1980

Teaching Peer-Tutoring Behaviors to Severely Emotionally Disturbed Children

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TEACHING PEER-TUTORING BEHAVIORS TO SEVERELY EMOTIONALLY DISTURBED CHILDREN

by

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A Thesis Submitted to the Faculty of the Graduate School of Loyola University of Chicago in Partial Fulfillment of the Requirements for the Degree of

Master of Arts

November

1980

ACKNOWLEDGEMENTS

The author wishes to express her appreciation to her thesis advisors: to Dr. J. Clifford Kaspar who supported the author's initial interest in teaching tutoring behaviors to the children and accepted responsibility for directing the thesis; and to Rev. Dr. Michael J. O'Brien who was of great assistance both by his challenges to, and support of the author's theories. The author is further grateful to these professors for the time they gave to the reading of the text and for the encouragement they extended at each stage in the development of this thesis.

Special thanks are extended to the undergraduates, Richard Sosnowski and Thomas Zafiratos, who generously expended their time and energy to teach the children the tutoring skills. Without their help this study would not have been possible.

The author is indebted both to MS Nancy Buckler, Master Teacher of the Loyola Day School, for her warm encouragement and continuous support; and to the children of Loyola Day School who so enthusiastically participated in this study.

Finally, the author wishes to express her gratitude to MS Therese O'Neill for her support and clerical assistance.

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INTRODUCTION

Atypical children or children suffering from severe emotional disturbances are readily identified by their paucity of prosocial skills. Instead of socially adaptive behaviors, their behavorial repertoires contain ritualistic and compulsive behaviors which are considered antisocial, and which function effectively in maintaining social withdrawal and emotional distance from others. Though in some instances these children may be of average to above average intelligence, their emotional disturbances severely impair their ability to concentrate thus rendering them educationally handicapped as well.

Various treatment approaches have been successful in the elimination of specific antisocial verbal and nonverbal behaviors of atypical children; others have assisted atypical children in learning educational skills or stimulated the acquisition of adaptive social behaviors. Regardless of the choice of therapeutic intervention, treatment of atypical children requires massive amounts of time and extensive coordination of resources including materials, equipment and personnel. A cost-benefit analysis may point to group treatment as the most economical utilization of available resources. Additionally, group treatment implies a social situation which may be structured in such a way as to provide atypical children with a potentially satisfying and safe experience vis-a-vis other people. In considering a group treatment therapeutic modality it should be noted that one potential resource which has not been investigated sufficiently is

the capacity of atypical children to assist each other in developing appropriate social behaviors.

The concept of people with problems helping others with similar problems is not novel. In fact there exist today many rehabilitation programs that operate on the premise that the ex-alcoholic, ex-drug abuser or ex-offender can best understand and assist his/her peers who struggle to cope with these problems. More pertinent with regard to children are educational studies which have demonstrated that older students with problems in reading can improve their reading abilities by tutoring younger students (Cloward, 1967; Frager & Stern, 1970). Cross-age tutoring projects have also resulted in tutored children scoring higher than their nontutored counterparts (Cloward, 1967; Frager & Stern, 1970; Snapp, Oakland & Williams, 1972).

Projects involving children tutoring their same-age peers have yielded similar results of increased academic achievement (Harris & Sherman, 1973; Oakland & Williams, 1975). In addition same-age peer tutoring projects have demonstrated that children enjoy such experiences (Boraks & Allen, 1977; Jason, Ferone & Soucy, 1979) and may enhance positive feelings about themselves--in that feelings of isolation decreased and feelings of wanting to help others more increased (Oakland & Williams, 1975). Without labeling a child as having an academic problem, Jason et al. (1979) initiated a same-age tutoring project among all the first and third grade students in their respective classrooms in an inner-city parochial school. Presumably these children knew each other and had some awareness of each other's educa-

tional strengths and weaknesses. First and third graders increased their appropriate classroom behaviors by 15%, and significantly improved their grades in reading and arithmetic.

Since it has been found that children with specific problems have been able to help others with their problems, and that children who know each other have demonstrated their capacity to help each other improve, it is reasonable to hypothesize that atypical children, given a structured peer-tutoring program, should be effective in facilitating each other's educational and emotional growth.

Behavioral procedures have been used successfully in numerous studies to increase the rate of socially appropriate behaviors among children with behavioral problems and to increase positive social interactions among atypical children. Allen, Hart, Buell, Harris, and Wolf (1964); Hart, Reynolds, Baer, Brawley, and Harris (1968); Madsen, Becker, and Thomas (1968); Milby (1970); Quilitch and Risley (1973); Strain and Timm (1974); and Thomas, Becker and Armstrong (1968) have utilized contingent teacher attention to increase positive social behaviors among children. Jason and Ferone (1978) found that the acting-out behaviors of problem children significantly decreased when behavioral consultation was implemented with teachers in four inner-city parochial elementary schools. Romanczyk, Diament, Goren, Trunell, and Harris (1975) carried out a group approach intervention with a multiple-baseline and reversal design including gradual fading of passive shaping, and thereby increased the play behavior of severely disturbed children. The manipulation of extrinsic reinforcers was effective in

developing sharing behaviors in two severely retarded children (Whitman, Mecurio & Caponigri, 1970).

Experiments which aimed at training children in specific social behaviors have demonstrated that isolate and atypical children may acquire prosocial skills and use them appropriately in other similar situations. Oden and Asher (1977) coached socially isolated children in order to establish the skills requisite to develop friendships and to play games with peers. Coaching consisted of an adult instructing a socially isolated child about the importance of participation, cooperation, communication and validation support in establishing friendships. Once coached, the child would play a game with a peer. Afterward the child engaged in a postplay review session with the coach to assess if increasing the identified positive social behaviors made the game more enjoyable. In a second experimental condition social isolates were paired with a peer and played a game with the person. These children were not coached nor did they have postplay review sessions. In the control condition the children played solitary games and did not interact with each other. Results of the experiment indicated that the children who were coached in social skills significantly improved their acceptance by peers. Further, this improvement was not only maintained over a one year period but also improved during that time. The isolated children clearly benefitted from social skills training and from practicing game playing with peers.

Emotionally disturbed children, who were also diagnosed as learning disabled, participated in an experiment (Cooke & Apolloni, 1976)

to increase their positive social-emotional behaviors. The seven children from an experimental child study classroom were assigned to either treatment or control conditions; four children who displayed the positive social behaviors at the lowest rates were assigned to the experimental condition. Children in the experimental condition were taken out of their classroom to a nearby playroom. In the playroom the children were systematically instructed and reinforced to smile, share, give positive physical contact and verbal compliments to each other. Control children remained in their classroom during the social training sessions. Immediately following the training sessions the control children joined the experimental children in the playroom. Observers recorded the number of times each child exhibited the target behaviors (smiling, sharing, positive physical contacts and complimenting). The smiling, sharing and positive physical contacting of the experimental children continued to remain above pre-training levels without the adult-imposed contingencies. Further, the control children also evidenced increased rates of smiling and sharing during the free play sessions. Perhaps atypical children may learn appropriate social behaviors more quickly in response to positive attention from their peers than from adults. If so, this would be a compelling argument for research to train atypical children in prosocial skills that they might then teach their peers.

In summary the literature suggests that: 1) cross-age and same-age tutoring projects have significantly enhanced academic performance and have also increased subjects' positive feelings about themselves;

2) experiments utilizing behavioral designs have been successful in enhancing prosocial skill acquisition and/or have been effective in increasing the rate of socially appropriate behaviors engaged in by children with behavioral problems and by children who are severely emotionally disturbed; and 3) though a group treatment approach has been attempted less frequently with atypical children than other kinds of interventions, the positive results of such experiments lend support to the notion that atypical children can benefit from a group treatment modality.

This thesis proposed to implement a group treatment approach to establish peer tutoring skills in a group of atypical children. The present study adapted the method and procedure of the research of Jason et al. (1979) in which the investigators taught first and third grade school children peer tutoring behaviors. It was demonstrated that the children were able to learn and implement tutoring behaviors with each other. Second order effects which occurred but could not be unequivocally attributed to the behavioral intervention were an increase in appropriate classroom behaviors and improved grades in the subject areas targeted by the tutoring program. The present investigation focused upon teaching atypical children the tutoring behaviors of presenting a question, using corrective feedback, re-presenting the question and administering contingent praise. Each tutoring behavior was first modelled to the experimental subjects and subsequently was prompted in order to establish the tutoring behaviors.

Several differences existed between the present research and the

study upon which it was based (Jason et al., 1979). The most important difference between the two studies was the subject sample: the present research was carried out with atypical children who were excluded from the regular classrooms of the public school districts due to their behavioral and/or emotional problems. A second major difference between the two studies was that the proposed subject sample was a heterogeneous group in age and academic competencies. Ages ranged from seven to twelve years; academic achievement ranged from kindergarten through fifth grade level of competence. Third, while the previous study was carried out over a twelve week period, the tutoring process in this study was implemented within a five week period. Fourth, the previous research utilized a multiple baseline design to evaluate the differential effectiveness of modelling and prompting in establishing the tutoring behaviors. The present study was not aimed at reassessing the differential effectiveness of the two instructional methods. Therefore the Jason et al. (1979) design was modified so that each experimental child was prompted each session on the tutoring behaviors he/she failed to spontaneously exhibit. In this way it was possible to assess over the short period of the experiment whether atypical children could learn all the tutoring behaviors. Finally, the Jason et al. (1979) research did not include a control group; the present study assigned subjects to both experimental and control conditions.

No previous investigation had been carried out to ascertain whether a group treatment modality with atypical children assisting each other might improve their academic competencies. If it can be

demonstrated that severely emotionally disturbed children are able to successfully tutor each other, more effective use of existing classroom resources should eventuate.

Hypotheses

1. It is expected that atypical children can acquire tutoring skills and use them effectively in a structured situation with their peers.

2. It is expected that there will be a significant difference in academic achievement scores between those children who engage in peer tutoring and their nontutored peers.

3. It is expected that there will be a significant difference between the social interaction level scores of those children who engage in peer-tutoring and their nontutored peers.

METHOD

Subjects and Site

Twelve children, the total population of two older classrooms at the Loyola University Day School, ranged in age from 7 years, 11 months to 12 years, 10 months with a mean age of 10 years, 10 months. Of the twelve children eleven were males and one was female; eight were Caucasians, three were Latinos and one was Black. These children were students at a Day School for atypical children which is operated in conjunction with the Charles I. Doyle, S.J., Center of Loyola University of Chicago. The children were referred to Loyola Day School by the Chicago Board of Education. Each child had been evaluated by the school board and excluded from the regular school system due to behavioral and/or emotional problems which interfered with his/her ability to learn. All of the children were verbal, although one was electively mute. Two of the children were social isolates who rarely, if ever, played with or responded to another child in a positive fashion unless prompted to do so by an adult.

The children were assigned to treatment and control groups by ranking the order of the mean grade level each child obtained on the Wide Range Achievement Test (WRAT) which was administered in June, 1979. Beginning with the highest WRAT score and following consecutively to the lowest WRAT score, the letter A or B was attached to each child's score by following the pattern ABBA. Since one child was consistently

absent from school, it was determined prior to assignment to groups that this child would be in the control group. Therefore, whichever letter, A or B was affixed to this absent child's score established the letter of the control group. All children who had the same letter affixed to their score as did the absentee were assigned to the control group. The children with the other letter by their scores were assigned to the treatment group.

Two groups of three children (5 males and 1 female) comprised the treatment group. These children were taken out of their regular classrooms for a 15-minute period two days each week for five weeks. The peer tutoring project was conducted in one of the extra classrooms in the Day School. Each child sat at a desk; the desks were turned to form a triangle so that each child might easily view the other two children in the group. One group of three children was engaged in peer tutoring from 11-11:15 each Monday and Thursday morning; the second group followed from 11:15-11:30.

The control group consisted of six males who remained in their regular classrooms and continued to follow their usual academic schedule for the particular day.

Program

In each group of three the children alternated taking the roles of tutor, student and scorekeeper. After five minutes in one role, the children switched roles, so that in every tutoring session each child had the opportunity to assume each of the three roles. The curricula for the project were Arithmetic and Phonics items which were presented

in alternate tutoring sessions.

Procedure

Two male undergraduates who had completed 1½ years of volunteer work with children in the Day School were observers in each experimental group. One observer gave directions to the children and prompted tutoring behaviors; the second observer recorded the tutoring interactions. Before every tutoring session one observer read the script and modelled the tutoring behaviors.

The following script for modelling tutoring behaviors and the guidelines for prompting tutoring behaviors were taken from Jason et al. (1979) and were slightly modified for the present study.

> The model's script was: "We're going to play the teaching game. Watch how this is done. Pretend I'm the teacher and ____ (the other observer) is the student. I lift this card and say, 'What is this?' (The second observer states the answer.) Then I say, 'That's right.' Now if the student says the wrong answer, this is what I do: 'What is this?' (The second observer states an incorrect answer.) 'This is a ____. What is it?' (The second observer states the correct answer.) 'Right.'"
>
> On the first day the scorekeeping system was explained. The children were shown a Child Recording Form. The observer then said, "There are twenty spaces on this form (the observer then points to the twenty lines on the form). O.K. Watch. 'What is this?' (The other observer says the right answer.) 'Right.' So I put a plus here. Now if the wrong answer is given, write a minus. Watch this. 'What is this?' (The wrong answer is given.) 'This is a ____. What is this?' (Correct answer is given.) 'Great.' Now I put a minus here because the wrong answer was given first."
>
> The observer then said, "Now we are ready to start." Pointing to the pupils, the observer continued: "You will be the teacher, you will be the student, and you will be the scorekeeper." Before handing the 20 cards to the tutor, the observer said: "Be sure to hold the cards between your hands like this. After the student says the correct answer, put the card neatly on the table like this." This instruction was used the first day and at other times if a child was sloppy in managing the cards while tutoring.

At the completion of the teaching game, the observer praised each child for his/her good conduct and number of correct responses. The child's number of correct responses was recorded by the child on a group chart.

Prompting

Prompting by the observer was first directed toward increasing corrective feedback, then re-presenting the question, and finally using of contingent praise. Prompting consisted of first using a general prompt, and then a second specific one if needed. As an example of prompts for corrective feedback, if the tutor said, "What is this?" and an incorrect or no response was offered by the student, the observer waited five seconds for the tutor to initiate corrective feedback. If feedback was not offered, the observer initiated a general prompt stating: "What are you supposed to say?" If the tutor still did not give the correct response, the observer then specifically said, "Tell the student this is a ____." If the tutor did not know the corrective response, and asked the observer for the answer, then used corrective feedback, this interaction was scored as adequate use of corrective feedback.

After corrective feedback was given, and if the child did not spontaneously exhibit the next tutoring behavior, re-presenting the question, it was prompted. For example, following an incorrect response, the tutor may have given the corrective feedback, but failed to re-present the question. If this occurred, the observer prompted by saying, "What are you supposed to say?" If no tutor response followed, the observer then said, "Ask the student, 'What is this?'"

Finally, the use of praise was prompted. After a correct answer was given (either subsequent to the initial presentation of the question or after re-presenting the question) the observer waited up to five seconds for the child tutor to use contingent praise. If it was not offered, the observer said, "What are you supposed to say?" If praise was not used, the observer said, "Tell the student that was right."

Materials

Arithmetic and phonics items were obtained from the individualized lessons the teachers were currently working on with the children. An initial set of twenty flash cards, each 5 X 8½ inches, was prepared for each child in both subject areas. These materials were updated as the

child learned the arithmetic or phonics items.

Instruments

The Wide Range Achievement Test (WRAT), Revised Edition, was administered to all children prior to, and following the peer tutoring project. The WRAT is a standardized test, which is in part individually administered, and which provides an assessment of the levels of competency achieved by the student in reading, spelling and arithmetic. Scores obtained by the experimental and control children on the WRAT were used to test the hypothesis that children who participated in peer tutoring would achieve greater academic gains than their nontutored peers.

An Observer Recording Form developed by Jason et al. (1979) was used to gather data on all tutoring interactions as they occurred. There were thirty lines on the Observer Recording Form, each line corresponding to an item presented to the student by the tutor. One modification of the form implemented by the present investigator was to decrease the number of items presented to children from thirty to twenty as it was assumed that atypical children would require more time than the elementary school children did to learn the tutoring behaviors. On the Observer Recording Form were seven columns, five of which referred to the tutor's behaviors and two of which referred to the student's behaviors. The first column referred to the tutor behavior of presenting the initial question, "What is this?" The second column referred to the tutor behavior of giving corrective feedback for an incorrect student response. The third column referred to the tutor behavior of re-

presenting the question to the student subsequent to giving corrective feedback. The fourth and fifth columns corresponded to the student's responses to the question on trial 1 and trial 2. The last two columns referred to the tutor's behavior of giving praise contingent on a correct student response in trial 1 or trial 2. Praise was operationally defined as any positive verbal response communicated by the tutor to the student following a correct response to the presented question. Examples of expressions of praise were: "That's right", "Good", and "Correct."

The two coding systems devised by Jason et al. (1979) for student and tutor behaviors were utilized in this study. Correct student responses were scored with a check mark; incorrect student responses were scored with a dash; and the space was left blank if the student failed to respond. Tutor behaviors which were spontaneously initiated by the tutor were scored with a check mark. Tutor behaviors which were prompted by the observer were scored with a slash through a check mark. If the tutor asked the observer for the correct response, this was scored with a circle surrounding the check mark.

Since only one of the observers scored all the tutoring interactions, no reliability estimate of the scoring system was obtained. In order to increase the probability of accurate scoring the observer reread the directions for scoring tutoring interactions immediately prior to beginning the day's tutoring sessions.

Observed behavior ratings obtained on the Observer's Recording Form were used to test the hypothesis that atypical children can acquire

tutoring skills and use them effectively with each other.

Social interaction scores were obtained before, during and after the peer tutoring project by rating the subjects on an eight point scale. The Social Interaction Scale used in this investigation was adapted from Parten's (1932) Categories of Social Participation by Paloutzian, Hasazi, Streifel and Edgar (1971) for use with young retarded children in a free-play situation. The ratings ranged from autistic behavior at the lowest level to cooperative play behavior at the highest level.

Experimental and control children were observed by two female undergraduates who were unaware of the nature of the experimental project. Social interaction ratings were recorded on Tuesdays and Fridays during scheduled free-play periods. Each child was observed in predetermined random order by the rater at one minute intervals, and the child's behavior at that moment was given a rating from one to eight.

To determine interrater reliability coefficients before the inception of the tutoring project, the observers simultaneously and independently rated the children's behavior. To obtain interrater reliability coefficients during and after the tutoring project, two children's names were randomly chosen for each day's observation period to be observed simultaneously and independently by both observers. It was planned that each child would obtain at least two social interaction ratings and possibly four ratings (if both raters were observing the same child) during each observation period. Due to uncontrollable events this did not occur; rather each child typically received one or

two ratings each observation period.

Scores gathered from the Social Interaction Scale ratings were used to test the hypothesis that children who participated in the peer tutoring project would attain significantly higher gains in social interaction ratings than would their nontutored peers.

Anticipated Problems

Given the emotional disturbances of the children it seemed likely that some time during the experimental condition one or more of the children would act out their feelings, and thereby disrupt the peer tutoring process. It was decided that such behavioral disturbances would be treated the same way they were when they occurred in the classroom situation. Specifically, attending to the child's immediate feelings, prompting the child to express the feelings in a direct verbal fashion, and assisting the child to monitor his/her feelings and behavior would be attempted by one of the observers. If all interventions failed and the child had to leave the room in order to calm down, one of the observers would leave with the child. The other observer would assume the role of both prompting the tutoring behaviors when necessary and recording tutoring interactions. A notation would be made on the Observer Recording Form for the particular day that the child and an observer were absent for part of the session.

Another concern was that termination events would have an unpredictable effect upon the peer-tutoring project; while the study was occurring seven of the twelve children who participated in the experiment were anticipating termination from the school.

RESULTS

Tutoring Behaviors (Hypothesis 1)

The percent of unprompted tutoring behaviors that the children exhibited during the study is presented in Figure 1. Presenting the question increased from an average of 68% the first day to 98% the last day. Corrective feedback increased from 19% to 76%. Re-presenting the question increased from 35% to 83%. Use of praise increased from 48% to 89%. Post hoc analysis of the behavioral data using multiple *t*-tests was carried out. Table 1 presents the means, standard deviations and *t*s for all subjects on all tutoring behaviors. Although it should be noted that these were not independent tests, the *t*-tests suggested a significant increase in use of corrective feedback from the first to last day of the study ($t = 4.16$, $p < .01$) and a significant increase on re-presenting the question from the first to last day of the study ($t = 3.88$, $p < .05$). The data on all tutoring behaviors supported the hypothesis that atypical children can learn tutoring behaviors and use them effectively with each other in a structured situation.

Although no feedback was offered to the children regarding their scorekeeping during the research project, it was found that the children were very accurate in their scorekeeping. The overall average of scorekeeper accuracy was 88% correct.

Academic Achievement (Hypothesis 2)

Academic scores that students obtained on the Wide Range Achieve-

FIGURE 1

Percent of Unprompted Presenting the Question and Corrective Feedback

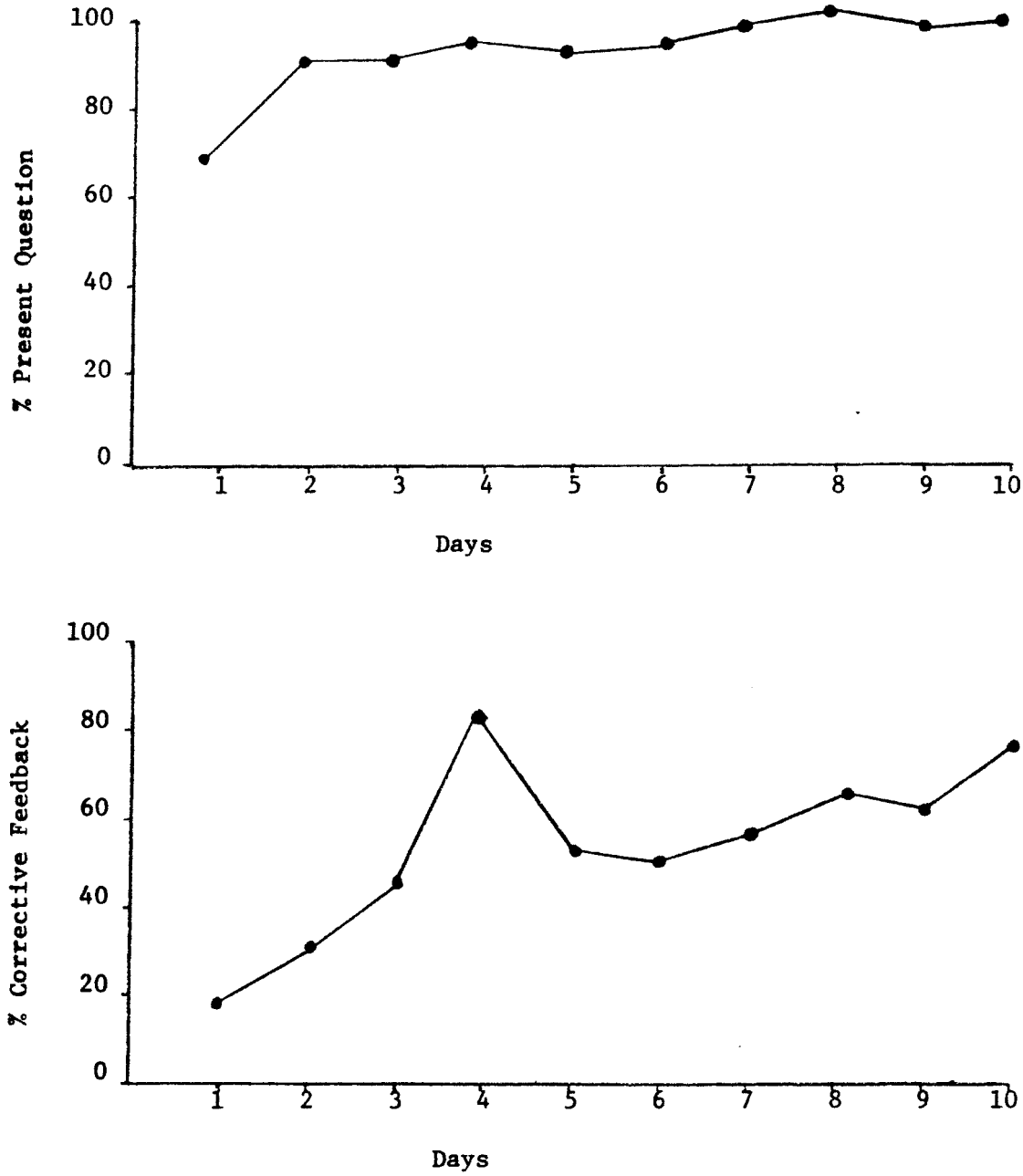

FIGURE 1, Contd.

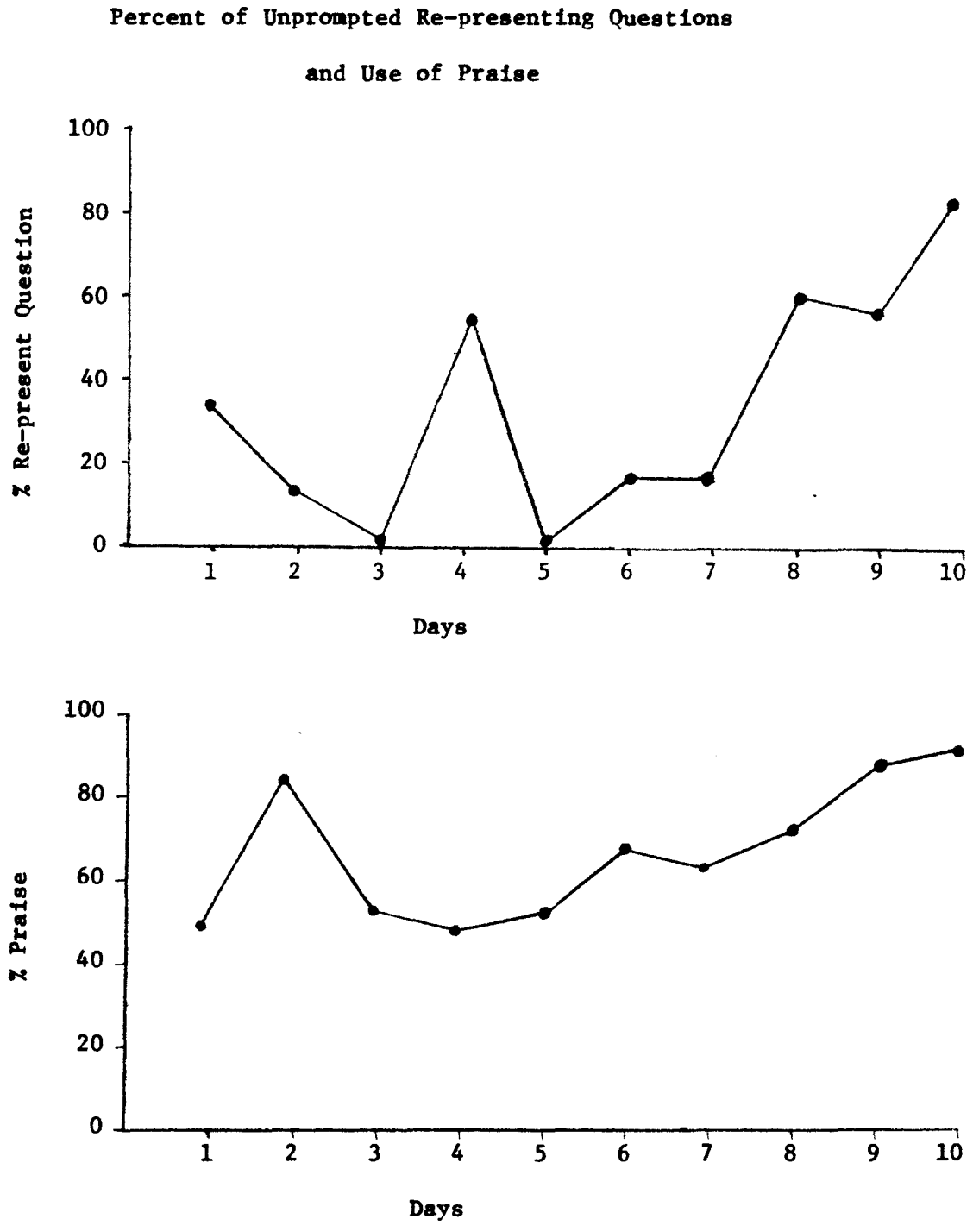

TABLE 1

Means, Standard Deviations and *ts* for Children on all Tutoring Behaviors

Tutoring Behaviors	M	SD	t	
Present Question	0.1867	0.0881	2.1192	
Corrective Feedback	0.5750	0.1381	4.1636	**
Re-present Question	0.7150	0.1841	3.8837	*
Praise	0.3067	0.1520	2.0175	

* $p < .05$

** $p < .01$

ment Test before and after the experiment were statistically analyzed using the *t*-test for change scores of nonindependent group means. (Change scores were utilized as the pretest scores in the experimental and control groups were not identical. The particular *t*-test employed ruled out the possibility that initial differences accounted for post-test differences). Children in the experimental group did not obtain significantly higher scores than the control group children ($t = 1.61$, $df = 10$, N.S.), hence, this hypothesis was not statistically supported. Nevertheless, it is evident that the difference in the achievement scores of the two groups cannot totally be disregarded as it approached significance ($p < .10$). Since there was a small number of children in the experiment, the results at least invite further trial with a larger group. Table 2 presents the means, standard deviation and the *t* for children's scores on the WRAT.

Social Interaction (Hypothesis 3)

Although the research design had been developed in such a way as to generate information regarding the children's social behavior before, during and after the experiment, it was not possible to collect the data as often as had been planned by the investigator. Changes in the two classroom schedules in terms of the time and place of free-play periods as well as inclement weather conditions prevented the observers on many occasions from obtaining the required social interaction ratings on the children. Nevertheless, sufficient data was collected before and during the experiment to test the hypothesis that children in the tutoring project would significantly enhance their social inter-

TABLE 2

Means, Standard Deviation and *t*

for Children's Scores on WRAT

	Means	Stand. Dev.	t
Experimental Group	35.33		
		23.86	1.61 *
Control Group	-03.17		

* $p < .1$

action scores while the control children would not. Post experimental behavior ratings are not available and thus no statement can be made regarding the stability of the observed changes.

Interrater reliability between the two observers of the children's free-play behavior was found to be 0.72, which is significant far beyond the level of chance observation ($p < .01$).

The social interaction ratings were submitted to an analysis of variance for repeated measures with a nested factor. Table 3 presents the sources of variation, the degrees of freedom, the sum of squares, the mean squares and Fs. Children who participated in the peer tutoring project did not significantly improve their levels of social interaction over their nontutored peers ($F = 0.752$, N.S.). One main effect which proved significant was time: all children significantly improved their levels of social interaction over time ($F = 5.277$, $p < .05$). There was no interaction effect between the groups and time ($F = 2.260$, N.S.).

In summary the research found that severely emotionally disturbed children learned tutoring skills in a five-week period and used them effectively with their peers. While the difference between the experimental and control children in academic gains as measured by the WRAT was not statistically significant at the conventional level ($p < .05$), the difference approached significance ($p < .1$). There was no difference found between the groups on social interaction ratings, however, the experimental and control children significantly improved their levels of social interaction over time.

TABLE 3

Analysis of Variance

	df	SS	MS	F
Between Subjects	11	15.253		
A (Group)	1	1.067	1.067	0.752
Subjects within Groups	10	14.186	1.419	
Within Subjects	12	4.656		
B (Time)	1	1.401	1.401	5.277 *
AB	1	0.600	0.600	2.260
B X Subjects within Groups	10	2.655	0.265	

* $p < .05$

DISCUSSION

Most of the atypical children in the experimental condition learned all the tutoring behaviors and implemented these tutoring behaviors effectively with their peers. Although various studies had repeatedly found that children were able to tutor each other and in the process reap significant academic and social gains, no previous investigation had attempted to utilize a peer tutoring program with atypical children. Given the positive results of the present study, it is hoped that there will be more such research with these children. The present research found that atypical children were able to assist each other in enhancing academic competencies. In fact after only ten 15-minute periods of engaging in the peer tutoring process, the children were able to exhibit the appropriate tutoring behaviors at high rates of response without prompting by an adult. It would seem that these children were efficient as well as effective tutors.

There were other important implications to the finding that atypical children were able to successfully tutor each other. First, since atypical children were able to help each other academically with minimal adult supervision they ought to be perceived as potential educational resources. With the ever increasing cost of education one of a teacher's priorities must be to make the most cost-efficient utilization of all resources at hand. Teaching the children to tutor each other could increase the amount of time the teacher has to work with each

child individually. Second, two of the tutoring behaviors the children learned, giving corrective feedback and contingent praise, were rudimentary communication skills. Learning communication skills was especially important in a population of children who typically have much difficulty in communicating effectively with others. Obviously, given the proper program these children might learn communication skills; perhaps given more time and reinforcement for developing these and similar communication skills in a group of peers, the children would gain the confidence to exhibit these behaviors in other non-structured and/or nonacademic situations. Further, there was simply no method of assessing what it meant to a socially isolated or withdrawn child who had severe problems being in relationship to others, to have the opportunity to learn to help his/her peers. Our best guess was that atypical children experienced the same sense of delight and gratification that other children do when they realized that they had helped someone. And perhaps it was even more important for severely emotionally disturbed children to have had the opportunity to help peers since they so rarely experience themselves as being able to make a significant contribution of themselves to another.

Statistically significant academic gains as assessed by the WRAT were not realized by the children in the tutoring project, although the difference between the experimental and control group scores did approach significance. Two explanations of the lack of a statistically significant difference in academic achievement seem relevant. First of all, considering the fact that while the experimental children were

out of their classrooms the nontutored children had increased opportunity for individual instruction from the teacher, which may have appreciably enhanced their academic competencies. If the experiment could have been designed so as to limit the kind of activities the nontutored children engaged in while the experimental children participated in the project, the nontutored group would represent a more pure control condition. For instance, if control children were scheduled to engage in art or music projects during the time the tutoring project was occurring, there may have been a statistically significant difference in the academic achievement of the two groups. Such a proposal raises ethical issues as it would have interfered with the academic program of instruction that was provided for the children at the Day School.

Second, during the time of the experiment seven of the twelve children were dealing with a potentially traumatic event: termination from the Day School. Five of the children who anticipated leaving the school were in the experimental group while two were in the control group. There was no way of measuring the effects of anticipated termination upon the children either individually or collectively, however, it could have affected their performance both in the tutoring project and in the post experimental administration of the WRAT.

Finally, since all the children experienced the same time span between pre- and post experimental administration of the WRAT, it is possible that the tutoring project was correlated with the nonstatistically significant, but clinically meaningful difference in the aca-

demic progress of the two groups. Given the fact that the tutoring project lasted only 5 weeks, and given the fact that severely emotionally disturbed children tend to change very slowly, peer tutoring represents a powerful instrument of change with these children.

Gaining in academic competencies represents the major developmental task for most elementary school children. Those children who are also severely emotionally disturbed have a dual task at this developmental stage: they must learn to manage their feelings in a socially acceptable manner as well as enhance their academic competencies. Thus, it was of major importance in the design of this research to assess whether the acquisition of tutoring behaviors would have a positive effect upon the social behavior of the children.

While the tutored children did not obtain significantly higher social interaction ratings than did their nontutored peers, several factors within the research which might have affected the social interaction ratings must be taken into account. First, the observers typically reported high social interaction ratings on all the children both before and during the experiment. Considering the severity of the emotional problems these children experience, it would have been reasonable to expect ratings to range from one to eight on the scale, and to expect the modal score to be in the three to five range. On the contrary the data gathered show the lowest rating given to any child was three, and the modal score was seven. One explanation for the inflated scores might be that the observers learned to use the social interaction rating scale by practicing observing other Day

School children who were less socially developed than the children in the experiment. Thus, an observer set might have been introduced when the observers were requested to rate older and more socially developed children. Another possibility might be that the raters were not sufficiently adept at discriminating the various levels of play behavior in which the children engaged. The low interrater reliability correlation lends support to the latter explanation. Another factor must also be considered: twice a week for thirteen weeks the two observers set aside time from their schedules to participate in this research. On many occasions the observers reached the playground only to find that both rooms of children would not be there due to schedule changes or to inclement weather. Given these uncontrolled events, the observers might have become discouraged and disinterested in the project which may have affected the social interaction ratings they reported.

If the experiment were to be replicated with a larger group of children, perhaps by pooling data from two Day Schools; and if arrangements could be made to have an alternate playroom available during inclement weather, the hypothesis regarding the social gains of tutored children might be tested more reliably.

Even given the truncated range of play behavior ratings, the one significant result of the statistical analysis was that all the children in the experimental and control groups improved their level of social interactions over time. Several explanations of this main effect must be considered. It is of course possible that the observers expected that the children's ratings ought to increase over time

and therefore introduced an observer bias. This explanation was attenuated by the fact that so many observation sessions were missed as to make it difficult for the observers to remember how they had previously rated a child. Second, maturation and flight into health may have been important factors especially since so many of the children were preparing to terminate from the Day School. A more cogent explanation of the significant social gains realized by the children over time might be found in the Day School program itself, which seeks to assist the child in enhancing his/her social-emotional growth. It might be that the children improved their social interactions by virtue of their participation in the Day School program. Finally, the fact that all the children realized statistically significant positive changes in their social behavior was clinically meaningful given the severity of their emotional problems.

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APPENDIX A

Date _____

Teacher _____

Student _____

Scorekeeper _____

Key
✓ correct student answer
– incorrect student answer
✓ tutor initiated behav.
✓ observer prompted behav.
Ⓥ tutor asked observer for correct answer

Trial	Present Question	Correct Feedback	Repeat Question	Trial 1	Trial 2	Praise Trial 1	Praise Trial 2
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
Total Unprompted							

APPENDIX B

Date

Scorekeeper

1	
2	
3	
4	
5	
6	
7	
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9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Scorekeeper

1	
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3	
4	
5	
6	
7	
8	
9	
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11	
12	
13	
14	
15	
16	
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19	
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Scorekeeper

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APPENDIX C

SOCIAL INTERACTION RATING SCALE

Rating 1--Autistic behavior level.
Child shows little or no awareness of others or of environment; engages in self-stimulatory behavior; head banging, slapping, rocking, eye-pressing, etc.

Rating 2--Unoccupied behavior level.
Child shows some awareness of the environment but makes no attempt to interact with it; sits, walks aimlessly; looks around room or out of window; may observe activities of others from a distance or for a few seconds.

Rating 3--Independent play level.
Child plays with toys or objects, but in an isolated manner; makes no attempt to interact with others.

Rating 4--Observing behavior level.
Child approaches others and observes their activities without any attempt at involvement; may attempt to sit near others without interacting with them; observation of others must be of a sustained nature.

Rating 5--Attempted interaction level.
Child initiates some attempt at interaction with others; attempts to engage in same activity or occupy same location; vocalizes to get attention of others; interaction can be positive or negative, e.g., hitting or pushing another, but if negative, should not merely be self-defensive.

Rating 6--Parallel play level.
Child plays independently, but in a way which brings him/her closer to others; may utilize same toys, e.g., playing side by side in sand-box; plays <u>beside</u> rather than <u>with</u> others; devotes full awareness to the activity of the other child.

Rating 7--Associative play level.
Child plays with others but activity does not require mutual participation; may play with same materials, borrowing and lending; exchanging play materials; following one another with trains or wagons; engaging in similar activities.

Rating 8--Cooperative play level.
Child interacts with others in activity which necessitates mutual participation; plays ball with others; plays on swings with one child pushing, etc.

APPENDIX D

Observer _____ Date _____

Beginning Time _____

1	2	3	4	5	6	7	8
no awareness of others; self stimulatory behaviors	unoccupied; some awareness of environs but no attempt to interact with it	independent play; isolate play; no interaction with others	onlooker; observes others with no attempt to interact	tries to interact either pos. or negatively; seeks attention	independent play beside others; fully aware of others' activities	plays with others in activities not requiring mutual participation	plays with others in activities requiring mutual participation

Obs.	Child	Rating
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		

Obs.	Child	Rating
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		

APPROVAL SHEET

The thesis submitted by Ann Marie Timothy has been read and approved by the following committee:

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The final copies have been examined by the director of the thesis and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the thesis is now given final approval by the Committee with reference to content and form.

The thesis is therefore accepted in partial fulfillment of the requirements for the degree of Master of Arts.

12/1/80
Date

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