PEER TEACHING:

PRESCHOOLERS AS TEACHERS OF A PSYCHOMOTOR TASK

A thesis submitted in partial satisfaction of the requirements for the degree of Master of Science in

Home Economics

by

Jeanne S. O'Hanlon

May, 1982
The Thesis of Jeanne S. O'Hanlon is approved:

Dr. Marjory Joseph

Alyce Blackmon

Dr. Audrey Clark, Chairman

California State University, Northridge
ACKNOWLEDGMENTS

The author would like to take this opportunity to express sincere appreciation to Dr. Audrey Clark for her never-ending patience and support throughout the development of this thesis.

Gratitude is also extended to Dr. Marjory Joseph and Alyce Blackmon for their assistance and advice as members of the author's graduate committee.

Appreciation is also felt for the staff of the CSUN Preschool Laboratory and Valley Presbyterian Preschool for the use of their children, time and facilities. Special thanks are in order to my sister, Jill Sunderland, who helped with the observations, and for the rest of my family who gave their encouragement and support. Additional thanks is felt for Wendy Hale, who helped with the graphs. The author would also like to express special thanks to Linda Swedberg for her help with the observations and for continually keeping me enthused throughout my graduate program.

Lastly, the author would like to thank her husband, Brian, for his constant support and confidence, without whom this would not have been possible.
# TABLE OF CONTENTS

ACKNOWLEDGMENTS ................................................................. iii

LIST OF FIGURES ................................................................. vi

ABSTRACT ............................................................................. vii

Chapter

I. INTRODUCTION ................................................................. 1
   Hypotheses ......................................................................... 2
   Assumptions ....................................................................... 2
   Limitations ......................................................................... 3
   Definition of Terms ............................................................ 3

II. REVIEW OF LITERATURE .................................................... 5
   Methods ............................................................................. 5
   Methodological Problems of the Studies ............................. 12
   Conclusion ......................................................................... 13

III. METHODOLOGY ............................................................... 14
   Subjects ............................................................................ 14
   Procedure .......................................................................... 15
   Personnel .......................................................................... 15
   Task Stimuli ....................................................................... 16
   Screening .......................................................................... 16
   Observation Instrument .................................................... 16
TABLE OF CONTENTS (cont'd)

Procedure for Analysis........................................17

IV. FINDINGS AND DISCUSSION....................................18

Figure 1..............................................................19

Figure 2..............................................................20

V. CONCLUSIONS AND RECOMMENDATIONS..........................23

BIBLIOGRAPHY........................................................26

APPENDICES..........................................................27

A. Letter to Parents................................................28

B. Teacher Questionnaire.........................................29

C. Instrument for teaching tutors how to wallpaper..........30

D. Observation Instrument.........................................31
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Frequency of Tutors Using Selected Teaching Methods</td>
<td>19</td>
</tr>
<tr>
<td>2. Frequency of Teaching Methods By 4-year-old Tutors Teaching 3-year-old-children</td>
<td>20</td>
</tr>
</tbody>
</table>
ABSTRACT

PEER TEACHING:

PRESCHOOLERS AS TEACHERS OF A PSYCHOMOTOR TASK

by

Jeanne S. O'Hanlon

Master of Science in Home Economics

The purpose of this study was to find out what kinds of teaching methods preschoolers use to teach their peers. This was done by pairing a four-year-old preschooler with a three-year-old preschooler and having the older child teach the younger child how to wallpaper. Forty dyads were observed and the teaching strategies incorporated by the tutors were recorded as they occurred.

Half of the dyads were from a preschool in which the children are grouped in a multi-age group setting and half were from a school which uses single-age grouping. The experimenter analyzed the types of teaching methods the four-year-olds used and related them to the type of grouping used at the preschools and to the sex of the tutors.

The most frequently used teaching method was explanation, with demonstration and facilitation ranking second and third, respectively. The least used teaching method was praise. There was no
significant difference in the types of teaching methods used by the children in relation to the type of grouping used by their schools. This study also found that there was no significant difference in teaching methods used by male or female tutors.
Chapter I

INTRODUCTION

Peer instruction has been investigated at the elementary school level and above for many years and found to be an effective educational tool. Recently, the question has been raised as to whether or not peer instruction is viable at the preschool age.

Koester and Bueche (1980), investigated three and four-year-old preschoolers in an instructional situation, in which the older child was expected to "teach" the younger child a series of block design tasks. They noted differences in teaching behaviors according to the sex of the child. Social familiarity between tutor and tutee were also investigated.

Research has shown that young children model the behavior of their older peers more frequently than they model the behavior of adults around them who are too large and whose behavior is too remote for a child to achieve. The older preschooler in turn, is better able to internalize some of the adult standards for behavior and serve as a model for the younger child (Rand, 1976). With this in mind, it is important to know if the older preschoolers are indeed teaching the younger children, and what kinds of teaching methods are being employed. In order to facilitate peer instruction, it is first necessary to observe to what extent, if any, peer instruction is occurring. If older children are teaching their younger peers, the idea of multi-age group classes would be beneficial. Grouping child-
ren of various ages together lends itself to an environment in which peer teaching can take place. The findings of this study can be used by preschools which are considering the implementation of, or have already implemented multi-age group classes.

This study examined characteristics of the teaching styles of four-year old children when placed in an instructional task situation with three-year-old children. The experimental problem used in this investigation required a four-year-old to teach a three-year-old how to wallpaper. This task was chosen because the researcher felt that most preschool children would not have had experience wallpapering before and therefore would not know how to do the task before the experiment began. Also, any learning that took place could be attributed to this particular learning situation. The major concern was not how well the four-year-old taught or what the three-year-old learnt, but rather what were the various kinds of instructional techniques used in a peer-teaching situation.

**Hypotheses**

Alternate Hypothesis: There are significant differences in the type of teaching methods used by four-year-old preschool children.

Null Hypothesis: There are no significant differences in the type of teaching methods used by four-year-old preschool children.

**Assumptions**

Four-year-old children have the ability to display teaching behaviors. (Rand, 1976; Koester and Bueche, 1980)
Limitations

The sample for this study was drawn from the California State University, Northridge Preschool Laboratory and Valley Presbyterian Preschool which are primarily composed of children from white, middle class families. The results of this study can only be generalized to subjects from similar socioeconomic and ethnic backgrounds. Also, field behaviors may be different from controlled experimental situations. The children in this study were asked to teach a psychomotor task (wallpapering).

Definitions

Three-year-old in this study referred to a child aged three years to three years, eleven months.

Four-year-old in this study referred to a child aged four years one month, to four years, eleven months.

Multi-age grouping referred to a setting in which children of various ages were grouped together.

Single-age grouping referred to a setting in which children of the same age were grouped together.

Explanation: information given without physical involvement, e.g., "Put the paste on the back of the wallpaper."

Demonstration: instruction by example; no verbalization.

Modeling: performance of the task first by the tutor, then by the tutee.

Facilitation: to physically make the task easier, e.g., holding the wallpaper down while the tutee applied the paste.
Praise: expression of approval or admiration, e.g., "That's good", "You're doing a good job."

Questions: interrogative sentence, e.g., "Did you put the paste all over the wallpaper?"

Criticism: negative feedback, sarcasm, e.g., "No, that's not the right way!"

Corrective Feedback: cueing the subject to respond to a stimulus in a manner that results in a particular behavior, after an original off-target response.
Chapter II

REVIEW OF LITERATURE

Studies concerning "teaching" methods used by preschool children in multi-age group settings have recently been brought to the attention of educators. This review of literature will discuss the various studies that are related to the subject of children as teachers.

The primary investigators of this aspect of peer instruction are Lynne Koester and Nancy Bueche (1980). The main thrust of their investigations has been comparison of preschool peer instruction with that of untrained adult teachers.

Methods

Koester and Bueche, (1980), used twenty-three 3-year-olds and a comparable number of 4-year-olds to see if the older children could teach the younger children a series of block designs. Each group was comprised of 10 males and 13 females. First, the 4-year-olds were examined to make sure they could complete a block design task, which they in turn would teach their younger peers. They were then paired with a 3-year-old and instructed to teach them the block design. Each teaching session was observed for a maximum of ten minutes, and observational data were recorded every twenty seconds. This involved checking off teaching methods which the tutor demonstrated. Since the categories were not mutually exclusive, it was possible to check
concurrent behaviors within the time sample. These researchers considered overall use of teaching strategies, sex differences, classroom differences and teacher and learner interaction in their study. They found that the most frequently used teaching behavior used by preschool tutors was demonstration, (44.9%), with assistance (35.4%) and explanation (26.7%) ranking second and third respectively. There was a significant difference between the male and female groups use of teaching style in regards to correction, with males using correction when teaching a peer more than the females. Difference between the morning and afternoon preschool groups were also significant, with the afternoon group using a much higher proportion of demonstration 72.5% as compared with 23.9%. However, the morning group tended to provide assistance more frequently than the afternoon group (45.5% to 22.1%). An additional aspect of the teaching sessions indicated that the tutor's use of demonstration was associated with the lack of tutee participation, and the tutor's use of assistance was associated with active tutee involvement.

Lougee, Grueneich, and Hartup, (1977), studied pairs of preschool children to determine the social interaction between same and mixed age dyads. Fifty-four preschool children who ranged in age between 3.4 and 5.4 years were paired in three sets of dyads: a) same age, younger dyads, b) same age, older dyads and c) mixed-age dyads. The children were taken to a laboratory room in which play materials were the only objects in the room. The children were asked to remain in the room while the experimenters left the room. The subjects were
observed through a one-way mirror, and their actions were recorded with respect to the amount of social interaction, according to two main categories: positive social interaction and negative social interaction. Another aspect assessed was the verbal interaction between the children. The number of words used, number of utterance units, attention getting comments, questions, and appropriateness of answers were recorded. A third area examined was task orientation. Judgements were made and categorized according to whether the children were looking at the task, the other child, or elsewhere in the room. The above researchers found the level of positive social interaction for the mixed-age dyads fell between the levels of the younger and older same-age dyads.

Lougee et al. (1977) felt the social levels of the mixed-age dyads were not as well matched as levels in the same-age dyads. The mixed-age situation in the Lougee study produced more complex effects than simple modification of sociability toward intermediate levels. There was accommodation between partners, but there was inconsistency in the amount of this accommodation: some older children showed extremely low levels of social interaction; while some younger children showed very high levels of social activity. Verbal communication was found to be similar in mixed-age dyads and older same-age dyads. The task orientation for the three groups showed no significant differences.

Feshbach and Deror, (1969), looked at different reinforcement methods used by lower and middle-class children when interacting with peers. They used 102 four-year-olds who acted as teacher, and 102
three-year-olds who acted as pupils. The subjects were divided into four groups on the basis of social class and race. These groups were Middle-class Caucasian, Lower-class Caucasian, Middle-class Negro, and Lower-Class Negro. The four-year-old "teacher" was taken to a room and told that he would be given an opportunity to work on a puzzle with the experimenter. The child was given three trials to assemble it. During the first trial, the experimenter actively helped the child. For the second trial, the experimenter made one positive and one critical verbal remark. On the third trial the child was encouraged to complete the puzzle by himself. All children completed their puzzles. After completion, each three-year-old was paired with a four-year-old teacher. In each case, the social class and race of the four-year-old child were the same as that of the three-year-old. Sex grouping was random except for the representation by either sex in approximately fifty percent of the cases. All comments pertaining to performance by the "teacher" were recorded verbatim and subsequently categorized as either positive or negative reinforcements. It was found that middle-class Caucasian children used a significantly greater number of positive reinforcements than any other group. In contrast, the middle-class Negro children used significantly less positive reinforcement than either of the two lower-class groups. There were no significant differences in the number of positive reinforcements administered to boys versus the number administered to girls.

Stokes and Baer, (1976), used three boys, Kevin and Barry, age six, and Gary, age seven, as subjects. Kevin was the student in this
study, and Barry and Gary were his peer tutors during the spring and summer sessions respectively. The boys were taught to identify five printed three-letter words, which labeled objects familiar to the student and his peer tutors. Each day, both the student and tutor completed the word recognition task without tutoring. About thirty minutes after completion, the peer-tutor was tested by the experimenter. Then with the experimenter present, the student was taught word-recognition by the peer-tutor. Prior to this, the peer-tutor was instructed to present the cards and appropriately praise and correct the student's word recognition responses. The second peer-tutor took over during the summer session after the original peer-tutor graduated from the preschool. Stokes and Baer found that the tutee required fewer prompts when tested by the experimenter than before a tutoring program began. After two days of testing, the experimenter's prompts were discounted and the tutee's percentage of unprompted correct contingencies continued at an almost perfect level.

Wahler, (1967), used five preschoolers and their peers to study the social behavior of children in free play settings. Three of the subjects were observed in a playroom with two randomly selected peers, while the other two were studied in their natural preschool environment. The experimenter placed one of the subjects with two randomly selected peers in a large playroom with the instructions to play in one section until the experimenter returned. They were observed three times weekly at the same time of day for fifteen minutes. The researchers continued their observations until they felt they had enough material (the exact number of weeks was not indicated). Ob-
servers recorded the subjects' verbal and nonverbal behaviors, plus any peer behavior which was contingent upon the subjects' behavior. He concluded that the preschool child's behavior in free field settings may be subject to the reinforcement control of his peers. Analysis of several child-peer interactions revealed that peer social attention could control a variety of the subjects' social behaviors, such as cooperative behavior, aggressive behavior, and speech.

Granzio, Frence, Brownell, and Hartup, (1976), looked at task performance in same- and mixed-age triads, while half worked for individual rewards and the remainder for group rewards. Children were assigned to same sex triads of four types: 1) same age first graders; 2) mixed-age triads with two first and one third grader; 3) mixed-age triads with one first and two third graders, and 4) same age third graders. The triads were randomly assigned to either the group reward or individual reward condition. They were given a tower-building task which had been pretested as equally difficult for first and third grade children. The group reward triads were told they would get a chip for each block in the tower and they would all split up the chips at the end. The individual reward triads were told they would get a chip for every block of their particular color. They were also told they would get prizes for their chips. They found that individual performance on a block-building task was differentiated according to age mixture within the group, although this differentiation was greater among third graders than among first graders. Among the older children, individual status was associated with the highest levels of individual performance. In contrast, the performance of
first-graders differed little across the various types of triads.

Allen and Feldman, (1973), studied the lesson mastery of low-achieving fifth-grade children who taught a lesson to a third grader as compared to studying the lesson alone. The tutors consisted of ten low achieving fifth-graders and the tutees, randomly selected third-graders. The tutors were given ten lessons, one at a time. On alternate lessons they were told to teach the lesson to a third grade student and study the lesson alone. Tests were prepared to measure the student's mastery of the content of each day's lesson. After a two-week period, those lessons taught to third graders were significantly better mastered than those studied alone by the fifth-grade low-achievers. The third-graders' overall scores were slightly higher when taught by the older children than when they studied alone, although this was not significant.

The categories in Zimmerman and Kleefeld's 1977 study were the basis for the categories in this study. They used twenty-four teachers to instruct the same number of five-year-olds to seriate length. The teachers selected for this study were advanced students majoring in education at the City College of New York. All of the teachers had experience tutoring students as part of their training. The children were randomly assigned to one of three experimental groups: a trained teacher group, an untrained teacher group, or an uninstructed control group. Teachers in the untrained group were given instructions and met with the experimenter for about five minutes to ensure that they understood the task and the objective. Teachers in the trained group received written instructions concern-
ing the use of modeling procedures, as well as the same general instructions given to untrained teachers. They also met with the experimenter to ensure that he (or she) understood the tasks and objectives. In addition, the experimenter briefly modeled the social learning techniques described in the written document and asked the teacher to imitate. During the teaching episode, the experimenter coded the teacher-child interaction using the Teacher-Child Observation Instrument. Immediately after the teacher was dismissed, the child was post-tested. Children in the uninstructed control group were simply post-tested. Results indicated that children taught by trained teachers displayed significantly more seriation judgements than youngsters instructed by untrained teachers, or in an uninstructed control group. Also, children taught by trained teachers outperformed those instructed by untrained teachers and those in the control group. Trained teachers used demonstration and explanation jointly more than untrained teachers who asked more questions and elicited more student response. The teacher behavior that was most effective was the combination of demonstration and explanation. However, teacher use of explanation without demonstration negatively correlated with child learning. Consequently, it appears that reliance on a purely verbal technique to teach seriation can actually interfere with acquisition.

Methodological Problems of the Studies

Many similar problems were exhibited in the research methodology of studies reviewed in the area of peer tutoring. Many studies
failed to use control groups, (Lougee, Grueneich and Hartup, 1977, Fessbach and Dedor, 1969, Koester and Bueche, 1980, Graziano, French, Brownell and Hartup, 1976), which makes it difficult to state with certainty that results were not due to some other influence.

Another area of concern is the lack of baseline data on the tutees. Without adequate baseline data on the subjects, it is impossible to make inferences about the amount of "learning" that has taken place.

The validity of some of these studies has to be questioned because of their small sample size. Stokes and Baer, (1976), used only three subjects in their research. Conclusions drawn from this study must be looked at cautiously, since generalizations made on such a small sample are not always accurate.

Conclusion

The literature has shown that peer instruction has been beneficial at various age levels. Results of this review show that different methods of peer tutoring provide varying degrees of effectiveness. Due to the small amount of research done with preschool children in this area, teachers have little information by which to implement peer instruction in their classrooms. The categories developed by Zimmerman and Kleefeld, (1977), appear to be applicable to the teaching methods used by both preschoolers and adults when instructing preschool age children.
CHAPTER III

METHODOLOGY

The type of research design used in this study was experimental. The dependent variable was the teaching method used by the subjects and the independent variables were the age of the subjects and the type of grouping used in the children's preschools.

Subjects

The subjects used in this study consisted of forty dyads, each made up of one three-year-old and one four-year-old. Half of the dyads attended the California State University, Northridge Preschool Lab and half were from Valley Presbyterian Preschool. The children from the Lab were grouped in multi-age group classrooms, whereas the children from Valley Presbyterian were grouped according to age.

Each dyad was achieved by randomly assigning a younger child to an older child participating in the study from the same school. Therefore, the children were not paired according to any variables such as sex, ethnic background, or social class. The children were primarily from White, middle-class families. Two Black children participated in the study, one from each of the schools. Children with developmental disabilities were excluded from the study.
Procedure

The peer tutoring sessions at the Preschool Lab took place in a small research room located on the premises of the preschool. The sessions at Valley Presbyterian took place on an open patio. To ensure that all tutors had the same information for teaching the wallpaper task, each child-tutor was shown individually how to wallpaper. The experimenter brought the child into the research area and explained and demonstrated (see Appendix C for actual discourse) how to apply the paste to the paper and how to put it on the wall (a large piece of drywall). On completion of these instructions, the experimenter brought the tutee into the research room. Teaching strategies incorporated by the four-year-old tutors were systematically recorded as they occurred. In an effort to determine what kinds of spontaneous teaching strategies were used most frequently by children, an observation procedure was employed. Each time a teaching method was exhibited, the behavior was checked off on the observation sheet. Two observers (one of whom was the researcher) were present for each teaching session. The length of time for each session was determined by the tutor. Two tape recorders were employed to record all conversation by the children to verify verbal interaction given during the observation.

Personnel

Three observers were used to record the teaching methods incorporated by the tutors. Two observers were used at each school (one
observed at both schools).

Two of the observers were graduate students in Child Development. One observer was a beginning Child Development student. The observers were trained by the researcher as to what to look for in the teaching sessions. Trial observations were made to ensure researcher reliability.

Task Stimuli

Wallpaper, with various animals on it, was used for the task. Large, individual animals were precut for greater ease in handling and applying. Pre-mixed wallpaper paste was in large containers, for use by the children. Brushes of various sizes were available for the subjects to choose. A large piece of drywall was set against a wall for the children to apply the wallpaper. Cleanup materials were available for the children to use.

Screening

Prior to the testing the teachers of both the tutors and the tutees were given questionnaires to fill out (see Appendix B). These were used to screen the children to make sure that they were developmentally able to complete the task. As a result of these, two children had to be dropped from the study due to a short attention span, lack of fine motor control, and the inability to follow a two-step direction.

Observation Instrument

The categories of behavior to be recorded were predetermined by
the experimenter. The categories were Direct (Explanation, Demonstration, Assistance, Modeling and Facilitation) and Indirect, (Praise, Questions, Corrective Feedback, and Criticism). These categories were primarily derived from Koester and Buesch (1980) and Zimmerman and Kleefeld (1977). To ensure tester reliability, several dyads were tested before the actual experiment began. When the observers' scores were found to be compatible the actual sampling began. A tally was kept of the number of teaching methods used in each category. Space for the subjects' comments was also provided. An overall rank was assigned to the tutor by the observers at the conclusion of the lesson. See Appendix D for the observation form.

Procedure for Analysis

The data was analyzed using a chi-square analysis. Three chi-squares were performed with different variables. One chi-square was between the amount of Direct and Indirect teaching methods, a second was done between the two different schools and the categories of Direct and Indirect teaching methods and a third was done between the sex of the tutor and Direct and Indirect teaching methods. The chi-squares were tested at a .05 level of significance.
The teaching methods of each observer for a particular tutor were tallied. Since tallies were almost identical between observers, only one set of data for each observation was used. The data that was used was chosen by randomly selecting an observation for each dyad from the two completed by the observers. Using a chi-square analysis, there was a significant difference in the amount of Direct and Indirect teaching methods used ($\chi^2=103.5, \text{df} 1, p<.01$). Direct teaching methods were used by more of the tutors. (See Figure 1). Also, tutors used Direct teaching methods a greater number of times. (See Figure 2). A chi-square analysis was also done between the two different schools and the categories of Direct and Indirect teaching methods. This variable was not significant ($\chi^2=2.86, \text{df} 1, p>.05$); therefore, we must conclude that the type of grouping in the preschools did not affect the type of teaching methods used by the children. A chi-square between the males and females and Direct and Indirect teaching methods was also found not to be significant ($\chi^2=.46, \text{df} 1, p>.05$).

The individual sub-categories under Direct and Indirect teaching methods showed some interesting results. Explanation was used 46.2% of the time, while demonstration was used 27.7%. The least used teaching method was praise which was only used once, or .54 percent of the time.

When showing the tutors how to wallpaper, the experimenter
FREQUENCY OF TUTORS USING SELECTED TEACHING METHODS

![Bar chart showing the frequency of tutors using selected teaching methods. The chart is labeled with the number of subjects using direct and indirect teaching methods.]
FREQUENCY OF TEACHING METHODS
BY 4 YEAR-OLD TUTORS TEACHING 3 YEAR-OLD CHILDREN

FIGURE 2
DIRECT

INDIRECT

NUMBER OF TIMES USED

EXPL.  DEMO  MODEL  FACIL.  PRAISE  QUEST.  CORR.FEED.  CRITIC.
modeled all of the teaching categories included on the observation form except for criticism (see Appendix D). Despite the experimenters' modeling, the tutors did not follow the examples given. The experimenter used praise twice for each tutor and avoided all criticism. Only one tutor of the forty used Praise and Criticism was used by the tutors six times over the entire experiment.

The mean number of Direct teaching methods used by each child was 4.03. The maximum number of Direct teaching methods was nine and the minimum number was two. The mean number of Indirect teaching methods used by each child was .58. The maximum number was six and the minimum number was zero.

There were twenty-two female and eighteen male tutors in the study. The females used Direct teaching methods 86.1% of the time while the males used Direct teaching methods 89.5% of the time. The females used Indirect teaching methods 13.9% of the time and the males used Indirect teaching methods 10.5% of the time. These figures indicate that there was no significant difference in the type of teaching methods used in relation to the sex of the tutor.

The overall rank of each teaching session given by the observers ranged from poor to excellent. The average rank given was 1.8 or between Very Good (1.0) and Good (2.0).

These findings were in accord with the finding found in the review of literature. The review showed that children do teach their younger peers successfully. One difference that did occur, was in the type of teaching methods used by the preschoolers in this study and those used by the preschoolers in the study by Koester and Bueche.
(1980). The preschoolers in the Koester and Bueche study used demonstration most frequently as a teaching method (44.9%) whereas the children in this study used explanation most frequently (46.2%).

Most of the four-year-old teachers were very adept at taking over as the teacher. Some were very strict in their teaching methods and demanded a great deal from the tutees. If the wallpaper paste did not completely cover the wallpaper, they had the tutee continue to work until they were satisfied. Other tutors gave instructions, not caring if they were carried through.

The willingness of the tutee to participate also seemed to influence the effectiveness of the teaching session. The more cooperative the tutee, the better the outcome of the teaching session. If the tutee was unwilling to become involved in the task, it was more difficult for the tutor to display some teaching behaviors such as facilitation or praise.

In conclusion, the major finding of this study was the large significant difference in the use of Direct teaching methods over Indirect teaching methods. These findings show that children rely very heavily on a more direct approach when teaching a younger peer in an instructional situation.
CONCLUSIONS AND RECOMMENDATIONS

This study looked at the teaching methods used spontaneously by a four-year-old assuming the role of teacher for a three-year-old. The present study has shown that four-year-old peer tutors rely heavily upon Direct teaching methods. This supports evidence of the Koester and Bueche (1980), study which showed Explanation and Demonstration as the main teaching methods of preschool children. Since these both fall under the category of Direct teaching methods, it is possible to conclude that preschool children rely heavily on this type of instruction.

The null hypothesis of this study stated that there would be no significant differences in the frequency of teaching methods used by preschool children. Since this study showed that there were significant differences in the frequency of teaching methods used by preschool children, namely Direct teaching methods were used most often, the null hypothesis was rejected. The alternate hypothesis stated that there would be significant differences in the frequency of teaching methods used by preschool children. The alternate hypothesis was accepted.

Since there were no significant differences between the frequency of methods used by the children at the Preschool Lab and the children at Valley Presbyterian, it can be concluded that the type of grouping used in the children's respective schools did not influence
how they related to their younger peers. The experimenter felt that the tutors from the multi-age group setting would be more successful in their teaching experience due to the fact that they were grouped with the tutees prior to the experiment. Since this was not the case, it can be stated that familiarity between the tutor and tutee had little to do with the outcome of the teaching lesson.

The overall ability of the four-year-old to teach was very good. All of the children displayed an ability to teach their younger peers with varying degrees of success. Sometimes a more willing tutee produced a more productive teaching session. Only one of the tutors walked away from the teaching session after giving minimal directions. All tutors were able to give or demonstrate some kind of teaching method.

It should be noted that the categories that made up Indirect teaching methods were more abstract and therefore harder for the preschooler to incorporate in a teaching session. The Direct teaching methods were more concrete and more appropriate for the preschool child.

Recommendations for further studies in this area would be to find out how the knowledge that Direct teaching methods are relied upon heavily by preschoolers can be used in the classroom. Another follow-up study might be to measure the extent children model adults in authority. This would be helpful to ascertain if children use the same teaching methods to teach their peers as adults use to instruct children.

Another study that would be beneficial in the area of peer
tutoring would be to look at how much teaching actually takes place in the regular classroom without instructing children to teach. This study has shown that children will teach their peers in an instructional situation, but did not look at the teaching that takes place in the classroom. This study used wallpapering, a predominantly psychomotor task, as a means of instruction, but further studies could investigate children as teachers using other domains.

Additional studies might include younger preschoolers trying to teach their older peers, or preschoolers teaching between same-age peers, or a comparison between preschoolers and young elementary school children.

Since the children in this study used explanation more frequently than any other method, the verbal abilities of the tutor could be looked at in a future study. Children who are not as verbal may choose other methods such as demonstration in a similar teaching experience. Another study could establish a rationale for weighting the teaching methods as to the effectiveness of their use by young children.

An analysis of the experimenters' instructions would also be an interesting study. The children in this study did not follow the methods used by the experimenter as shown by their infrequent use of praise, which was demonstrated by the experimenter, and the more frequent use of criticism, which was not demonstrated by the experimenter.
BIBLIOGRAPHY


Dear Parents,

My name is Jeanne O'Hanlon and I am currently working on my Master's degree in Home Economics with a specialization in Child Development, at California State University, Northridge. As part of my thesis project, I am looking at the kinds of teaching methods four-year-old children use to teach their younger peers. I need your permission to have your child participate in my project. Your child will be involved in a teaching or learning experience through a fun project for 10-15 minutes during his/her day at school. Thank you for your cooperation.

Jeanne O'Hanlon

Audrey Clark, PhD
Faculty Advisor

I am willing to let my child participate [ ]
I am not willing to let my child participate [ ]

Child's Name ___________________  Birthdate ____________
Parent's Signature ______________

---
APPENDIX B

Teacher Questionnaire

Child's Name ___________________________ Date: _______________________

Teacher's Name _________________________

1. On the average, is the child's attention span:
   ____ under 5 minutes  ____ 5-10 minutes  ____ over 10 min.

2. Is the child able to: (all the time=3; most of the time=2; sometimes=1; never=0)
   ____ cut with scissors
   ____ pour without spilling
   ____ hold crayon between thumb and index finger

3. Is the child able to express his needs:
   ____ most of the time  ____ sometimes  ____ rarely

4. Is the child able to follow:
   1 step direction (take your coat off) ____
   2 step directions (take your coat off and hang it on the hook) ____
   3 step directions (take your coat off, hang it on the hook, and sit on the rug) ____
   4 step directions (take your coat off, hang it on the hook, sit on the rug, and read a book) ____

5. Which of these is most characteristic of the play level of the child? (rank from most characteristic to least characteristic with "1" being most characteristic)
   a. solitary (play by self) ____
   b. parallel (next to, but not with others) ____
   c. associative or cooperative (plays with others) ____
APPENDIX C

Instrument for teaching tutors how to wallpaper

-Hi (child's name). My name is Jeanne and I'm going to show you how to wallpaper so that you can teach another child in the school how to wallpaper.

-Have you ever wallpapered before?

-That's allright, I'll show you how.

-First, choose a piece of wallpaper that you would like to put on our wall.

-Now choose a brush and dip it into this container that has wallpaper paste in it (experimenter demonstrates).

-O.K. Now you finish putting the paste all over the back of the wallpaper.

-(Answer any questions).

-Good. Now put your piece of wallpaper onto our wallboard.

-That's great. Now do you think you could teach another child how to wallpaper?
<table>
<thead>
<tr>
<th>DIRECT</th>
<th>INDIRECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explanation:</td>
<td>Praise:</td>
</tr>
<tr>
<td>Demonstration:</td>
<td>Questions:</td>
</tr>
<tr>
<td>Modeling:</td>
<td>Corrective Feedback:</td>
</tr>
<tr>
<td>Facilitation:</td>
<td>Criticism:</td>
</tr>
</tbody>
</table>

Comments: