Modeling, direct instructions and

self-attributions have also enhanced the imitative behaviors of altruism (Grusec, Kuczynski, Rushton & Simutis, 1978; Mildarsky & Bryan, 1972).

Other studies (Ridberg, Parke & Hetherington, 1971; Ross, Ross & Evans, 1971; Stein & Friedrich, 1972) have investigated different strategies to cope with social withdrawal and impulsive behaviors. The observation of film-mediated models has always been found to be a very effective method to help children.

Singer and Singer (1977) in a comprehensive analysis of children at play, and the use of television, offer suggestions practical for parents and television writers. They state that television is good for providing information, make-believe imagination, social values, cultural values, reading skills, cooperative and helpful behaviors. They warn though, that the child must be taught how to watch intelligently, how to choose; and that the parents' responsibilities should be to watch with the child, to choose suitable times and suitable programs, to comment on the values and activities of the program, to start with a program having a mixture of reality and fantasy, and to view together for shared experiences at meal time.

Since psychologists have studied the importance of positive social experience and altruistic behavior, television programs are gradually changing. Singer and Singer (1977) encourage children to study and to look at well-known fairy tales, ancient myths, historical adventures, realistic animal stories, cartoons where kids band together to deal with adventurous circumstances, to help each other in new art forms such as music, dance and puppetry, and finally to watch family comedy situations. The make-believe world of the child helps him to be happier and self-aware, to develop imagery skills, verbal skills, emotional awareness and sensitivity, to learn new social roles, to have flexibility in a new social situation and to foster creativity (Singer, 1978).

Ellis (1973) and Ellis and Scholtz (1978) have done studies with children in a games environment. Their newest technique involved the analysis of children's socialization process in play with the use of a fish eye lens on a camera filming on an horizontal plane. Cassette VTR of children playing cooperative games in a classroom and gymnasium setting is another possible approach (Orlick, 1978b). These experimental television filming sessions are new ventures into the behavioral and social analysis of children at play.

The literature clearly supports the position that prosocial change can be elicited with the use of film-mediated models. The use of television technology to analyze play and to teach cooperative behavior through games appears promising.

Analyzing Play Behaviors

In order to assess previous observational studies which focused on play behavior and to direct the observation format of this study, the following review has been undertaken. In a social participation study in a preschool laboratory, Parten (1932) investigated the play activities of children in a systematic way. The period of observation training and analysis lasted for approximately eight months with intermittent records of children's play. In developing the observation schedule, Parten came up with six different categories (e.g., unoccupied behavior, onlookers, solitary independent play, parallel activity, associative play and cooperative or organized supplementary play) which merit attention.

Unoccupied behavior: The child apparently is not playing but occupies himself with watching anything that happens to be of momentary interest. When there is nothing exciting taking place, he plays with his own body, gets on and off chairs, just stands around, follows the teacher, or sits in one spot glancing around the room.

Onlookers: The child spends most of his time watching the other children play. He often talks to the children whom he is observing, asks questions, or gives suggestions but does not overtly enter into the play himself. This type differs from unoccupied in that the onlooker is definitely observing particular groups of children rather than anything that happens to be exciting. The child stands or sits within speaking distance of the group so that he can see and hear everything that takes place.

Solitary independent play: The child plays alone and independently with toys that are different from those used by the children within speaking distance and makes no effort to get close to other children. He pursues his own activity without reference to what others are doing.

Parallel activity: The child plays independently, but the activity he chooses naturally brings him among other children. He plays with toys that are like those which the children around him are using, but he plays with the toys as he sees fit, and does not try to influence or modify the activity of the children near him. There is no attempt to control the coming or going of children in the group.

Associative play: The child plays with other children. The conversation concerns the common activity; there is a borrowing and loaning of play material; following one another with trains or wagons; mild attempts to control which children may or may not play in the group. All the members engage in similar if not identical activity; there is no division of labor and no organization of the activity of several individuals around any matters of goal or product. The children do not subordinate their individual interests to that of the group; instead each child acts as he wishes. By his conversation with the other children one can tell that his interest is primarily in his associations not in his activity. Occasionally, two or three children are engaged in no activity of any duration, but are merely doing

whatever happens to draw the attention of any of them.

Cooperative or organized supplementary play: The child plays in a group that is organized for the purpose of making some material product, or of striving to attain some competitive goal, or of dramatizing situations of adult and group life, or of playing formal games. There is a marked sense of belonging or of not belonging to the group. The control of the group situation is in the hands of one or two of the members who direct the activity of the others. The goal as well as the method of atttaining it necessitates a division of labor, taking of different roles by the various group members and the organization of activity so that efforts of one child are supplemented by those of another. (Parten, 1932, p. 243-249)

Arbitrary weights were assigned to each of the six categories. Then, the experimenter summed up the scores for the odd and even days for individual children, and ran correlations.

Unoccupied behavior	(U)	-3
Solitary play	(S)	-2

Onlooker	behavior	(O)	-1
Parallel	play	(P)	1
Associative	play	(A)	2
Cooperative	organized	(C)	3
Supplementary	play		

After 20 odd-even days of observations, the individual scores were weighted, ranked and correlated giving a coefficient of .90. Hence, Parten after obtaining this result for 21 minute observations concluded that it gave a reliable portrayal of a child's participation in group activities. She then proceeded to a check on the errors of observation technique with 4 independent observers. Since the 4 observers could not view each child from exactly the same position, one expected to find some differences in the records. The proportion of items identical between Parten and the individual observer were highly significant with 89, 92 and 86% agreement.

Several interesting results from this study would seem helpful in determining the readiness with which the children entered into group play. Continued attendance seemed to bring about changes in the degree to which children participated in groups. When time elapses, children become acquainted with each other and they create interacting situations. Therefore the most social

categories of play (associative and cooperative), tended to occur more frequently with greater preschool experience. In conclusion Parten found that social participation correlated with the age of the children and the nursery school experience.

Another attempt at the classification of play behaviors was done by Rubin (1977). He did a critical analysis on the usefulness in today's society of Parten's study which focused on her "outdated data base of time samples of only 40 children in a laboratory preschool, and the social-cultural change of our society" (Rubin, 1977, p. 24). These variables limit the citing of Parten's data as normative. In a description of a possible alternative, Rubin, discusses Piaget's (1962) and Smilansky's (1968) classification of 4 cognitive play schemes. These are "the functional play-simple repetitive muscle movements with or without objects; constructive play-manipulation of objects to construct or to create something; dramatic play-the substitution of an imaginary situation to satisfy the child's personal wishes and needs; and games with rules-the acceptance of prearranged rules and the adjustment of the rules" (p. 18). In these studies, social interaction has been linked to the development of language and cognition,

but almost no observational study takes these variables into account. Therefore, Rubin has suggested the use of the supplemental cognitive play categories as outlined below to analyze children's play behaviors. This new observation schedule for play categories would combine the cognitive and social participation variables. Also, the difficulty in discriminating between Parten's associative and cooperative play categories has favored the collapsing of these play categories into one.

Rubin's Play Categories for Free Play

1. Solitary	Functional
	Constructive
	Dramatic
2. Parallel	Functional
	Constructive
	Dramatic
3. Cooperative Association	Functional
	Constructive
	Dramatic

In considering the final data and play categories, Rubin forewarns of the limited amount of different educational settings studied and the small number of children participating in all these experiments.

In a most interesting study cited earlier, Paulson (1974) experimented with teaching cooperative behaviors via the use of television. With the collaboration of the Sesame Street television program consultants, he was able to create specific inserts to teach cooperation. It was the first time that cooperation was chosen as an instructional goal for mass medium in the United States. The producers had to define cooperation in behavioral situation specific terms. For the 1971-72 season, Sesame Street's instructional objectives relating to cooperation were:

> Cooperation: The child recognizes that in certain situations it is beneficial for two or more individuals to work together toward a common goal.
> 1. Division of labor: When a child is a member of a group that as a common goal, he realizes that the goal will be more easily achieved if each member of the group shares in the work or planning.
> 2. Combining skills: When a child is a member of a group that has a common goal, he realizes that the goal will be most easily accomplished if each member of the group contributes his own unique or specific skill.
> 3. Reciprocity: The child realizes that in certain situations, in order to accomplish his goal, he must

request the assistance of others and in turn assist them in accomplishing their goals. (Paulson, 1974, p. 230)

Specifically, the study reported how Sesame Street television programs taught children to cooperate. To evaluate the effectiveness of the programs, the experimenter did situational testing on each individual subject in a realistic situation. These situations were carefully designed in accordance with the Oregon Preschool Test of Interpersonal Cooperation. The children were scored on whether they cooperated in a series of carefully designed situations. While waiting for their situational testing, the children were allowed to play with toys in an adjacent room with a hidden camera and microphone. There, they were scored on a criteria behavior of 7 categories collapsed to 2, with cooperation designated as levels 5 and 6, and no cooperation as levels 0 to 4.

Behavior Scored as Cooperative

Cooperation (6): Children jointly produce or resolve a problem. The problem may be one suggested by the situation or developed by the children. Behavior is scored as cooperative only when both participants perform the criterion responses.

Combining skills and resources. One child contributes

to another an object, action, or other resource resulting in the attainment of a goal which could not be attained as efficiently or enjoyably, alone.

Pre-Cooperation (5): The goal may be simple (combining items, pooling efforts, or pooling strength) or complex (apportioning parts of a complex task, differentiating goals, or introducing new ideas).

Distributing. A child arranges himself, other children, or objects in order that other children can engage simultaneously in an activity. The arrangements include alloting space, dispersing self or others, or distributing materials.

Exchanging. A child relinquishes claim to an object, activity, or role in return for later access, or for an alternate claim. Children achieve a goal by alternately using an object, training for equally attractive items, or assisting one another in obtaining a goal.

Attempts at cooperation: Behavior may be scored pre-cooperative when one or both children perform the following: Sharing ideas. A child presents information verbally or by demonstration. The information is directed at a cooperative solution to the problem. Directions. A child makes or

carries out a request. The behavior requested is a cooperative one. Attempts to cooperate. A child initiates a cooperative act.

Behavior Scored as Not Cooperative

Active interaction (4): Children respond to each other. They may use similar materials or engage in similar activities. They may occasionally attempt to control one another's behavior, but these attempts are of short duration. While there is no effort to obtain a cooperative goal, the children seem to gain satisfaction from being together. Highly aggressive or destructive behavior, which is normally scored at level 0, (Obstructive) may be scored as Active interaction if the children gain mutual satisfaction from the activity.

Parallel play (3): A child plays in the same area as another and with similar materials. However, he does not respond overtly to the behavior of the other child. Each child's attention is focused primarily on his own materials. The children may vocalize, watch each other, or engage in a minor amount of physical activity. Such involvement is, however, brief and has no lasting influence.

Watching (2): A child watches or listens to another child. He may talk briefly to the other child but does not enter into overt play. This watching is continuous rather than erratic.

Minimal interaction (1): A child makes no overt response to the activities of another child. The child plays alone and independently with toys that are different from those used by the other child. He makes no effort to speak or to interact with the other child. He may watch the other child, but his attention is erratic. He makes no verbal responses (except to himself). He ignores or rejects interaction initiated by the other.

Obstructive interaction (0): A child engages in verbal or physical behavior preventing attainment of the cooperative goal. The verbal behavior includes criticizing, taunting, or threatening. The physical behavior includes hitting, pushing, fighting, or threatening with gestures. (Paulson, 1974, p. 232-233)

The videotape scoring procedure took into account the presence or absence of cooperative behavior. Two trained raters scored the videotapes. The raters had to study the

definitions and the scoring practice of the cooperative and non-cooperative categories. In this experiment, the raters were allowed to discuss the scoring of practice tapes but ultimately were required to reach 85% agreement without discussion of criterion tapes. All test tapes were scored in random order for the view and non-view groups. This precaution was taken to reduce rater bias. Interrater agreement was computed for days one, two and six of a ten days scoring period. Agreements varied between 89 and 100%.

Paulson's (1974) evaluation was designed to be most sensitive to direct impact. That is why the issue of generalization had been set aside for later investigation. Like all the previous studies, generalization of cooperative responses cannot be stated because of the lack of long term assessment and the difficulty of controlling external variables such as parental and media influences.

Another experimenter, Jensen (1979) modified the observation technique of several interaction measuring instruments. His instrument included a description of the child's play as well as a measurement of social interaction. After a pilot study, he came up with a final form of the play interaction instrument which consisted of ten categories. The definitions of the categories combined

those used in his own pilot study (Jensen, 1979), those used by Parten (1932) and those used by Orlick, McNally and O'Hara (1978).

Field studies (Orlick, 1979a; Orlick, in press-ab) were more relevant to this thesis research on children's prosocial behavior. Orlick, McNally and O'Hara (1978) investigated the systematic analysis of cooperative games and their impact on children's social interaction. To obtain highly reliable observations, the authors defined cooperative social interaction as follows:

1. Cooperative task behavior: One child shares, assists, or executes a task with another child. The emphasis is upon doing things together, working together for a common goal, alternating responses between children sharing material, or one child's behaving in a manner explicitly to help another child. For example, two or more children engage in a cooperative activity in which they respond in turn based on the response of the other child.

2. Cooperative physical contact: (a) One child physically supports or is supported by another child. For example, one child carries another child or helps another child up off the ground or over a barrier.

(b) Two or more children engage in physical contact of an affectionate nature by, for example, linking arms, holding hands, placing arms around one another, embracing, kissing, or patting another child on the back.

3. Cooperative verbal behavior: Verbal interaction is accepted as meeting the criteria for cooperative social interaction only if it has some definite cooperative quality. For example, one child gives another child instructions on how to do something; one child offers to help or share or agrees to a cooperative request made by another child. (Orlick, McNally & O'Hara, 1978, p. 207)

The method of observation for the studies on cooperative social interaction involved the random selection of one person and the frequency count of the number of cooperative acts that person engaged in over a 30 second period. Then another person was randomly selected and observed for 30 seconds. This continued until the game was concluded. All the information could then be analyzed to obtain the average number of cooperative behaviors engaged in during the play of cooperative games. Alternative suggestions from Orlick, McNally and O'Hara (1978) are to estimate the amount of time cooperating in a

30 second period for a continuous cooperative game like Log Rolling; and to take a series of 30 second scans across the playing area, allowing observers to note the number of people engaged in cooperative behaviors.

Most of the studies undertaken by Orlick (1979a, Orlick, in press-ab) have analyzed data with the previously mentioned observation definitions. Pre-test baseline and post-test measures on cooperative acts have indicated significant percentage differences in cooperative behaviors between peers after eighteen weeks of cooperative game sessions. An interesting approach was utilized to enable the observers to recognize all the children in the study. Before the baseline recording measures, polaroid photographs of each child were studied by the observers. With the help of these pictures a miniature photo album was constructed for each class. This procedure allowed the observers to gather data on each child and to obtain reliability checks between observers. During these studies, reliability checks were taken on 15 occasions and averaged slightly above 97% agreement. These field studies on intact kindergarten classes revealed significant impact of the cooperative games. Also, the cooperative social interaction schedule demonstrated reliable data checks on all treatments.

For this thesis, a modified observation measurement instrument was adapted from all the preceeding schedules.

Chapter 3

Research Methods

Overview

This study focused on the measurement of a sharing behavior and the modeling of cooperation after a televised cooperative games program, a slide package of cooperative games and a non related animated film.

Subjects. Children who attended three different preschool centers in the Department of Parks and Recreation from the City of Nepean participated in the experiment (see Appendix F). The three day care centers chosen to participate in the study were matched for a balance socioeconomic (middle class) status and an equal ratio of boys to girls. All the treatments were assigned randomly to six different blocks of intact morning and afternoon preschool classes. The two videotape groups had a ratio of 14 boys to 16 girls. The two slide groups had a ratio of 13 boys to 13 girls. Finally, the two animated film groups had a ratio of 10 boys to 11 girls.

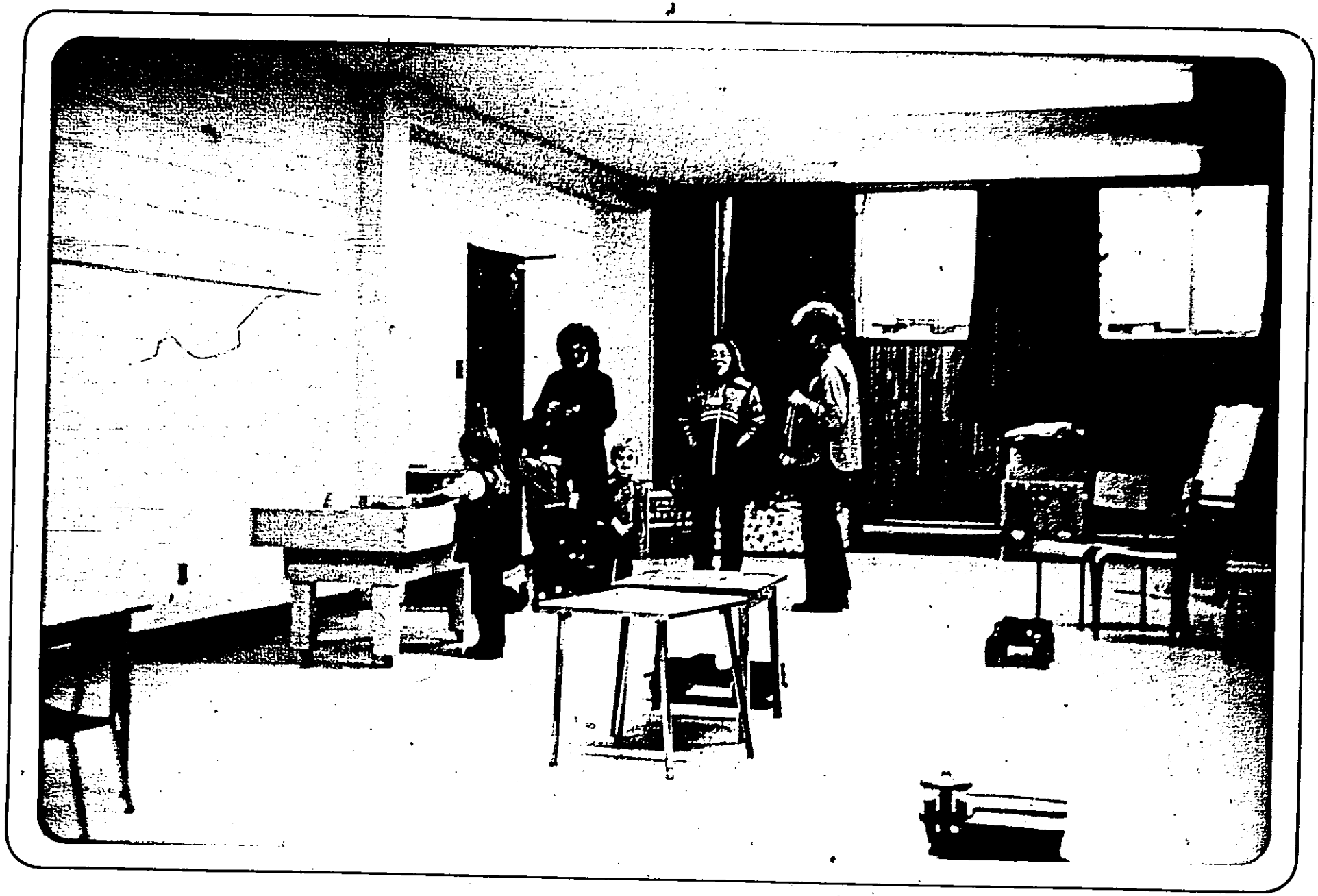
The two videotape treatments were analyzed together as were the other treatments. Each treatment was replicated for a morning and an afternoon group. A total number of thirty children participated in the videotape treatment

groups. A total number of twenty-six children participated in the slide treatment groups, and a total number of twenty-one children participated in the animated film control groups. For five weeks of experimental treatments, children viewed videotape reels, slides or films for a ten minute period once a week. It often took the children five minutes to sit still in preparation for watching together as a group. After the viewing time, the subjects participated in a free play period that lasted fifteen minutes per group. Although age and sex related predictions were not part of the initial hypotheses, the average age of the children for the morning groups was 2.5 years and the average age for the afternoon groups was 3.5 years.

The experiment lasted for a period of five weeks from January 29, 1980 to February 29, 1980. At the start of the experiment, 124 subjects were participants in all the treatments. These children attended the Duffer Doo (see Appendix F) morning and afternoon day care program at the Barhaven, Trend-Arlington and Lynwood centers. When a child was absent for one day out of five (1/5) of the experimental treatment, he was eliminated from the statistical computations. A stringent criteria was established because the experiment lasted for five weeks; the subjects were exposed to a 15 minute experimental treatment; and the majority of children who were eliminated

from statistical analysis missed two or more sessions. Also Rushton and Wheelwright (1980) suggested that naturalistic measures were better if they reflected more instances and ratings by observers of the behavior under study. At the end of the experiment, there were 47 children eliminated because of their rate of absenteeism. Absenteeism was a normal occurence in the preschool centers because the parents decided not to bring their child on that day for whatever personal reasons: trips, lessons, shopping and sickness. The day care program was offered at a low cost for twelve sessions and lasted for two hours each session (9:15-10:15; 13:00-15:00). After five weeks, the differential mortality rate was proportional for all the treatment groups. The 77 children who had not missed a single day were utilized in the analysis. One child was eliminated because she was very sick while attending one session.

Procedure. Before starting the sessions, the children arrived with their mothers at the preschool center. An adaptation period to the environment lasted about an hour before the start of the experimental treatments. During this time, all the children moved around the room freely to different play areas (e.g., the sandbox, the miniature kitchen, the painting easels, the toy department and the jungle gym). When time came to start the treatment, the major apparatus were pushed aside to create an area for



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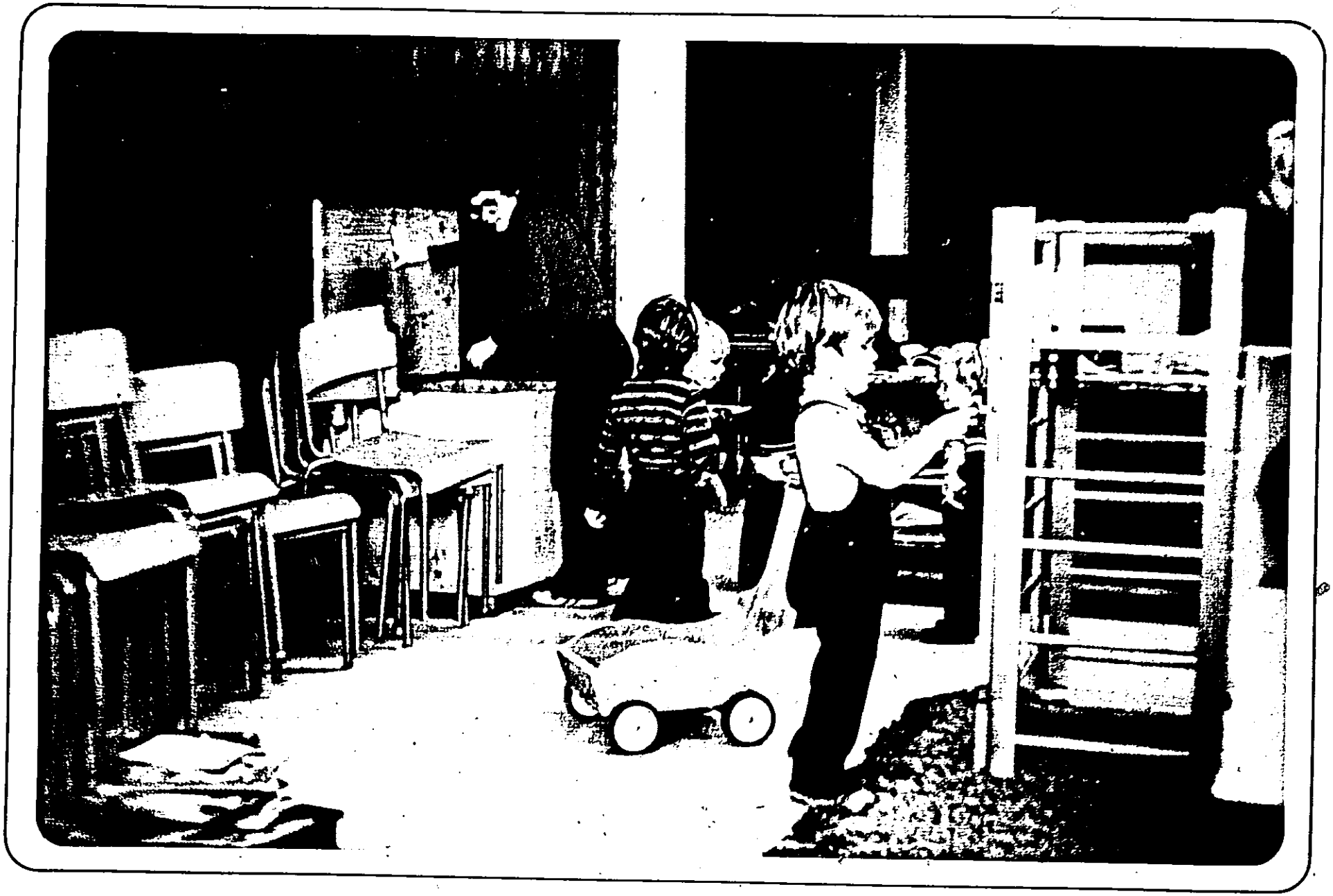

free play. In the three preschool centers, not all the materials could be put away because of the program scheduling and the lack of storage room.

One male and six female play leaders assisted the main experimenter in operating the play and audiovisual equipment. The play leaders were assigned and employed by the City of Nepean, Department of Parks and Recreation for each preschool center. From the start to the end of the experiment, the play leaders were blind to the purposes and the hypotheses of this investigation. In all the treatments, the subjects were told that the teacher needed help on a project which involved children playing games.

Children assigned to treatment number one were exposed to a videotape of peers playing five cooperative games for three minutes. Children assigned to treatment number two were exposed to slides of peers playing five cooperative games, identical to those seen by the videotape groups for three minutes. Children assigned to treatment number three viewed five different animated films of drawings and cartoons for approximately three minutes. For specific activities in each of the three treatment groups see

Appendix B.

In the videotape viewing groups, a video reel was played by the experimenter on a Sony CV-2200 videorecorder and viewed on a 19 inch black and white television. The children were told to relax, enjoy and listen to the instructions as if they were watching television at home. In the slide viewing groups, a slide projection was played by the experimenter on a Kodak carousel 650-H projector and viewed on a standard white screen two meters by two meters. Again the children were told to relax, enjoy and listen to the instructions. The animated color films were shown by the experimenter with a 16 mm projector on a white screen, two meters by two meters, after instructing the children to relax, enjoy and listen to the film.

The viewing sessions for each treatment condition did not last longer than fifteen minutes because of the limited attentional span for children aged two to four years. Instructional scripts were presented to all the children during the viewing of the videotapes and slide cooperative games (see Appendix D).

Stimulus material. All the preschools had play areas available . The different play areas were similar in the three preschool centers. These main areas

of play consisted of a sandbox, a miniature kitchen, painting easels, toys and a jungle gym (climbers). The principal experimenter arrived at the preschool centers before the children. He immediately proceeded with setting up all the audiovisual equipment. As planned on the third week of the experimental treatments, twelve beach balls were blown up in the kitchen room without the children's knowledge. They were hidden until after the viewing sessions.

The Sony black and white reel to reel videotape was produced by the Ottawa Skyline Cablevision at the Bell Elementary School in the City of Nepean from the Ottawa Carleton School Board. The slides were produced with children from the same school in cooperation with Dr. Terry Orlick from the University of Ottawa at the Department of Kinanthropology. The videotape and slide packages of the five cooperative games were created in a similar setting to the preschool centers and are described in Appendix B. All the games have been experimentally analyzed in previous studies for eliciting cooperative behavior (Orlick, 1978a, in press-ab; Orlick & Foley, 1979).

Measures of modeling cooperation. The observation of the cooperative behavior was done with a Sony portable camera and a portopack videorecorder. To avoid experimenter selective distortion, the camera was positioned in a corner and regularly scanned the play area from right to left and vice versa. Taping was done in each preschool center's main play room. The experimenter filmed all the free play periods which followed the treatment conditions during the five week experimental treatments. A 15 minute rest and play period provided sufficient time for the treatment intervention and the free play period (Ellis & Scholtz, 1978). During 15 minutes the children played freely without any instructions or help from the play leaders. The only exception to this was after 2 games (cooperative musical chairs and musical hugs) where a tape recorder playing music was periodically turned on and off. The play leaders were warned not to instruct the children during this free play period.

For this study, several observational instruments were drawn upon in an attempt to ensure the inclusion of all possible behavior categories of children's interactions during play. Previous behavior observation scales have limited their definitions for particular purposes (e.g., independent, cooperative or competitive behaviors). An analysis of different studies has enabled the experimenter to modify and relabel categories into an encompassing view of play behaviors.

Three behavior categories were included for observation to prevent any rater's bias of children's play interactions. Even though all three kinds of behavior were checked, only the cooperative category was directly related to the effects under study. In this study, the modeling of cooperative behavior was relevant for the three viewing conditions. Also the researcher investigated the possible relationship of cooperation with donation, a second dependent variable highly correlated with cooperative play in past studies.

The behavior observation measure instrument used in this experiment is described as follows:

Independent behaviors: The child is by himself. He can be physically in proximity with another child but does not get involved in any of his/her activities. The child can be apparently unoccupied, doing nothing or observing other children at play. Finally, he can play alone with toys without diverting from his own efforts to another child or a group of children.

Competitive behaviors: The child behaves aggressively towards another child by hitting, blocking or stopping him from taking his toys. Generalized aggression such as a temper tantrum is considered a competitive behavior for attention seeking purposes. Rivalry or trying to achieve

in terms of an explicit standard or criterion which all children involved recognize is labelled as competitive.

Cooperative behaviors: The child interacts with another or many children to accomplish a goal together. In trying to solve or accomplish a task, there can be verbal or physical helping. Any physical or verbal gestures of a collaborative nature are considered to be cooperative behaviors.

This modified behavior observation instrument was used to score the children's cooperative, competitive and independent behaviors during each period of the five weeks experimental treatment. Each game and each group were measured by two blind observers. Each child was scored for a time sample of 20 seconds throughout each free play period for the five weeks of experimental treatment. There was one male and one female observer. All the test tapes were observed randomly for the experimental conditions and each child was randomly selected for scoring. The blind observers were instructed to read the definitions of the three behavior categories to acquaint themselves with all the possible behaviors. Each observer studied the definitions alone for half an hour. Then the experimenter proceeded to explain the process for scoring of each behavior category for each subject. A checklist was used to help with this process.

The observers were also taught the names of the children whom they would score to facilitate identification. Each blind observer watched the tapes individually in a laboratory room without disturbance. After the explanations, the experimenter left for an adjoining room. In case of technical problems with the videorecorder, the observers could consult the experimenter. The observers were advised to do the measurements on their own without any interruptions.

All together, the observers had to watch 7 tapes of approximately 30 minutes duration. A total of 10 hours for each observer was taken to score all subjects. The observation of the tapes took 4 days with 2 hours and 1/2 per day for each observer. During the viewing sessions, the observers were allowed to roll the tapes backwards or forwards at will.

The records were compared for each free play period for each group and for each individual. In time sampling recordings, the percentage of agreement on all the measures was calculated by dividing the number of instances of agreement on the observer records by the total number of agreements plus disagreements (i.e., the total number of recording oppotunities).

To score the three kinds of behavior, the two blind observers marked each subject as attending (A) or not attending (NA) the category depicting the most frequently emitted behavior. This was done after each 20 second time sample throughout each 15 minute free play period. A 20 second time sample was chosen to accomodate a period of 15 minutes of free play. This gave the blind observers a total of 45 checks each on the behavior categories and a reliable number of observations for each child's imitative behavior during a free play period. All the subjects were observed randomly according to a name checklist. Each blind observer utilized a stop watch to calculate the time sample.

If a subject was observed behaving within a certain category (e.g., cooperation) on 85% of the 20 second observation intervals, he was assigned a score of 1 under that specific category (e.g., cooperation) for that 15 minute play period. The maximum score a subject could receive for any one category was 5 since there were 5 free play periods. To obtain an average cooperative dependent measure for use with multivariate analysis of variance, the total score for all play periods was divided by 5 (see Appendix C).

The interrater reliability was computed for the two blind observers. Then the third observational score from the experimenter was checked with the two blind observers as an additional comparison. Interrater reliability checks were done on all five free play periods for all behavior categories with a satisfactory level of above 85% agreement.

Donation behavior. Donation behavior was measured by the experimenter during a one to one experimental session which gave each child an opportunity to share. The experimenter explained the game to each child with the same script (Appendix A). To ensure that each child understood the instructions, the script was repeated two and sometimes three times if necessary. Ten lollipops were used as a measure for "sharing with friends". The child could score from 0 to 10 on the donation behavior depending upon how many lollipops he chose to share. This measure was taken in the kitchen at the end of the 5 week experimental treatment immediately after the last cooperative game. Each child was randomly selected from the name checklist and was asked to play a "pretend game" with the experimenter. At the end of the last school day, each child was given a lollipop by the experimenter to keep for himself or to share with his friends.

Analysis of results. A multivariate analysis of variance (MANOVA) one factor design was done between the experimental groups on the two dependent variables: cooperative and donation behavior. A post hoc Bonferroni confidence interval evaluation was effected on four pairwise comparisons to check for significant differences between VTR and slides, VTR and films on both dependent variables (Timm & Carlson, 1974; Carlson & Timm, 1974; Timm, 1975).

A decision made by the play leaders and the Nepean registrar officers after one week into the experimental treatments affected the age variable of the different blocks. The younger children came during the morning and the older children came during the afternoon. The experimenter was made aware of this decision only after one week of experimental treatment. Therefore, the experimenter decided to continue with the groups as they existed and to do a secondary analysis with MANOVA and Bonferroni confidence intervals for the morning and afternoon groups considering the two dependent variables on the age independent variable. Thus this created a 2 X 3 nonorthogonal factorial design.

The Wilks' Lambda criterion at the .05 level was chosen as an acceptable value for statistical significance

for all data.

Chapter 4

Results

The results of the analysis of behavior observation measurements using the multivariate analysis of variance with Bonferroni confidence intervals are discussed in this chapter. A secondary analysis of the mean differences between the morning and afternoon groups was done using MANOVA and Bonferroni confidence intervals for the two dependent variables.

The multivariate analyses of variance were performed using Carlson's Full Rank Multivariate Restricted Linear Model (FRMLMX) Computer Program (University of Ottawa, updated 1980).

Behavior Observation Measurement

The behavior observation measurements are reported for the percentage of agreements between two blind observers on the three kinds of behavior (i.e., individual, competitive and cooperative). Tables 1 through 6 present the percentage of agreement by the two blind observers on the five free play periods after viewing the five different cooperative games and the ~~five different~~ animated films. In the Tables, each subject's interrater reliability (i.e,

percentage of agreement) for the two blind observers are presented. Also, the number of behavior agreements for the two blind observers on each subject are reported.

To analyze the observational data with the FRMLMX computer program, the scores on cooperative behavior for each subject were summed to obtain an average for the five free play periods. This result was analyzed because it was directly related to the hypotheses under study (see Appendix C).

The percentage of agreement between the two blind observers reached a satisfactory level of above 85% agreement. A closer examination of Tables 1 through 6 reveals a percentage agreement between the two blind observers across treatments of 96%, 94.55%, 87.69%, 95.38%, 95.38% and 89.41%. Also the percentage of agreement was calculated with the experimenter and the two blind observers together to check for the interrater reliability. The results were 92%, 94.55%, 87.69%, 89.23%, 93.84% and 82.36%.

All the percentages of agreement reached a satisfactory level of above 85% with the experimenter except for the ~~VTR afte~~rnoon viewing group. This group had the largest number of children and observation was more

Table 1

Percentage of Agreement for the Behavior Categories in the Morning VTR Group

		Number of Behaviors for Each Category[a]					
		Individual		Competitive		Cooperative	
		Obs 1	# 2	Obs 1	# 2	Obs 1	# 2
Subject 1	80%	3	4	1	0	1	1
2	100%	3	3	0	0	2	2
3	100%	3	3	0	0	2	2
4	100%	2	2	0	0	3	3
5	100%	4	4	0	0	1	1
6	80%	4	3	0	1	1	1
7	100%	5	5	0	0	0	0
8	100%	3	3	0	0	2	2
9	100%	2	2	0	0	3	3
10	80%	4	3	0	1	1	1
11	100%	4	4	0	0	1	1
12	100%	3	3	0	0	2	2
13	100%	3	3	0	0	2	2
	95.38%	41		0		21	

[a]Each subject can achieve a maximum score of five for all three behavior categories combined. The numbers list indicate the number of agreements under each behavior category.

Table 2

Percentage of Agreement for the Behavior Categories in the Afternoon VTR Group

		Number of Behaviors for Each Category[a]								
		Individual			Competitive			Cooperative		
			Obs #			Obs #			Obs #	
			1	2		1	2		1	2
Subject	1	80%	3	4		1	0		1	1
	2	100%	0	0		0	0		5	5
	3	80%	2	1		0	1		3	3
	4	80%	3	2		0	1		2	2
	5	100%	0	0		0	0		5	5
	6	100%	3	3		0	0		2	2
	7	100%	2	2		0	0		3	3
	8	100%	1	1		0	0		4	4
	9	80%	0	1		1	0		4	4
	10	80%	1	2		1	0		3	3
	11	100%	1	1		0	0		4	4
	12	100%	1	1		0	0		4	4
	13	100%	0	0		0	0		5	5
	14	100%	3	3		0	0		2	2
	15	100%	1	1		0	0		4	4
	16	80%	1	2		2	1		2	2
	17	40%	2	0		2	1		1	4
		89.41%	20			2			54	

[a]Each subject can achieve a maximum score of five for all three behavior categories combined. The numbers list indicate the number of agreements under each behavior category.

Table 3

Percentage of Agreement for the Behavior Categories in the Morning Slide Group

		Number of Behaviors for Each Category[a]								
			Individual			Competitive			Cooperative	
			Obs	#		Obs	#		Obs	#
			1	2		1	2		1	2
Subject	1	60%	5	3		0	2		0	0
	2	80%	5	4		0	1		0	0
	3	100%	5	5		0	0		0	0
	4	100%	5	5		0	0		0	0
	5	100%	5	5		0	0		0	0
	6	100%	5	5		0	0		0	0
	7	80%	4	3		0	1		1	1
	8	80%	4	3		0	1		1	1
	9	100%	5	5		0	0		0	0
	10	60%	5	3		0	2		0	0
	11	100%	1	1		0	0		4	4
	12	100%	0	0		0	0		5	5
	13	80%	3	4		1	0		1	1
		87.69%	45			0			12	

[a]Each subject can achieve a maximum score of five for all three behavior categories combined. The numbers listed indicate the number of agreements under each behavior category.

Table 4

Percentage of Agreement for the Behavior Categories in the Afternoon Slide Group

		Number of Behaviors for Each Category[a]						
		Individual			Competitive		Cooperative	
		Obs 1	# 2		Obs 1	# 2	Obs 1	# 2
Subject 1	100%	0	0		0	0	5	5
2	100%	1	1		0	0	4	4
3	100%	0	0		0	0	5	5
4	100%	1	1		0	0	4	4
5	100%	0	0		0	0	5	5
6	80%	2	1		0	0	3	4
7	100%	1	1		0	0	4	4
8	100%	1	1		0	0	4	4
9	100%	1	1		0	0	4	4
10	80%	1	0		1	1	3	4
11	80%	1	0		0	1	4	4
12	100%	1	1		0	0	4	4
13	100%	2	2		0	0	3	3
	95.38%	9			1		52	

[a]Each subject can achieve a maximum score of five for all three behavior categories combined. The numbers list indicate the number of agreements under each behavior category.

Table 5

Percentage of Agreement for the Behavior Categories in the Morning Animated Film Group

		Number of Behaviors for Each Category[a]					
		Individual		Competitive		Cooperative	
		Obs 1	# 2	Obs 1	# 2	Obs 1	# 2
Subject 1	100%	3	3	0	0	2	2
2	80%	2	3	1	0	2	2
3	100%	4	4	0	0	1	1
4	100%	3	3	0	0	2	2
5	100%	5	5	0	0	0	0
6	100%	5	5	0	0	0	0
7	100%	5	5	0	0	0	0
8	100%	5	5	0	0	0	0
9	80%	3	4	1	0	1	1
10	100%	4	4	0	0	1	1
	96%	39		1 0		9	

[a]Each subject can achieve a maximum score of five for all three behavior categories combined. The numbers list indicate the number of agreements under each behavior category.

Table 6

Percentage of Agreement for the Behavior Categories in the Afternoon Animated Film Group

		Number of Behaviors for Each Category[a]					
		Individual		Competitive		Cooperative	
		Obs # 1	2	Obs # 1	2	Obs # 1	2
Subject 1	100%	4	4	0	0	1	1
2	80%	2	3	1	0	2	2
3	100%	3	3	0	0	2	2
4	80%	3	4	1	0	1	1
5	100%	4	4	0	0	1	1
6	100%	3	3	0	0	2	2
7	80%	2	3	1	0	2	2
8	100%	3	3	0	0	2	2
9	80%	4	4	0	0	1	1
10	100%	4	4	0	0	1	1
11	100%	4	4	0	0	1	1
	94.55%	36		0		16	

[a]Each subject can achieve a maximum score of five for all three behavior categories combined. The numbers list indicate the number of agreements under each behavior category.

difficult because of the angle-viewing of the camera.

A comparison of the total number of individual, competitive and cooperative behaviors recorded by the two blind observers in each group shows a distinct pattern between the treatments. In the film treatment, the subjects exhibited 25 cooperative behaviors, 75 individual behaviors and 0 competitive behaviors. In the slide treatment, the subjects demonstrated 64 cooperative behaviors, 54 individual behaviors and 1 competitive behavior. Finally in the VTR treatment, the subjects imitated 75 cooperative behaviors, 61 individual behaviors and 2 competitive behaviors. The results show almost no competitive behaviors emitted by the children but a total number of 164 cooperative behaviors and 190 individual behaviors across treatments.

These findings are interesting in so far as cooperative behaviors were imitated because of the VTR and slide cooperative games packages. A careful evaluation of the scores reveals that individual behaviors were performed more often in the film treatment and that cooperative behaviors were imitated more often in the slide and VTR treatments. A MANOVA statistical analysis using only the cooperative behavior scores obtained by the two blind observers allowed a more in depth look at the immediate effects of modeling cooperative games on children's prosocial behaviors.

Multivariate Analysis of Variance

A one factor MANOVA was computed between the three treatment groups (videotape, slide, animated film) with the prosocial behaviors of donation and cooperation as dependent variables.

A summary of the MANOVA statistics is presented in Table 7. These results show a Wilks' Lambda calculated value of 0.638. Using the .05 significance level the null hypothesis of no treatment-group mean differences (simultaneously on the two dependent variables) is rejected since the calculated value is less than the critical value of 0.870. In summary, there is a significant difference in the means of the treatments under study.

In order to evaluate the two main hypotheses of interest the MANOVA was followed by the calculation of 95% Bonferroni confidence intervals on contrasts for each of the dependent variables. This method was used on the contrasts of VTR vs film and VTR vs slide because these contrasts relate to the two main hypotheses of interest. By using the Bonferroni method and 95%, the chances of making a type I error are held at .05, which is consistent with the MANOVA significance level. With a total of four comparisons made, the critical constant was $t_{74}^{.05/4} \approx 2.55$.

Table 7

Means, Standard Deviations and Manova in Three Viewing Conditions

	Donation		Cooperation	
	Means	S.D.	Means	S.D.
Films	3.33	2.16	0.24	.10
Slides	6.42	2.36	0.49	.29
VTR	6.77	2.10	0.49	.27

MANOVA

Hypothesis	SSP (Sum of Squares Products)	dF (Degrees of Freedom)	MSP (Mean Squares Products)	Λ (Wilks Lambda)
Treatment Effects	$\begin{bmatrix} 165.34 & \\ 12.74 & 0.99 \end{bmatrix}$	2	$\begin{bmatrix} 82.67 & \\ 6.37 & 0.50 \end{bmatrix}$	0.638*
Error	$\begin{bmatrix} 480.38 & \\ -07.63 & 6.61 \end{bmatrix}$	74	$\begin{bmatrix} 6.49 & \\ -0.10 & 0.09 \end{bmatrix}$	
Total	$\begin{bmatrix} 645.72 & \\ 5.11 & 7.60 \end{bmatrix}$			

*$p < .05$, $\Lambda_{2,2,74}^{.05} \doteq 0.870$.

In Table 8, the four confidence intervals are presented. This analysis shows that the Film and VTR means are significantly different for both dependent variables, because the confidence intervals for these contrasts do not contain the null-hypothesis value of zero. Figure 1 clearly shows the difference between the means of the three groups on the two dependent variables.

The investigator also calculated the pooled within-group correlation between cooperation and donation to assess whether donation to a friend correlated positively with playing cooperative games. Surprisingly, the intercorrelation between the two dependent variables, cooperation and donation, was -0.14. This correlation is very low considering past research results on these two dependent variables. It shows that in this study cooperation and donation are not highly related.

Past research has demonstrated that as children get older they cooperate more. Therefore the experimenter wanted to investigate the age independent variable to assess whether cooperation or donation was significantly different for the morning and afternoon groups. A 2 X 3 MANOVA was computed to compare the morning groups of children across the three treatments (with a mean age of 2.5) and the afternoon groups of children across the three treatments

Table 8

95% Confidence Intervals on Donation and Cooperation

	Lower Limit	Upper Limit	
Contrast* Between Film-VTR on Cooperation	-5.28	-1.58	(sig.)
Contrast . Between Slides-VTR on Cooperation	-2.09	1.40	(n. sig.)
Contrast Between Film-VTR on Donation	-0.47	-0.04	(sig.)
Contrast Between Slides-VTR on Donation	-0.21	0.20	(n. sig.)

*Bonferroni co= $\pm t_{.74}^{.05/4} \approx 2.55$.

Figure 1

Means of the Three Groups on Cooperation and Donation

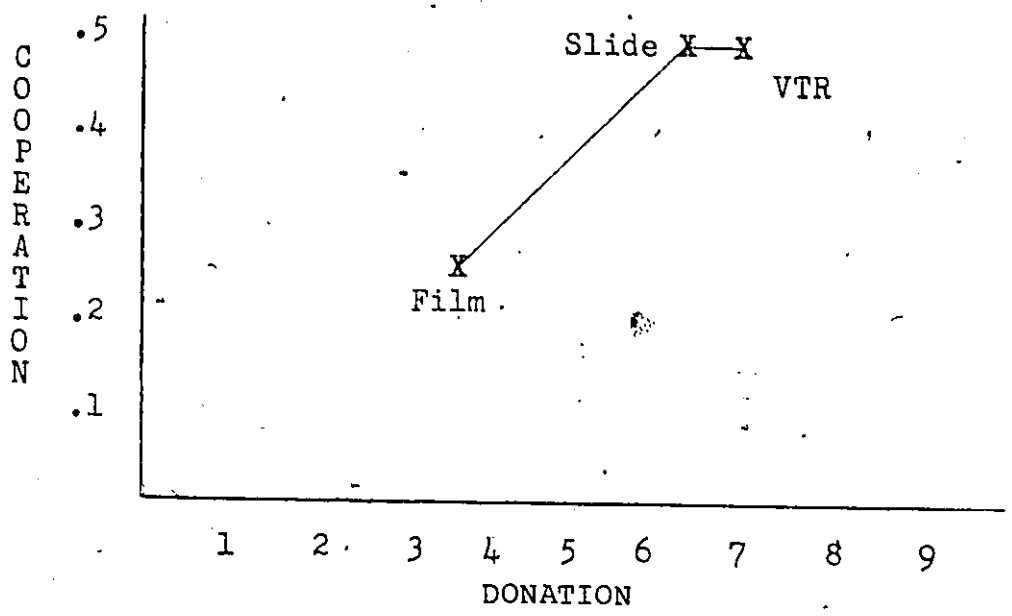

Table 9

Means, Standard Deviations and Manova Between Morning and Afternoon Groups

	Donation		Cooperation	
	Means	S.D.	Means	S. D.
Morning				
Films	3.00	2.43	0.18	0.13
Slides	7.00	2.80	0.19	0.29
VTR	7.69	2.14	0.32	0.15
Morning Mean	6.14		0.23	
Afternoon				
Films	3.64	1.90	0.29	0.10
Slides	5.85	1.84	1.22	0.46
VTR	6.05	1.97	0.62	0.26
Afternoon Mean	5.34		0.72	

MANOVA

Hypothesis	SSP	dF	MSP	Λ
Age	$\begin{bmatrix} 12.19 & \\ -7.47 & 4.58 \end{bmatrix}$	1	$\begin{bmatrix} 12.19 & \\ -7.47 & 4.58 \end{bmatrix}$	0.850*
Error	$\begin{bmatrix} 466.64 & \\ 3.54 & 31.08 \end{bmatrix}$	73	$\begin{bmatrix} 6.39 & \\ 0.05 & 0.43 \end{bmatrix}$	
Total	$\begin{bmatrix} 478.83 & \\ -3.93 & 35.67 \end{bmatrix}$			

*$p < .05$, $\Lambda^{.05}_{2,1,73} \approx 0.880$.

Table 10

95% Confidence Intervals on Donation and Cooperation Between the Morning and Afternoon Groups

	Lower Limit	Upper Limit	
Contrast Between* Morning and Afternoon Groups on Donation	-0.35	1.95	(n. sig.)
Contrast Between Morning and Afternoon Groups on Cooperation	-0.79	-0.19	(sig.)

*Bonferroni $co = t_{.05/2}^{-} \approx 1.99$.

(with a mean age of 3.5).

In Table 9, a summary of the MANOVA on the age independent variable is presented. The Wilks' Lambda calculated value of 0.850 is less than the .05 critical value of 0.880. Therefore it was concluded that there is a difference between the morning and afternoon group means. The interaction was not tested because it was not of interest at this time.

The Bonferroni method ($t_{73}^{.05/2} \approx 1.99$)was used to evaluate the difference between the morning and afternoon groups on the two dependent variables. As shown in Table 10, the confidence interval was only significant for the cooperative dependent variable. The older (afternoon groups) children modeled cooperation more than younger (morning groups) children.

Chapter 5

Discussion

In the first section of this chapter, the results from the behavior observation measurement instrument are discussed. In the second section the a priori and post hoc multivariate analysis of variance (MANOVA) are interpreted and discussed.

Behavior Observation

Based on previous studies in cooperative games and cross-cultural observations, Orlick and Foley (1979) maintain that many young children behave in a prosocial and cooperative manner.

In this thesis, a total of a 164 cooperative behaviors emitted by 2 to 4 year olds were observed and agreed upon by two blind observers. This data registered on camera and measured by two blind observers and the researcher over a period of approximately 30 hours supports Orlick's proposition. Children between the ages of 2 and 4 clearly demonstrated the ability to model cooperation with their peers. Children of this age are capable of prosocial behavior and there seems to be no doubt of their ability to imitate the skills found in cooperative games. The

children clearly responded to the different stimulus materials in a sharing manner with their peers, even though no explanations were given during the actual free play time following the viewing of cooperative games.

The children appeared highly motivated to watch the television, the slides and the films. After the first week of experimentation, the children expected to watch the film material and looked forward to doing so with enthusiasm. It was noted that the children could watch the film inserts with a maximum attentional span when they were of three minutes duration. This appeared to be the optimal amount of time. Sitting the group together on the floor and obtaining silence consumed most of the time. The experimenter felt that a variety of 3 minute film inserts could help to motivate children to watch television for a longer period of time. These presentations could be done intermittently during a preschool period.

In a previous study with cooperative games, Orlick, McNally and O'Hara (1978) found a significant increase in cooperative behaviors only when the program was continued for a total duration of 18 weeks. No significant increase in the children's cooperative behavior was observed by external "blind observers" after 8 weeks into the program. This research did not utilize film-mediated cooperative

games. The present study with the help of film-mediated cooperative games has demonstrated the effectiveness of teaching cooperative behaviors in a short time span of five weeks. The children imitated models very rapidly from watching peers playing cooperative games on videotapes and slides, and the immediate comparative effects were evident. As had been expected, irrelevant animated films did not help to improve the number of cooperative behaviors.

The behavior observation indicates that teachers can improve the number and kind of cooperative behaviors imitated by children between the ages 2 to 4 with the help of appropriate videotapes.

Multivariate Analysis of Variance

The one factor MANOVA results show that the children are capable of improving the extent of prosocial behavior with their peers after exposure to appropriate stimuli. In a natural setting, the children cooperated and donated after having viewed a series of film-mediated cooperative

games. The children who viewed the videotapes of cooperative games performed more prosocial behaviors with their friends than the irrelevant animated film control group. The Bonferroni method demonstrated that the most significant pairwise comparisons were between the Film-VTR treatments on both dependent variables.

An intercorrelation between cooperation and donation revealed a low correlation of -0.14 between these two variables. This result is different from studies by Rushton (1976) and Rushton and Teachman (1978) which have shown positive correlation between playing cooperatively on a car-racing game, sharing candies with a friend and donation to charity over time periods ranging from 2 weeks to 2 months. This difference could be attributed to the fact that the measure of donation as defined in this study was different from Rushton's studies. He measured donation to charity and this study measured sharing candies with friends. Also all of his data was collected in a laboratory setting with no group cooperative games. Other reasons for this low intercorrelation might be that laboratory measures involve the widespread "demand characteristics" and "experimenter-effects". Finally some experimenters suggest that since children donate rarely to charity outside the laboratory, that such measure lack "ecological validity".

For this study, the experimenter had to consider the possibility of nursery school experience with peers as an influential variable on cooperative interaction. The

animated film groups showed less cooperative behavior than both the VTR and slide treatments. Over the same time period, the animated film groups demonstrated less cooperation and donation than the VTR groups; therefore the children in these groups may have been affected mostly by nursery school experience. Considering this point, it appears that the VTR treatment showed more significant effects because of regular attendance at a preschool program and repetition of visual cooperative modeling. In a future study, regular attendance and cooperative modeling should be better controlled to compare the effects of nursery school experience and a VTR cooperative games' program.

The dynamic nature of the videotapes as opposed to the static nature of the slides probably offers a better representation of the game behavior to be modeled by the children even though their results are comparatively the same. In this respect, the children can probably better imitate the model of their peers interacting. Well designed audiovisual packages depicting cooperative games and cooperative values in play, games and sports have the potential to foster prosocial behavior with children. With such material available to teachers, they could teach children in the classroom, in the gymnasium and in the school yard more cooperative and prosocial behaviors. The

potential for VTR packages looks promising.

The post hoc MANOVA revealed significant differences between the afternoon groups with a mean age of 3.5 and the morning groups with a mean age of 2.5. The analysis of this age variable was decided post hoc to the treatments. Bonferroni confidence intervals indicated that cooperation was more significant for the older afternoon groups of children. This result agrees with Parten's (1932) and Rushton's (1976) studies that social participation is greater with increasing age.

During the research, a high absenteeism rate was recorded. Out of the original 124 children only 77 attended on a regular basis for the five week experimental treatments. Nevertheless the groups of children who attended for the five consecutive weeks of experimental treatments were affected by the VTR package.

In this study, the experimenter measured the direct impact of film-mediated cooperative games on children's prosocial behavior with a view towards possibly helping play leaders teach groups of children in specific situation. It did not intend to evaluate the long term effects because so many influential variables such as parental education, different media sources and peer interactions outside the preschool

environment intervene. Another study could involve either controlling these influential variables and/or assessing generalization and long term effects of film-mediated cooperative games. Several years of interventions and follow-ups are needed to evaluate such a project.

Research findings in this study must be duplicated with more refined VTR and slide productions, a larger number of sample groups and more stringent criterions for age and time of treatments. A longer period of experimentation to investigate other important variables mediating the cognitive and social skills of young children would also be helpful. In the future, experimentation in natural settings will help bridge the gap between theoretical and practical research.

The ability for researchers to do effective experimentation demands a great deal of sensitivity, cooperation and communication with the real working world. Little (personal communication, 1979) emphasized the importance of giving research studies back to the people. With the help of collaborative work, involving exchanges, communication and cooperation, subjects will benefit directly from research studies. Past president of the American Psychological Association, George Miller (1980), talks of giving psychology away to the people largely as a

matter of being sensitive to the fact that not everybody knows everything. This open communication between researcher and participants will renew a quest for knowledge and excellence. With field studies such as this one, the researcher can service and gain from the real social environment. Part of this research was aimed at service to the program director, the play leaders and the children. It is hoped that the experimental treatments and subsequent feedback helped the play leaders in the acquisition of teaching skills and the modeling of cooperative games.

Further research promises interesting revelations about the nature of children's prosocial behaviors.

Chapter 6

Summary, Conclusions and Recommendations

Summary

The purpose of this study was to investigate the possible immediate effects of film-mediated cooperative games on children's prosocial behavior. Three different treatments were applied to preschool children. The treatments were cooperative games behavior mediated with VTR, slides and non-related animated films. A total number of 77 children aged 2 to 4 participated in the 5 weeks of experimental treatments. Six groups of children were chosen among a preschool program of 700 participants. They were chosen to match for sex and socioeconomic background. The six groups from each preschool center were randomly assigned to experimental treatments and each treatment was duplicated twice during the 5 weeks of experimental treatments.

The children in the cooperative games groups watched the same five games with the help of either VTR or slide presentations. The animated film groups saw irrelevant material to control for Hawthorne effects.

The 2 dependent measures used for multivariate

analysis of variance (MANOVA) were the score of cooperative behavior as measured by two blind observers with a modified behavior observation measurement instrument and the score on a donation behavior as measured by a task of sharing lollipops with friends. The results of a one factor MANOVA with Bonferroni confidence intervals demonstrated the effectiveness of the VTR for teaching imitative cooperative behavior and donation behavior in comparison to the animated film treatment. The 2 X 3 nonorthogonal MANOVA secondary analysis showed that the older children were more cooperative than the younger children.

Conclusions and Recommendations

The establishment of television as a tool for teaching imitation has clearly been defined in the literature and this research supports past investigation on modeling cooperation. Its possibilities for prosocial change are largely untapped. With technological advancements such as the availability of educational cassettes and videotape recorders in homes and schools, the individual will have greater power to choose to educate himself as he wishes. Various alternatives for television viewing include the availability of a variety of scripts and scenarios from television programs to help children with their viewing;

the production of prosocial programs that foster positive cooperative social interaction such as cartoons of cooperative games and fun activities with purposeful resolution of conflict situations; and, the production and creation of cooperative games by kids and for kids (Tate, 1979).

Hrycaiko, McCabe and Moriarity (1978) have recommended some prosocial behaviors for sports and games which could be presented on television.

1. Prosocial presentations of games and sports in an amateur school setting for fun and recreation;
2. Cameo features of prosocial behaviors, positive role models in voluntary helping activities;
3. More prosocial content in current programming;
4. Location of prosocial audiovisual sources for public media and all levels of sports and athletic organizations;
5. To encourage mass media to depict and emphasize the prosocial model and positive behavioral aspects of sports by such things as televising more amateur and school activities, and/or utilizing local press, radio and television to convey the distinction in goal method, and means between amateur and pro; mass media and television to provide appropriate prosocial role

> models for youth sport activities; technical skills teaching, strong emphasis on physiological, psychological, and sociological needs of youth; and, finally, partnership to do studies. (Hrycaiko, McCabe and Moriarity, 1978, p. 84)

The most serious omission in this list of recommendations is the need for the creation of prosocial and cooperative games for television along with specific behavioral definitions of cooperative and prosocial behaviors.

For children between the ages of 2 and 4, television material could be adapted and created so that it is appropriate to their play needs. Television programs could be made with 2, 3, and 4 year olds in a preschool play environment. Television scripts which accompany such programs could be provided to preschool play leaders and the creation of video inserts of different lengths could be created to depict a variety of games and playful behaviors.

For experimental goals, researchers could videotape each child individually prior to the start of the treatments for identification purposes and conditioning effects. To facilitate behavior coding, if possible, videotape all the same group sessions on the same tape for

easier observation purposes especially with blind observers. Prosocial behaviors could be assessed with additional measures such as cooperative table games, interactions in dyads, and possibly self-reports. Follow-up studies could involve the comparison of play leader modeling with video modeling of cooperative games, intact groups of 2 year olds in comparison with 3 year olds, intact groups of girls versus boys, television inserts of competitive versus cooperative games, individual versus cooperative games and competitive versus individual games. Another promising area of research could be the use of self-modeling in the area of children's cooperative and creative games. These ventures open up a world of practical research for all those interested.

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Appendix A: Prosocial Behavior Measurement Script

Each child was invited to play a "pretend game" with the experimenter. The child sat down at a table in the kitchen and ten red lollipops were placed on the table in front of the child. Children were chosen in random order. The script below was recited to the child. If the child did not understand the script, the experimenter repeated it two or three times until he understood clearly the instructions for the game. The script was as follows:

"Would you like to play a pretend game with me?"

Children responded: "Yes" (in all cases). "Come and follow me, we will play in the kitchen all alone."

"On the table in front of you, you will find ten red lollipops. Let's count them to make sure there are ten lollipops. Let's count them together. One, two, three...ten. Now how many lollipops do you want to share with your friends. All of the lollipops, some of the lollipops or none of the lollipops. Those you do not share, you can keep for yourself. Now, put the lollipops you want to share and give to your friend on this side of the table and those you want

to keep on your side of the table."

The lollipops that were placed near the experimenter were tallied up for the donation measure.

Appendix B: Activities in the Cooperative and Film Animation Group

The following is a description of the cooperative games as seen on the slides and the videotape. In the game description, certain procedural steps are explained to help the play leaders understand what the children will see.

Cooperative Games

Cooperative Musical Chairs

The children are asked to skip around a group of chairs and when the music stops, they are invited to share a chair with their friends. The children can share their space by letting a friend sit on their lap or by simply touching each other. In the game there is no elimination from the group. Everyone plays until two chairs are left and the group is resting. As in the traditional game, a chair is removed each time the music starts to play again.Cooperative musical chairs has been adapted using hoops, mats and sheets of linen to allow for more space. In the teaching procedure, it is especially important to explain the cooperative nature of leaning, touching and sharing a space on a chair with friends.

Cooperative Musical Hugs

In this game, the children skip, hop and jump around

the room individually to the sound of a rythmical record. When the music stops, the children have to go hug a friend. When the music starts again it is a cue for the children to begin their playing activities. The following time the music stops, the children have to hug different friends. As the game continued, the children had to hug two friends together and then three friends.

Balance Activities

In this game, the children have to try to hold a beach ball in balance with their heads without using their hands at any time during the activity. After mastering this skill, they are to try to walk forwards, backwards and sideways without dropping the beach ball which is balanced with their heads. Alternatives to this game are balance activities that utilize other parts of the body such as balancing the ball between their stomachs, their backs and even their knees.

Numbers

With a partner or a small group, the children are asked to form the shape of a fat number one, a long number one and a number three. They can use any parts of their bodies as long as they link up with a partner.

Letters

With a partner or a small group, the children are asked to form the shape of the letter O, T and V. Again, they are invited to do it with friends.

Animation Films

During the experiment, the two groups that viewed the films watched them in the same sequence. The films were borrowed from the National Film Board of Canada. All the films were animated films. What follows is a brief description of the films as found in the National Film Board of Canada Catalogue, 1980.

1-Metamorphoses: Here the animation artist has created a clown so versatile in the art of juggling that, between times, he even juggles himself. One moment the clown stands tossing balls, the next he becomes dismembered, following the balls about on the screen but coming together again all in one piece to finish the act (2 min. 33 sec. col., 0368 151, D: Laurent Coderre).

2-We: In a world were communications has grown into big business, the lack of it between individuals is almost a paradox. We live in tight little compartments not easily penetrated. Individual differences are regarded with suspicion or scorn. This animated quickie parodies the human condition in a few quick, colorful sketches, amusingly, without words, yet leaving food for thought (2

min. 52 sec. col., 0374 177, D: Anastasia Michailidis, P: Wolf Koenig).

3-Stars and stripes: An experiment in film animation, in which "stars" and "stripes" perform acrobatics to a sprightly march tune. The film was made without a camera, by McLaren drawing directly upon film. The title is in eight languages (2 min. 53 sec. col., 0149 019).

4-Two bagatelles: Two short films in which animation technique is employed with live actors. In the first, entitle On the Lawn, a male dancer waltzes to synthetic music. The second is a fast march, In the Backyard, accompanied by an old-fashioned calliope (2 min. 22 sec. col., 0153 048, D: Grant Munro).

5-The North Wind and the Sun: A Fable by Aesop. An engaging illustration by animation artist Rhoda Leyer, of the ancient Greek fable in which the warm sun proves to the cold wind that persuasion is better than force when it comes to making a man take off his overcoat (2 min. 53 sec. col., 0172 099, D: Rhoda Leyer, Les Drew, P: Robert Verrall).

Appendix C: Raw Scores

Morning

Videotape Group

Trend-Arlington

Mean Age = 2.2

Subject	Age	Sex	Donation	Cooperation
1	2	M	9	0.20
2	2	M	7	0.40
3	2	M	9	0.40
4	2	F	4	0.60
5	2	M	9	0.20
6	2.5	F	9	0.20
7	2.5	F	8	0.00
8	2.5	F	8	0.40
9	2.5	F	6	0.60
10	2	M	9	0.20
11	2	F	9	0.20
12	2	M	3	0.40
13	2.5	M	10	0.40
	2.2	7M 6F	100	4.20

Afternoon

Videotape Group

Barhaven

Mean Age = 3.6

Subject	Age	Sex	Donation	Cooperation
1	4	M	5	0.20
2	4.5	M	5	1.00
3	3.5	F	6	0.60
4	4	M	0	0.40
5	4	F	5	1.00
6	4	M	6	0.40
7	3	F	3	0.60
8	3	M	8	0.60
9	4	F	9	0.80
10	2.5	F	10	0.60
11	3	F	9	0.80
12	3.5	M	9	0.80
13	4	F	6	1.00
14	3	F	7	0.40
15	3	F	5	0.80
16	4	F	5	0.40
17	4	M	5	0.20
	3.6	10F 7M	103	10.60

Morning

Slide Group

Barhaven

Mean Age = 2.6

Subject	Age	Sex	Donation	Cooperation
1	3	M	4	0.00
2	2.5	M	10	0.00
3	2	M	1	0.00
4	2.75	M	5	0.00
5	2	M	8	0.00
6	2.5	F	10	0.00
7	2.5	M	9	0.20
8	3	M	4	0.20
9	3	M	7	0.00
10	2.5	M	9	0.00
11	3	F	7	0.80
12	3	F	7	1.00
13	2	F	10	0.20
	2.6	4F 9M	91	2.40

Afternoon

Slide Group

Lynwood

Mean Age = 3.3

Subject	Age	Sex	Donation	Cooperation
1	3	F	6	1.00
2	3.5	F	2	0.80
3	3	F	7	1.00
4	3	F	8	0.80
5	3.5	F	0	1.00
6	3	M	7	0.60
7	3.5	M	8	0.80
8	4	M	9	0.80
9	4	F	6	0.80
10	2	F	8	0.60
11	4	M	5	0.80
12	3	F	5	0.80
13	3	F	5	0.60
	3.3	9F 4M	76	10.40

Morning

Film Animation

Group

Lynwood

Mean Age = 2.6

Subject	Age	Sex	Donation	Cooperation
1	3.5	F	3	0.40
2	2	M	0	0.40
3	3	M	3	0.20
4	2.5	F	6	0.40
5	2	M	0	0.00
6	2	F	9	0.00
7	3	M	0	0.00
8	2	F	3	0.00
9	2.5	M	1	0.20
10	3	F	5	0.20
	2.6	5F 5M	30	1.80

Afternoon

Film Animation

Group

Trend-Arlington

Mean Age = 3.6

Subject	Age	Sex	Donation	Cooperation
1	3	F	4	0.20
2	4	M	7	0.40
3	3.5	F	3	0.40
4	4	M	2	0.20
5	4	F	6	0.20
6	4	F	2	0.40
7	4	M	6	0.40
8	3	M	5	0.40
9	3	F	1	0.20
10	4	F	3	0.20
11	3	M	1	0.20
	3.6	6F 5M	40	3.20

Appendix D: Instructions

The experimenter gave these instructions to the children before the viewing of the films, the slides and the videotape.

Pre-viewing Instructions

"Children let us relax, enjoy and listen to the instructions as if we were watching television at home."

Viewing Instructions

During the slide and videotape presentation, the experimenter presented these instructions to the children in all the groups.

Game 1: "In this game (slides or videotape are shown), children are skipping around a group of chairs and when the music stops they are invited to share a chair with their friends. The children can share their space by letting a friend sit on their lap or simply, by touching each other."

Game 2: "In this game, the children skip, hop and jump around the room individually to the sound of a rythmical record. When the teacher stops the music, the children have to hug a friend. When the music starts again, the children start to skip, hop and run again. The

following time the music stops, the children have to hug three or four friends together."

Game 3: "In this game, the children try to balance a beach ball between their heads, stomachs and backs without using their hands. Then they try to walk forwards, backwards and sideways without dropping the ball."

Game 4: "In this game, the children make a long number one, a fat number one and a three with their friends using different parts of their bodies."

Game 5: "In this game, the children make the letter O, T and V with their friends using different parts of their bodies."

After the instructions, which were given for all viewing sessions, the children were left alone to play without any instructions from any of the play leaders or the experimenter. Leaders responded to any questions from the children with a brief comment: "Now you can play."

Appendix E: Letter of Program Approval

January 21, 1980

Dear Parents:

This letter is to inform you that your child will be participating in a research project as part of my thesis work at the University of Ottawa.

As an experimenter I wish to help the children learn how to play together during Duffer Doo time. To facilitate the learning process, I will use a variety of audiovisual equipment such as cameras, films, televisions and slides.

I know that my personal intentions are to share my knowledge and to help the participants. If need be, I can answer questions or provide information about the project to anyone wishing to discuss it.

sincerely yours,

Pierre Provost

Dear Parents:

This research project is being done in cooperation with the staff of Duffer Doo. If you do not wish to have your child participate please call me as soon as possible.

sincerely,

Betty Usher
Preschool Technician

Parks and Recreation, Nepean
1701 Woodroffe Avenue, Ottawa K2G 1W2
825-5151

Appendix F: Duffer Doo Program

Little Duffer Doo Time*

Little duffer doo time is a play group programme for two to five year olds offered by the Department of Parks and Recreation, city of Nepean.

Little duffer doo time is child's play! It gives them the opportunity to test themselves and their own limitations. Play develops a sense of sharing. They can play with new friends, develop their own social understanding while learning to grow with others. Play is a learning experience and what the children do in their play time does have implications for their future. To a child, play is serious business. Our approach to play is what a child understands - play in a friendly atmosphere with activities to do them with.

Duffer doo is a cooperative venture between parents and Nepean Parks and Recreation; a challenge for us to help prepare our preschoolers for more leisure in adulthood, more understanding and awareness. The need to play is ever more prevalent today as to when we were "little duffers".

Dear Parents:

Coming to Duffer Doo on your helping day can be a pleasant and rewarding experience. You can observe your

own child with his or her peer group and other adults as well as ensuring that the programme is an enriching one for all the children.

- wear comfortable play clothes
- encourage the children
- place yourself at the level and speak to them by name
- come early to help set up
- be aware of your duties, i.e., supervising a particular area, reading stories, mixing paints, preparing crafts, comforting an upset child.

Note: Acceptance of your child or children in this programme commits you, the parent, to:

- one half day of assistance in the operation of the programme
- assisting in fund raising events if necessary, proceeds go directly to your child's programme in equipment, outings, etc.

What is Little Duffer Doo Time?

It's a play group for two to five year olds, including those with special needs, offering open, free play in a unstructured, relaxed atmosphere. We offer all the ingredients for a child's early play experience (water

play, sand, playdoh, painting, music, crafts, games and stories). The programme has been serving Nepean communities since January 1974, expanding from two centres with 120 children to 6 centres (Larkin House, Maki House, General Burns, Lynwood, Manordale and Trend-Arlington) with over 700 preschoolers. Parents are of vital importance to the success of Duffer Doo - assisting each day and in fund raising events, making this a community oriented, cooperative venture.

Each day consists of 20 to 25 children (fewer at Manordale) supervised by two play leaders, a centre coordinator and two assisting mothers. The play leaders and coordinator are chosen for their past experience with preschoolers, interest in children and their development, and warm, caring personalities. They acquire further skills and ideas at workshops and training sessions organized by Recreation and Parks.

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*Programme description is from a flyer printed by Nepean Parks and Recreation, 1979-80.