INFORMATION TO USERS

This material was produced from a microfilm copy of the original document. While the most advanced technological means to photograph and reproduce this document have been used, the quality is heavily dependent upon the quality of the original submitted.

The following explanation of techniques is provided to help you understand markings or patterns which may appear on this reproduction.

1. The sign or "target" for pages apparently lacking from the document photographed is "Missing Page(s)". If it was possible to obtain the missing page(s) or section, they are spliced into the film along with adjacent pages. This may have necessitated cutting thru an image and duplicating adjacent pages to insure you complete continuity.

2. When an image on the film is obliterated with a large round black mark, it is an indication that the photographer suspected that the copy may have moved during exposure and thus cause a blurred image. You will find a good image of the page in the adjacent frame.

3. When a map, drawing or chart, etc., was part of the material being photographed the photographer followed a definite method in "sectioning" the material. It is customary to begin photoing at the upper left hand corner of a large sheet and to continue photoing from left to right in equal sections with a small overlap. If necessary, sectioning is continued again — beginning below the first row and continuing on until complete.

4. The majority of users indicate that the textual content is of greatest value, however, a somewhat higher quality reproduction could be made from "photographs" if essential to the understanding of the dissertation. Silver prints of "photographs" may be ordered at additional charge by writing the Order Department, giving the catalog number, title, author and specific pages you wish reproduced.

5. PLEASE NOTE: Some pages may have indistinct print. Filmed as received.

Xerox University Microfilms
300 North Zeeb Road
Ann Arbor, Michigan 48106
CARTLEDGE, Gwendolyn, 1943-
A PRELIMINARY INVESTIGATION INTO THE EFFECTS OF SOCIAL SKILL TEACHING STRATEGIES ON ATTENDING BEHAVIOR.

The Ohio State University, Ph.D., 1975
Education, special

Xerox University Microfilms, Ann Arbor, Michigan 48106
A PRELIMINARY INVESTIGATION INTO THE EFFECTS
OF SOCIAL SKILL TEACHING STRATEGIES
ON ATTENDING BEHAVIOR

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
The Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By
Gwendolyn Cartledge, B.S., M.Ed.

The Ohio State University
1975

Reading Committee:
Vance W. Cotter Ph.D.
Thomas M. Stephens Ed.D.
John O. Cooper Ph.D.
Elsie J. Alberty Ph.D.

Approved By

Vance W. Cotter, Ph.D.
Advisor
Faculty for Exceptional Children
ACKNOWLEDGEMENTS

The writing of a dissertation is in no way solely the accomplishment of one individual but rather the result of the contributions of many individuals toward the efforts of one. I wish to express my appreciation by naming a few of the persons who have been instrumental in helping me to complete this product.

First, I wish to acknowledge the faculty members who have provided assistance in the writing of this dissertation. I thank Dr. Vance Cotter, my major advisor, for the long hours spent in discussing the problem to be studied and design to be used. I thank Dr. Elsie Alberty for her acceptance and encouragement of my efforts and Dr. E. Lamont Ohlson for reading portions of this paper and providing considerable assistance in my writing. I am especially grateful to Dr. John Cooper who not only provided tremendous assistance with the design and writing of this paper but also ample and much needed doses of social reinforcement. And to Dr. Thomas Stephens, who served as a constant source of assistance, consultation and inspiration, I am deeply grateful.

Secondly, there are individuals who worked effectively, dutifully and willingly to assist in collecting data, organizing materials and typing, namely, the Directive Teaching Instructional Management System staff. Although grateful to all, there are certain members who deserve
special recognition. I wish to thank Carol Hartman for lending an ear to each crisis and Joyce Lemke for completing the last week of intervention during my illness. Thanks to Jennie Yeagley for observing during the social modeling sessions. I am especially grateful to the classroom observers -- Cheryl Elsberry, Nancy Robinson and JoAnn Van Schaik. It is hard to imagine more reliable and competent observers. Cheryl Elsberry and JoAnn Van Schaik also deserve special thanks for their excellent typing. An added measure of appreciation is extended to the classroom teachers who volunteered their students for subjects and cooperated throughout the study.

Finally, but probably more importantly, there are my family members. I am totally grateful to my mother whose love and refusal to entertain any thoughts of discouragement, defeat or failure throughout my formal education have been a complete source of sustenance. And to my sisters, Barbara and Stella, and my brother, Sam, I am grateful also for their love and encouragement.
VITA

February 19, 1943 . . . Born, Braddock, Pennsylvania

1964 . . . . . . . B.S., University of Pittsburgh, Pittsburgh, Pennsylvania

1965 - 1967 . . . . Third Grade Teacher, West Mifflin Public Schools, West Mifflin, Pennsylvania


1966 - 1968 . . . . M.Ed., University of Pittsburgh, Special Education and Rehabilitation


1969 - 1970 . . . . Practicum Supervisor, University of Pittsburgh, Special Education and Rehabilitation, Pittsburgh, Pennsylvania


1969 - 1971 . . . . Post Master's Study, University of Pittsburgh, Special Education and Rehabilitation, Pittsburgh, Pennsylvania

1974 - 1975 . . . . Graduate Research Associate, Faculty for Exceptional Children, The Ohio State University, Columbus, Ohio

FIELDS OF STUDY

Major Area: Learning and Behavior Disorders
Second Area: Curriculum and Foundations
# Table of Contents

**Acknowledgements** ................................................. ii

**Vita** ........................................................................... iv

**List of Tables** .......................................................... vii

**List of Figures** .......................................................... viii

**Chapter**

1. **Introduction** ......................................................... 1
   - Need and Rationale ................................................. 10
   - Research Questions ............................................... 11
   - Hypotheses ................................................................ 12
   - Operational Definitions .......................................... 14
   - Limitations ................................................................ 15

2. **Review of the Literature** ........................................... 17
   - Behavior Change Through Positive Reinforcement .......... 17
   - Development of Novel Behaviors Through Social Modeling .................................................. 29
   - Attention .................................................................. 41
   - Summary ............................................................... 55

3. **Methodology and Procedures** .................................... 57
   - Sample Selection .................................................... 57
   - Teachers .................................................................. 60
   - Setting ...................................................................... 60
   - Instrument Design .................................................. 60
   - Materials ............................................................... 62
   - Response Definition and Measurement ......................... 62
   - Recording Procedure .............................................. 65
   - Experimental Conditions ......................................... 68
   - Data Analysis ........................................................ 73
### Table of Contents

IV. ANALYSIS OF THE DATA ........................................... 76

   Results ......................................................... 76

V. DISCUSSION AND SUMMARY ......................................... 90

   Discussion ...................................................... 90
   Limitations of the Study ....................................... 95
   Recommendations for Further Research ........................... 97
   Summary ......................................................... 99

APPENDIX

A ................................................................. 104

B ................................................................. 111

C ................................................................. 115

D ................................................................. 118

E ................................................................. 121

F ................................................................. 128

G ................................................................. 130

BIBLIOGRAPHY ....................................................... 132
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Subject Characteristics</td>
<td>59</td>
</tr>
<tr>
<td>2. Social Modeling Schedule</td>
<td>73</td>
</tr>
<tr>
<td>3. Mean Percentages of Attending Behavior For Groups I, II and III For Each Study Condition</td>
<td>77</td>
</tr>
<tr>
<td>4. Statistical Analysis of Differences Among Conditions for Each Group Utilizing the Friedman Two-Way Analysis of Variance by Ranks</td>
<td>78</td>
</tr>
<tr>
<td>5. Wilcoxon T Analysis of Mean Pre- and Posttest Attending Rates</td>
<td>79</td>
</tr>
<tr>
<td>6. Kruskal-Wallis Anova Analysis of Mean Posttest Scores for Group I, Group II and Group III</td>
<td>80</td>
</tr>
<tr>
<td>7. Wilcoxon T Analysis of Mean Posttest and Follow-up Attending Scores</td>
<td>81</td>
</tr>
<tr>
<td>8. Mean Number Teacher Approving Behaviors for Baseline I and Baseline II Conditions</td>
<td>85</td>
</tr>
<tr>
<td>9. Wilcoxon T Analysis of Teacher Approving Behaviors for Baseline I and Baseline II Conditions</td>
<td>86</td>
</tr>
<tr>
<td>10. Wilcoxon T Analysis of Teacher Approving Behaviors for Baseline II and Social Modeling Plus Baseline III Conditions</td>
<td>86</td>
</tr>
<tr>
<td>11. Attending Behaviors Demonstrated in Social Modeling Sessions</td>
<td>88</td>
</tr>
<tr>
<td>12. Inter-Observer Agreement Percentages for Classroom Observations</td>
<td>89</td>
</tr>
<tr>
<td>13. Inter-Observer Agreement for Social Modeling Sessions</td>
<td>89</td>
</tr>
<tr>
<td>Figure</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1.</td>
<td>Graphic Representation of Hypothetical Multiple Baseline-Reversal Design</td>
</tr>
<tr>
<td>2.</td>
<td>Graphic Representation of Mean Percentages of Subject Attending Behavior</td>
</tr>
<tr>
<td>3.</td>
<td>Graphic Representation of the Number of Teacher Approving Behaviors</td>
</tr>
</tbody>
</table>
CHAPTER I
INTRODUCTION

Traditionally, schools have viewed the process of equipping students with the necessary academic skills, i.e., reading, writing and arithmetic, as being their primary, and in some cases, sole function. Although considered to be a major socializing institution, schools have historically placed little emphasis upon formal social skill instruction. However, it appears that the development of certain prerequisite social behaviors may be crucial to the academic instructional experience as well as the overall school success of the individual student.

The need may exist for formal social skill instruction in the classroom. Much is made of the hidden or unstudied "curriculum" the mechanism through which the school's socializing functions take place. Saylor & Alexander (1974) point out that this unofficial instruction results from the school's structure, the social climate and the images teachers and students have of each other. Through these conditions, it is expected that students will acquire the desired social behaviors and norms which facilitate their present and future functioning in society. Through imitation many individuals do develop the necessary social skills incidentally; however, a
significant portion of our school population exhibit rather serious social skill deficiencies which greatly limit their social and academic competence. For these individuals, a more deliberate social training program is in order. Inkeles (1966), in recognizing the absence of necessary social competencies of many adult members of society states:

....the degree to which, and the ways in which, socialization is a relatively conscious process of training in anticipation of future social roles, have been neglected....(p. 280).

The social behaviors required for school success may be divided into two general categories: 1) personal interaction skills and 2) task-related skills (Hops & Cobb, 1972). Personal interaction skills refer to behaviors such as helping, sharing, smiling, greeting others, speaking positively to others and controlling aggression. In the adult world, Talcott Parsons (1959) describes these behaviors as being "role-responsibility" capacities. That is, the worker must not only know how to perform his task but he must also have "... the ability to behave responsibly toward those people with whom he is brought into contact in his work." The degree to which an individual succeeds in developing the ability to interact with others largely determines his overall social competency.

The second category of social skills, task-related skills, are behaviors such as attending, speaking positively about academic material, compliance to teacher requests and remaining in seat. This can be translated into the adult world as punctuality, perseverance, proper respect for authority and persistent effort.
The positive relationship between pro-social behavior and achievement has been firmly established through research (Eichorn, 1965; Schafer, 1967; Feldhusen, Thurston & Benning, 1967, 1970). Feldhusen, et al., (1967) studied the classroom behavior of 200 third and sixth grade children in relation to achievement and mental ability. The investigators found the achievement of the socially approved children to be significantly higher than the achievement of the socially unapproved children. That is, children exhibiting socially appropriate behavior performed significantly better academically than those students displaying socially maladaptive behavior. The difference in academic achievement was greater than would be expected on the basis of differences in intelligence. Similar findings (Feldhusen, et al., 1970) were reported in a longitudinal study wherein achievement of aggressive-disruptive students was significantly below that of socially appropriate youngsters even though intelligence was controlled as a confounding variable. Swift and Spivack (1968) found a definite relationship between academic achievement and pupil behavior on teacher ratings of classroom behavior. Pupils who were rated high on classroom disturbance, impatience, disrespect-defiance, external blame, achievement anxiety, external reliance, inattentive-withdrawn, and irrelevant responsiveness and low on comprehension and creative initiative obtained significantly lower academic achievement scores. Research supporting this concept has been conducted using teacher, peer, and self-ratings (Lambert, 1972), peer ratings (Bailey, 1968)
Several correlational studies have been conducted in an attempt to identify the specific social behaviors directly related to academic achievement. Atwell, Orpet, & Meyers (1967) conducted a longitudinal study in which kindergarten students were rated on several behavioral characteristics. They found positive significant correlations between forty-three percent of these behaviors and academic achievement. "Attending" was found to be the most powerful predictor of achievement.

Lahaderne (1968) systematically observed the attending behaviors of 125 fourth-grade pupils and found a positive relationship between attention and achievement. Cobb (1970) conducted a similar study with first grade students in an attempt to identify the specific observable behaviors which would most highly predict academic achievement. A regression analysis for reading and arithmetic and specific survival skills resulted in correlations of .59 for reading and .43 for arithmetic. "Attending" was found to be the most powerful predictor of academic achievement.

Turnure and Samuels (1972) replicated Lahaderne's (1968) study in order to determine the relationship between attention and achievement. Eighty-eight (53 boys; 35 girls) first grade pupils were observed for attending and non-attending behaviors. The results of this study were consistent with those of Lahaderne (1968) and Cobb (1970). Specifically, a statistically significant positive correlation was found between attention and reading achievement.
Bryan (1974) studied the attending behaviors of children with learning disabilities and found that these children engaged in attending behaviors to a significantly less degree than children in a regular classroom. The major educational implication of these studies is that a functional relationship may exist between academic achievement and certain observable behaviors such as attending.

The statistically significant positive correlation found between academic achievement and observable behaviors such as attending is not surprising. Obviously, if children are to achieve they must learn to "pay attention." The importance of these task-related social skills has been emphasized by certain learning theorists. According to Skinner (1968), attending is a precurrent behavior which must be taught. Teachers typically present brightly colored and animated teaching materials in an effort to hold the attention of the child. But, Skinner points out:

None of this teaches the student to pay attention, and it may actually make him less likely to pay attention to things which are not on their face interesting (p. 121).

Staats (1965, p. 926), stressing the need for the development of specific "learning" behaviors, posits that the failure of the child to acquire behaviors conducive to learning is largely the result of defective learning conditions. He states:

The reinforcers present in the traditional schoolroom are inadequate for many children. Their attentional behaviors are not maintained, and they do not learn. Thus, a deficit in an individual's behavioral repertoire may arise although he has been presented with the "same"
training circumstances from which other children profit. Learning does not take place because the child's previous experience has not provided, in this example, the necessary reinforcer (motivational) system to maintain good "learning" behaviors. It would seem that in such a circumstance the assumption that the child has a personal defect would be unwarranted and ineffective.

Classroom teachers also recognize the influence of certain social skills on the academic performance of students. Milburn (1974) surveyed the opinions of special and regular class teachers toward 136 social skills. The teachers indicated the degree to which they felt a child should possess a specific social skill in order to succeed in their classrooms. These skills fell into four general categories: Social Initiative, On-Task Behavior, Relationship Rules, and Basic Socialization. The 265 Central Ohio teachers used in this study expressed the highest agreement with the skills in the latter three categories. Generally, teachers tended to place the greatest importance upon skills involving order, rules, obedience and responsibility in academic and interpersonal areas.

The need for children to develop these social skills is obvious. School success apparently is predicated upon the development of certain observable "learning" behaviors as well as the ability to interact appropriately with others. Clearly evident, through a review of the scientific literature, is the fact that these skills do not develop incidentally for many students. It is also apparent that for these students, not only those considered to have mental and emotional handicaps, there is a need for formalized social skill instruction.
Social skills instruction, as with any other course of study must provide instructional strategies for developing these skills. The technology exists, through behavior modification procedures, for teaching these skills. Numerous empirical studies have been conducted which clearly demonstrate the effect of behavior modification on changing observable behaviors. These studies have been conducted in institutions, clinical settings and special as well as regular classrooms. The behaviors changed have ranged from increasing self-help skills in mental retardates (Minge & Bell, 1967), to increasing the sharing behavior of normal children in a clinical setting (Staub, 1971), to increasing the attending behaviors of first grade regular class students (Hops & Cobb, 1972).

Perhaps the most pervading methodology for behavior change has been through operant techniques. The operant paradigm involves the provision of some reward upon emitting some desired behavior, thereby increasing the chances that the behavior will reoccur. Considerable research exists demonstrating the effects of positive reinforcement on observable attending behaviors. Staats (1965), using a reinforcer system for maintaining attention and work behaviors, was able to substantially increase the reading performance of an adolescent delinquent. Walker and Buckley (1968) developed an individual conditioning technique which increased the attending behaviors of a 9 year old male subject from 43 percent during baseline to an average of 93 percent during treatment.

Teacher attention was used by Broden, Bruce, Mitchell, Carter
and Hall (1970) to increase the attending behaviors of two boys at adjacent desks. Teacher attention and praise were made contingent upon appropriate attending behavior. These procedures resulted in mean increases in attending behavior from 31 percent to 33 percent during baseline to 71 percent and 74 percent in the final phase for subjects one and two, respectively.

Social modeling or observational learning is another model that has been used to modify behavior. Although social modeling has not been employed as extensively as operant procedures, this form of learning has been widely accepted (Altman & Talkington, 1971). Bandura (1969, p. 118) states:

One of the fundamental means by which new modes of behavior are acquired and existing patterns are modified entails modeling and vicarious processes.

Modeling, according to Bandura (1969), is ideally suited for the social facilitation of behavioral patterns on a group-wide scale. Junell (1972) holds a similar position and contends that since modeling utilized identification, which is the primary mechanism by which socialization can take place, it carries provocative implications for educational and social programs. The effects of modeling on institutionalized delinquents was investigated by Sarason (1968). He found more change in the behavior and attitudes of the experimental group than the control. Modeling has also been found to be effective in social skill training with educable mentally retarded youths (Stephan, Stephano, & Talkington, 1973).
Several studies have been reported (Prakash, 1973, O'Conner, 1973, Bandura, 1969) which demonstrate the effectiveness of social modeling in establishing novel behaviors (Bandura, 1969). Although modeling is considered to have some distinct advantages over operant procedures for modifying behavior, the employment of reinforcement to modeled responses is generally recommended (Altman and Talkington, 1971). The efficacy of utilizing both modeling and operant procedures in changing and maintaining behaviors has been substantiated in research. Elliott and Vasta (1970) found modeling to be significant over controls but modeling and reinforcement combined most effective in bringing about changes in sharing behavior.

In summary, the importance of social skills are recognized by many segments of society. Children who fail to develop the necessary personal interaction and task-related social skills frequently find themselves on a treadmill which ultimately results in little or no capacity to function in today's society.

Researchers, using predictive correlation studies, report statistically significant positive correlations between certain social behaviors and academic achievement. Behaviors correlating most highly with achievement were task-related behaviors such as attending. There can be little doubt that the acquisition of certain social skills are crucial for school success. Also of little question is the fact that changes in social behaviors can be effected through social modeling and reinforcement techniques. A formalized social skills instructional program, incorporating social modeling and reinforcement procedures, may be an effective means for developing
these behaviors while simultaneously providing instructional materials that can be easily utilized by any classroom teacher.

**Need and Rationale**

Several empirical studies have been conducted which clearly indicate that the acquisition of certain social skills are crucial to the overall school success of the individual child. Children who learn "appropriate" social behaviors tend to perform better than those who are "inappropriate." Specific social skills such as on-task behavior and speaking positively about academic material were found to correlate highly with academic achievement. The major predictor of academic achievement, among observable behaviors, was found to be attending. Researchers have repeatedly demonstrated that appropriate and prosocial behaviors can be developed in the classroom using behavior modification procedures. Most of these studies have used either highly individualized or rather complex procedures in order to effect these changes. Frequently these procedures would not be readily available or feasible for a regular classroom teacher.

It is generally accepted that children need to develop certain social skills. What needs to be established is how teachers might implement the proven methodologies in developing these social skills.

Conceivably, social skills could be taught in a manner very similar to present teaching practices in academic subjects. That is, the desired behavior would be presented, the opportunity provided to practice this behavior and reinforcement provided for the appropriate skill performances or approximations. Therefore, there is a need to
determine the efficacy of a formalized instructional system which incorporates social modeling and positive reinforcement in developing certain social behaviors.

- Due to the high positive correlation between observable attending behaviors and achievement, this study focused upon those behaviors directly related to attention. In addition to further substantiating the effectiveness of behavior modification procedures on observable behaviors, the present investigation attempted to validate a formal system for teaching social skills which could easily be utilized by the classroom teacher. The objectives of this study were as listed:

1. To validate a formalized system for teaching observable social behaviors.
2. To assess the relative effects of social modeling and operant procedures on observable social behaviors.
3. To assess the effects of combined social modeling and operant procedures on observable social behaviors.
4. To determine the extent of training transferred across settings.

**Research Questions**

After reviewing the available literature on procedures in changing social behaviors, the following questions arise:

1. What differences result in observable attending behaviors of elementary-grade public school students receiving social skill teaching strategies, utilizing social modeling and positive reinforcement, and positive
reinforcement alone?

2. What differences result in pre- and posttest measures of observable attending behaviors for elementary-grade subjects receiving social modeling teaching strategies for attending and positive reinforcement for attending?

3. What differences result in the observable attending behaviors among three groups of elementary-grade subjects receiving social modeling teaching strategies for attending and positive reinforcement for attending?

4. What differences result in mean observable attending scores of posttest measures and in mean observable attending scores of follow-up measures for elementary-grade subjects receiving social modeling teaching strategies and positive reinforcement for attending?

Hypotheses

Resulting out of the above listed research questions are the following null hypotheses:

1. There will be no statistically significant ($\alpha = .05$) differences in observable attending behaviors for elementary-grade subjects receiving praise prior to social modeling, praise plus social modeling and praise following social modeling as measured by an interval recording form. That is, the sum of the ranks of the three conditions will be equal.
2. There will be no statistically significant ($\alpha = .05$) differences between pre- and posttest scores of observable attending behavior for elementary-grade subjects receiving social modeling strategies for attending and positive reinforcement for attending as measured by an interval recording form. That is, the differences between the negative and positive ranks will be equal to zero.

$$H_{o1}: \sum R_1 = \sum R_2 = \sum R_3 = 0$$

3. There will be no statistically significant ($\alpha = .05$) differences in mean observable attending scores as measured by an interval recording form for three groups of elementary-grade public school students receiving social modeling teaching strategies and positive reinforcement in the classroom. That is, the sum of the ranks of the three groups will be equal.

$$H_{o2}: \sum R_1 = \sum R_2 = \sum R_3 = 0$$

4. There will be no statistically significant ($\alpha = .05$) differences between the posttest and follow-up scores of observable attending behaviors for subjects receiving social modeling and positive reinforcement for attending as measured by an interval recording form. That is, the differences between the positive and negative ranks will equal to zero.

$$H_{o4}: \sum R = 0$$
Operational Definitions

To avoid any undue misunderstandings, the investigator of the present research has chosen to operationally define the research variables in the following manner.

Attending Behaviors. Attending behaviors referred to the following observable behaviors:

1. Pupil is looking at the teacher when the teacher is presenting instructional material.
2. Pupil is working on reading or related task.
3. During recitation, pupil looks at other students who are reciting.
4. Pupil is generally following instructional directions of teacher.
5. Pupil has eyes focused on task, chalkboard, or other instructional materials.

All of the above behaviors were assessed by an interval recording procedure where a trained assistant observed target pupils and recorded their attending behaviors.

Social Modeling Teaching Strategies. The social modeling teaching strategies consisted of five basic elements:

1. The presentation of a social skill that needs to be developed.
2. The identification through group discussion of specific behaviors to be modeled. The teacher structures the class discussion so that pupils suggest the types of behaviors that should be exhibited for any one skill.
3. The modeling of identified behaviors by the teacher. For example, one identified behavior might be to keep eyes focused on person speaking. The teacher contrives the situation so that someone speaks and the teacher visually focuses on person speaking.

4. Individual pupil practices modeled behavior. Situation is contrived again so that the pupils receive opportunity to produce behavior modeled by teacher.

5. Praise for properly reproducing desired behavior. Student is praised by teacher for exhibiting appropriate behavior during modeling situation. (See Appendix for Sample Social Modeling Teaching Strategy)

**Reinforcement.** Social reinforcement (teacher praise) referred to positive statements made by the teacher to students for exhibiting appropriate attending and on-task behaviors. Examples of teacher praise might be statements such as, "I like the way you are looking at me," or "You are doing a good job of working on your assignment," etc.

**Social Skills.** Social skills or observable social behaviors referred to the observable behaviors required for appropriate social interaction and academic performance.

**Limitations**

Due to the restrictions resulting from limited finances and trained observers, this study was limited to studying fifteen elementary grade students in one school. More than the three
available research assistants would be needed in order to utilize a larger population.

The social skills curriculum used in this study was developed for elementary aged students. Therefore, this study was confined to third, fourth and fifth grade students.

This study was limited to eight weeks, one hour daily, of observation and four weeks social modeling. These restrictions resulted from the limited availability of observers. Finally, limited time and manpower restricted the social skills taught to attending and on-task behaviors. These behaviors were selected because of their high correlation with academic achievement. Also these are highly desired and potentially frequently occurring behaviors in the classroom.
CHAPTER II
REVIEW OF THE LITERATURE

The intent of this literature review is to present studies directly related to the methodologies of behavior change and the behaviors of attention. The literature reviewed is divided into three sections. Section one presents studies which demonstrate the effectiveness of positive reinforcement in changing and increasing social behaviors. Section two, in a similar manner, reviews the literature on social modeling or observational learning. The dimensions of attention and empirical efforts to alter attending behaviors are considered in the third section.

Behavior Change Through Positive Reinforcement

Although the use of positive reinforcement as a means for developing and maintaining appropriate behaviors has increased considerably in the past decade, the application of these procedures in the classroom is not a recent development. O'Leary (1973), in a review of token reinforcement programs, reported the distribution of rewards for academic performance as early as the twelfth century. Parents, teachers and other members of society have traditionally used rewards in order to bring about desired behaviors. However, the systematic application of positive procedures in the classroom is
largely due to the laboratory studies of men such as B. F. Skinner, with animals and Arthur Staats, with humans (Hanley, 1970). In recent years reinforcement principles have been used widely in special and regular classrooms. The effectiveness of these techniques in controlling behavior has been established through numerous empirical studies. This review will consider studies which report the utilization of positive procedures in the form of token systems, social reinforcement and group contingency systems.

**Token Systems**

Perhaps the most prevalent method for implementing positive reinforcement procedures in the classroom has been through token systems. Meichenbaum, Bowers, and Ross (1968) instituted operant procedures with money as reinforcers in order to reduce the "inappropriate" and increase the "appropriate" classroom responses of institutionalized subjects. Ten adolescent females, with histories as major management problems, received slips of paper every ten minutes, indicating the percentage of appropriate behavior exhibited during that observation period. The slips were later exchanged for money, a maximum of two dollars daily, eight dollars weekly. A multiple baseline design was employed where treatment was introduced initially in the afternoon and later extended to the morning. Appropriate behaviors did not increase in the mornings until experimental conditions were applied, indicating that student behavior was largely under the control of the token system. The results indicated that treatment conditions significantly
increased mean levels of appropriate behavior from 46 percent (afternoon) and 54 percent (morning) during Phase I (baseline) to 92 percent and 84.50 percent, respectively during Phase III. The authors concluded that the intervention procedures were successful; even though there was a reduction (to 79 percent) in the mean level of appropriate behavior during the final stages of the study. Difficulties in maintaining high rates of appropriate behavior were attributed to external variables such as peer pressure and subject manipulation skills. The reduction in the amount of money received during the final stage, due to limited funds, may have been an even more pertinent factor in the reduction of appropriate behavior. Of interest, is the failure of acquired appropriate behaviors to generalize to non-token and reduced token periods, i.e., mornings and final stages of the study. The authors did not report any attempt to program for more natural reinforcers to replace tokens. That is, the tokens were not paired with more naturally occurring reinforcers such as praise.

In contrast to the study by Meichenbaum et. al., (1968) where subjects received tokens for general appropriate behavior, subjects in an investigation conducted by Hewett, Taylor, & Artuso (1969) received tokens for specific task related behaviors. The subjects were fifty-four "emotionally disturbed" students, ranging in age from eight years, zero months to eleven years, eleven months.

Six classes of nine students each were assigned to various combinations of experimental and control conditions. Classes one
and two were experimental and control, respectively. Classes three through six were one-half year experimental and one-half year control.

Treatment consisted of administering checkmarks, every fifteen minutes, for starting tasks, working on tasks, and generally, behavior appropriate to the individual child's "developmental sequence." Checks were exchanged on a weekly basis for back-up reinforcers such as tangible rewards (Phase I). The findings indicated that the token system was effective in significantly increasing \( p < .05 \) task attention behaviors of the experimentals over the controls. Subjects receiving experimental conditions at midyear significantly \( p < .05 \) improved over the controls in task attention and arithmetic achievement. Removal of experimental conditions at midyear resulted in improved task attention for these subjects but significant gains in reading or math did not occur. These results underscore the effectiveness of token systems in behavior control. The corresponding academic improvement, although limited to arithmetic, supports the position that certain observable behaviors are prerequisite for academic achievement.

Glavin, Quay, Annesley & Werry (1971), in an attempt to establish an alternative to self-contained special classrooms, used similar procedures with "conduct problem" children in resource classrooms. As in the previously cited study (Hewett et al., 1969), the 27 second-through sixth-grade experimental students received tokens for task-related behaviors. Poker chips were dispensed for starting, maintaining, and completing assigned tasks. Results were
that for the experimentals in the resource classroom, disruptive behavior was significantly reduced and task-related behavior significantly increased (p < .05) when compared to the controls in the regular classroom. Also shown was the significantly more appropriate behavior (p < .001) of the experimentals in the resource room than when in the regular classroom, either prior to or during treatment. No statistically significant difference was found between the behavior of the controls and the experimentals in regular classrooms. These results lead the authors to conclude that behaviors could be changed in the resource classroom but generalization does not automatically take place to the regular classroom.

Although considerable empirical evidence exists verifying the efficacy of operant procedures, efforts have been made by some researchers to examine the specific variables influencing the changes observed. O'Leary, Becker, Evans, and Sandargas (1969) in a replication of a previous study (O'Leary & Becker, 1967), examined the relative effects of classroom rules, educational structure, teacher praise and a token reinforcement program on reducing disruptive behavior. Seven children enrolled in a second grade class of 21 were observed for eight months. The procedures were divided into eight phases. Phase I (baseline period) - students were observed by trained observers and the teacher proceeded in the normal manner. Phase II (Classroom Rules) - six weeks later, rules for classroom behavior were placed on the chalkboard and reviewed at least once each morning and afternoon. This phase lasted for three weeks.
Phase III (Educational Structure) - the class was organized into four 30 minute periods for total class participation. Phase IV - (Praise and Ignore) - two weeks following Phase III, praise was given by the teacher for appropriate behavior and inappropriate behavior was ignored. At the end of a two week period, Phase V was initiated. In addition to Phases II through IV, children received tokens (ratings) four times during the two hour afternoon periods according to the degree to which they followed classroom rules. Tokens and back-up reinforcers were withdrawn for a five week period. Tokens and reinforcers were reinstated for two weeks during Phase VII and withdrawn again during Phase VIII. In this phase ratings were replaced with stars and a weekly piece of candy. These procedures resulted in a marked reduction in disruptive behavior only during the token phase. Phases II through IV did not have any consistent effect on behavior, causing the investigators to conclude that rules without reinforcement are ineffective. The improved behavior of the reinforcement phases did not generalize, however, to the non-token morning periods. This occurrence was consistent with those observed in the studies by Meichenbaum, et. al., (1968) and Glaven, et. al., (1971) where behaviors developed under treatment conditions did not generalize to similar non-treatment conditions.

**Teacher Behavior As A Function Of Social Reinforcement**

Teacher behavior is a major factor in developing and maintaining classroom control. Thomas, Becker, and Armstrong (1968) demonstrated that teachers can unknowingly develop undesirable pupil behaviors
through the manner in which they interact with their students. In a related study (Madsen, Wesley, Becker, and Thomas, 1968), the effects of various teacher behaviors on classroom behavior was systematically examined. The behaviors of two teachers and four target pupils in two regular primary classes were observed and rated according to specified pupil and teacher behaviors. Pupil behaviors were divided into the categories of inappropriate behaviors and appropriate behaviors. Teacher behavior was coded according to her response to some pupil behavior — e.g., approval or disapproval. The experimental conditions consisted of: 1) Rules — teachers listed classroom rules for appropriate behavior and reviewed them several times daily; 2) Rules plus ignoring — teachers were directed to ignore inappropriate behavior except in extreme cases when injury might occur; and 3) Rules plus ignoring plus praise — praise was given for behaviors that facilitate learning. Significant \( p < .05 \) changes in pupil behavior occurred only when praise was introduced for appropriate behavior. Rules alone were found to be ineffective.

Broden, Hall, Dunlap and Clark (1970), in another study of teacher behavior, examined the effects of systematic teacher attention on the study behavior of thirteen seventh- and eighth-grade special education students. Initial treatment consisted of the teacher giving praise and attention only to students exhibiting study behavior (Social Reinforcement). Eleven days later a second phase was introduced where students exhibiting study behavior when a timer rang (VI 8 minutes), received a check. Each check permitted the student to leave one minute earlier for lunch. In the third phase,
the timer was removed and a point system introduced for appropriate behaviors. The reported results of these procedures were that study behavior increased from a mean rate of 29 percent during baseline to 57 percent during social reinforcement to 74 percent during the timer phase to 90 percent in the point or token phase. Although teacher attention was effective in increasing study behavior, the greatest increase occurred during the timer and token periods. The findings from the above studies suggest that while the systematic application of teacher attention/praise may significantly change classroom behaviors, tokens and back-up reinforcers apparently are more powerful in effecting behavior change.

Group Contingencies

The cost of token systems (Osborne, 1969) and the constant monitoring of pupil response involved in social reinforcement (Baer and Wolf, 1967) has spurred the search for alternatives in reinforcement procedures. Osborne, (1969) studied the effects of contingent and non-contingent free time on the out-of-seat behavior of six girls (eleven years, eight months to thirteen years, eight months) at a school for the deaf. Students were instructed to remain in their seats for twenty or twenty-five minute periods. At the end of this time period if they had remained in their seats, students were permitted five minutes of free time. During the non-contingent period, free time was given regardless of out-of-seat behavior. The experimental conditions significantly (p<0.001 one-tailed) reduced out-of-seat behaviors. Little change was observed in
out-of-seat behaviors when non-contingent conditions were introduced.

Schmidt and Ulrich (1969) attempted to reduce noise levels through a group control procedure. The authors assessed the effects of additional gym time on the reduction of the noise level and the out-of-seat behavior of a fourth grade class during study period. The class noise level was measured by a mechanical device. For each specified period (10 minutes) that the noise level did not exceed .42 decibles, the students earned two extra minutes of gym. When the noise level exceeded .42 decibles, the experimenter blew a harmonica and reset the timer. Experimental conditions resulted in a 13.5 decible drop in noise level.

Using similar procedures, the authors conducted another study with a second grade class of 28 students. In this experiment, a second phase was added where students were expected to earn their entire gym period in this manner. Students who were inappropriately out of their seats when a timer (set at variable intervals) rang, lost five minutes of gym time. These procedures resulted in a 12 decible drop in noise and a substantial deduction in out-of-seat behavior.

The findings of these studies suggest that classroom teachers may individually develop effective procedures for controlling classroom behavior which are neither excessively time consuming or expensive.
Developing Social Skills With Positive Reinforcement

Several studies have been conducted to investigate the effects of operant procedures on social interaction behaviors. One of the earliest such investigations was conducted by Allen, Hart, Buell, Harris and Wolf (1964). Reinforcement principles were used to increase the peer interactions of a four-year three month old withdrawn nursery school child. Maximum adult attention was made contingent on play with another child. Minimum attention was given when the subject interacted with another adult and no attention was given when she was alone. A graph of the subject's behavior showed that her interactions went from 10 percent (peers) and 40 percent (adults) during baseline to 60 percent (peers) and 25 percent (adults) during the final stage of experimental conditions. As a result of these procedures, the authors reported that the subject "... had become a happy, confident member of the school group."

In a related study, Hart, Reynolds, Bäer, Brawley and Harris (1968) examined the effects of contingent and non-contingent adult attention on the cooperative behavior of a five-year four month old nursery school child. The investigators attempted to increase the cooperative behavior of the subject, who exhibited aversive as well as uncooperative behavior toward other peers. Initially, adult attention (praise, conversations, smiles, etc.) was given non-contingently for seven days. Contingent adult attention, for the next twelve days was given for all cooperative play behaviors emitted by the subject. For the next four and eight day periods, non-contingent and contingent conditions were resumed, respectively.
Shaping and priming (directing other children to initiate interaction) were necessary due to the subject's low rate of cooperative play. Cooperative play behavior increased from less than 5 percent during baseline and non-contingent conditions to 40 percent during contingent conditions. Similar results were obtained in the subject's proximity to peer behavior. These findings indicated that contingent teacher attention was effective in appreciably increasing pupil peer interactive behaviors.

On a much larger scale, Phillips, Phillips, Fixsen and Wolf (1973), used a "positive and negative" token system to develop and modify social skills of six adjudicated "pre-delinquent" boys. Four different experimental conditions were established in order to increase promptness, room-cleaning, saving money and knowledge of current events. The subjects, ranging in age from 12 to 15 years, received and/or lost points for certain specified behaviors, depending on the experimental conditions. For Experiment 1, the boys lost 100 points per minute when late for meals. Five hundred points could be earned for obtaining a score of 80 or more for room-cleaning. A score below 80 resulted in a loss of 80 points. In the third experiment on saving, the boys earned 10 points for every penny saved. This condition was later modified so that points could be earned only on specified days. News watching for current events involved various combinations of points earned and/or lost for correct or incorrect answers to news quizzes. The points, recorded on a 3X5 index card, were administered daily and used to buy special privileges such as games, snacks, gifts, etc.
In each case, the experimental conditions were effective in increasing the desired behaviors. Instructions, threats and demands, which were used as probes in some conditions did not have any lasting effects upon increasing appropriate behaviors. The authors concluded that:

The results of these four experiments indicate that "pre-delinquent" behaviors are amenable to modification procedures and that a point system administered by two professionally trained teaching parents and backed up with privileges naturally available in most homes provides a practical means of modifying these behaviors. (p. 343)

To summarize, positive reinforcement procedures in the classroom have been implemented largely through token systems and/or social reinforcement (teacher praise and attention). Tokens, ranging from powerful reinforcers such as money to points to be exchanged for rewards of privileges, have been used extensively during the past decade and repeatedly demonstrated to be effective agents in changing undesired behaviors. Despite this proven efficacy in modifying behaviors, existing research indicates that token systems, for the most part, are situation specific. That is, behaviors developed in one setting are observed almost totally within that setting and do not generalize to other conditions without similar treatment.

Empirical studies have shown social reinforcement to be quite effective in establishing and maintaining appropriate classroom behaviors. Although rewarding, teacher attention and praise appear to be more effective when paired with token reinforcement. Group management systems, utilizing principles of positive reinforcement,
may serve as alternatives to the constant monitoring and cost involved in token systems and social reinforcement.

The foregoing studies suggest that positive procedures are effective in modifying a wide variety of social behaviors. In addition to reducing disruptive behavior, operant techniques have been used to increase the appropriate social interaction of social isolates and facilitate the socialization of 'pre-delinquent' boys.

**Development Of Novel Behaviors Through Social Modeling**

Social modeling, frequently referred to as imitation or observational learning, is the process of acquiring some behavior through observation. The following studies will consider 1) the development of new behaviors through social modeling; 2) the relative efficacy of social modeling and operant procedures and 3) the role of reinforcement in the development of novel behavior through social modeling.

**The Development Of Novel And Pro Social Behavior Without Reinforcement**

The preceding section dealt with positive reinforcement which is based on the operant model, i.e., the reinforcement of some behavior which would increase the probability that the behavior would reoccur under similar stimulus conditions. This paradigm requires the occurrence of the response in order for reinforcement and thus learning to take place. Social modeling, on the other hand, involves the observation of some behavior performed by a model and, thereby, the observer acquires a corresponding response pattern under similar conditions. According to Bandura (1969), observational learning is a
more effective means for developing novel responses or providing social training. Bandura (1961) proposed that most social behaviors are too complex to be developed solely through differential reinforcement and "... that new responses may be rapidly acquired and existing behavioral repertoires may be considerably changed as a function of observing the behavior and attitudes exhibited by models (p. 311)."

Evidence supporting this position is reported by Bandura (1962) of studies conducted with nursery school children in which novel aggressive responses were acquired without direct reinforcement to either the model or observer. In these studies, children were exposed to aggressive and non-aggressive models under live and film-mediated conditions. A control group, exposed to no models, was also employed. The aggressive situation consisted of a model interacting with a Bobo doll in a very aggressive manner such as punching, kicking, and hitting it with a mallet. In contrast, the non-aggressive model quietly assembled tinker toys, ignoring the Bobo doll and mallet. Following treatment, the children were placed in a testing situation which involved placement in a room with similar toys for twenty minute periods. The conditions of this experiment were replicated using film which showed human and cartoon models. They were rated by observers for the frequency of imitative aggressive, non-imitative aggressive and non-aggressive responses. The findings of these studies were that while children exposed to live and film-mediated models did not differ from each other in total aggression, they exhibited statistically (p. < .001) significantly more aggressive responses than the children exposed to non-aggressive models.
It was also shown that children observing the non-aggressive model had significantly (p. < .05) fewer aggressive responses than the controls, indicating the effect of social modeling in reducing as well as increasing aggression. In a more recent study, Bandura and Menlove (1968) demonstrated the efficacy of symbolic modeling in reducing the avoidance behavior of nursery school children toward dogs. Forty-five three-to-five-year-old children who, according to pre-test measurement, displayed significant avoidance responses were assigned to one of three treatment conditions. Groups of three or four children were exposed to eight different three minute movies, two per day on four alternate days. Treatment varied according to single-model, multiple-model and control conditions. The single-model situation consisted of the presentation of a five year old male model in varied, gradually increased fear-arousing interactions with a dog. The multiple-model condition differed in that the models and dogs were varied. The controls observed non-related movies for equivalent periods. Post-treatment and one follow-up assessment were conducted. Analysis of pre- and posttest scores revealed that children assigned to the single-model (p. < .01) and multiple-model (p. < .005) conditions exhibited significantly greater approach behavior following treatment. Similar results were obtained between conditions (p. < .05), i.e., the two experimental groups achieved greater increases in approach behavior over the control group. A significantly larger percentage (p. < .05) of children assigned to the multiple-model condition were able to perform the terminal (most potentially threatening) interaction with a dog. These results lead the authors
to conclude that symbolic modeling is enhanced by a broader sampling of models and aversive stimulus objects.

Several studies demonstrating the effectiveness of social modeling in developing prosocial behavior without external rewards for the desired behavior have been conducted. Rosenhan and White (1967) studied the effects of observational learning and rehearsal on the altruistic behavior of fourth and fifth grade subjects. Twenty boys and twenty girls were assigned to one of four experimental conditions: negative reinforcement (subject receives negative feedback from model), positive reinforcement (subject receives positive feedback from model), and no interaction (model and subject do not interact). Five boys and five girls participated in the control conditions with no model. Treatment under all conditions except the control consisted of the model and subject alternating at a bowling ball game. Following each winning trial the model donated part of his winnings (money) to "charity." After twenty trials, the model left the subject to play another twenty trials alone. The subject was assessed according to the amount he/she gave in the presence and absence of the model. Subjects exposed to a model displayed substantially more altruistic behavior than the controls. Another finding was that of the 48 percent of subjects who gave during the model's absence, nearly 90 percent had previously given during the model's presence. This finding lead the experimenters to conclude that observation and rehearsal may be necessary for the internalization of altruistic behavior. That is, emitting the desired behavior in the model's presence may be instrumental in
establishing the behavior of altruism in the subject's behavioral repertoire.

In a similar study, Harris (1970) attempted to assess the effects of reciprocity and vicarious reinforcement on altruistic behavior. One hundred sixty-eight fourth and fifth grade pupils were equally divided into 16 experimental and eight control groups. The experimental conditions required the subject observing the model to share either with the subject or charity. The model may or may not have received social reinforcement for sharing, depending on the experimental condition. Control conditions consisted of the models who refused or had no opportunity to share. The model and individual subjects alternated in a game to earn chips where the amount of chips earned was completely controlled by the experimenter. In the second part of the experiment the subject was given the opportunity to share in a manner similar to that of the model in Part 1. The major finding of this study was that modeling was the primary factor in the subject's giving behavior. That is, subjects who observed the model give chips to charity tended to give to charity and subjects who observed the model give to the subject gave in a similar manner. The experimental groups significantly differed from the control groups in total sharing at the \( p < .0005 \) level or beyond. Controls who observed the "stingy" model did not differ significantly from controls who observed the model who did not have an opportunity to give. Thus, it was safe to conclude that observing a generous model was the determining factor in the subjects' sharing behavior.
Relative Efficacy Of Social Modeling Over Operant Procedures

The effectiveness of modeling techniques over traditional operant procedures is given additional support by Altman and Talkington (1971). Based on a review of the social modeling literature, they point out that through modeling, 1) relatively complex behavior sequences may be acquired in their entirety; 2) novel responses may be developed without external reinforcers and 3) these responses are generally maintained for periods longer than found with operant conditioning programs. The relative efficacy of modeling procedures over operant techniques has been assessed by several investigators. O'Connor (1973) studied the effects of social modeling and shaping on facilitating social interaction. Thirty-one nursery school social isolates were assigned to one of four conditions; shaping, modeling and shaping, modeling only and control. For the modeling conditions, subjects were shown a film depicting the social interactions of nursery school children. The controls were shown a film on dolphins which was lacking in human behavior. The shaping procedures consisted of providing each child with approximately five hours of praise and attention for successive approximations to social interaction. This treatment was provided by graduate students rather than the classroom teachers. The children's social interactions were observed and rated by trained observers prior to and following treatment. An analysis of these results revealed; 1) children observing the modeling film interacted significantly more with peers than controls (p < .005), 2) shaping was effective over controls (p < .01) in increasing social interaction and 3) assessment immediately following treatment
indicated no statistically significant differences between modeling, modeling plus shaping or between shaping versus modeling plus shaping. However, highly significant differences were revealed during the follow-up assessment. The effects of the modeling and modeling plus shaping had been maintained while the effects of shaping alone had decreased. Thus, in this study, social modeling with or without direct reinforcement was effective in establishing and maintaining new social responses.

The effects of modeling and reinforcement have also been studied by Zimmerman and Pike (1972). They investigated the effects of these procedures on the question-asking behavior of 36 (18 boys; 18 girls) Mexican-American second graders. A multiple baseline design was employed with staggered initiation of the five phases: baseline 1, training, baseline 2, retraining and posttesting. Treatment consisted of modeling plus reinforcement or praise (MP) and praise (P) alone. A third group was used as controls (C). Two groups for each condition were utilized and the subjects were randomly assigned to one of the six groups. All of the students had previously been identified as emitting low question-asking behavior. Statistical analysis revealed no significant differences among the groups at baseline. Treatment in the modeling-praise groups involved students modeling teacher's question-asking behavior and receiving praise for emitting this behavior. The praise group received praise for question-asking but no modeling. As a result of these treatments, mean question-asking behavior of the modeling-praise group increased significantly over that of the praise and control groups (for both $p < .01$). Also, the
modeling-praise question-asking behavior made significant gain during training compared to baseline conditions ($p < .01$). While the mean levels of question asking of the praise groups increased, it was not significant over the controls or its own baseline conditions. In addition to the above findings, the authors also reported that youngsters in the modeling-praise groups demonstrated significantly more response transfer than reinforcement only or control group subjects.

The Role Of Reinforcement In Social Modeling

Although it has been empirically demonstrated that relatively novel responses can be developed and maintained through social modeling alone and that modeling may be more effective than operant procedures in establishing these responses, the role of reinforcement in imitative learning still appears to be of major importance. Buy and Nawas (1972) point out that studies which demonstrate the acquisition of new responses without external reinforcement fail to account for the subjects' history of reinforcement in imitative behavior. Reinforcement may be employed in observational learning in one of several conditions: 1) reinforcement to the model while the observer attends (vicarious reinforcement), 2) both model and observer receive reinforcement (double reinforcement) and 3) only the observer while attending receives reinforcement (direct reinforcement).

Flanders (1968) in a review of research of imitative behavior concluded that generally, vicarious reward results in increased imitation by the observer of the model and that the greater percentage
of the model's responses rewarded, the more the observer tends to imitate those responses. Bandura, Ross and Ross (1963) in a replication of a previously cited study (Bandura, 1962), found that children observing the aggressive model rewarded displayed significantly more imitative aggressive behavior than did subjects in the punished or two control groups. However, the results in more recent studies on vicarious reinforcement are at variance with those reported by Flanders (1968) and Bandura (1963). Dubner (1972) rated the effects of vicarious reinforcement on the imitative behavior of eighty-eight fourth grade girls. The experimental conditions involved observing five 90 second sequences of a peer model drawing, which was followed by: 1) ten seconds of praise (vicarious reinforcement), 2) no vicarious reinforcement with ten seconds time out (no vicarious reinforcement) and 3) no vicarious reinforcement and no time out. A fourth control group saw only a blank video tape. Following each 90 second sequence the subjects were instructed that they were free to work with the materials on the table which were similar to those in the film. Subjects were rated for number of imitative responses to the model. Statistical analysis of these ratings revealed no significant differences between the vicariously rewarded group and the other experimental groups. Only the three experimental groups combined differed from the controls.

Thelen, Rennie, Frymear and McGuire (1972) also failed to find a facilitating effect with vicarious reinforcement. In their study with sixty primary grade children, they found that the expectancy to perform plus vicarious reward significantly increased spontaneous
imitation. Prior to the modeling film the subjects were told either that they would be expected to or not expected to perform the behaviors of the model. The film consisted of the model performing certain "critical responses" (button pressing) for which he received praise under the vicarious reward condition. The subjects were then requested to imitate these performances and received praise for proper responses. An application of the Duncan's new multiple range test on the six groups indicated that vicarious reinforcement was effective only when there was an expectancy on the part of the student to perform the same task as the model.

The effect of direct reinforcement on the development of generalized imitating in severely retarded children was studied by Bry and Nawas (1972). According to the authors, the subjects had never displayed imitative behaviors prior to the study and were selected for this reason. The study consisted of four phases:

Phase A - Subject 1 was reinforced for imitative responses, Subject 2 was not reinforced; Phase B - both subjects were reinforced for imitative responses; Phase C - reversal with differential reinforcement of other behavior and Phase D - reinstatement of imitative performance of Phase B. The subjects were required to imitate simple behaviors such as, "pick up fork", demonstrated by an adult model. Reinforcers such as food, praise and back-patting were used. During Phase A, Subject 1, receiving reinforcement, was able to imitate the 100 items to criterion. Subject 2, on the other hand, made virtually no progress. During Phase B (both subjects reinforced) Subject 1 continued to perform at a high, steady rate while Subject 2 had to
develop a learning set to imitative behavior. Subject 1 learned the items to criterion in ten sessions while it took Subject 2 eighteen sessions to learn the sixty behaviors. When extinction was introduced under Phase C, imitative behaviors reduced dramatically for both subjects. According to the authors, this demonstrated that the imitative scheme was under the control of the reinforcement. Reinforcement for imitative behaviors was reinstated in Phase D and both subjects began responding at previous imitative rates. The investigators concluded that reinforcement is indeed essential for the development of generalized imitative behavior.

Additional support to the facilitative effects of direct reinforcement in developing and maintaining imitative behavior is provided by a study conducted by Jeffrey, Hartmann, and Gilfand (1972). In this study, the relative effects of non-reinforcement, nurturance (non-contingent reinforcement) and contingent reinforcement upon the acquisition and maintenance of imitative responses of third grade boys was studied. Sixty subjects were randomly assigned to one of four conditions equally: 1) control-baseline groups whose preferences were obtained prior to experimental manipulations; 2) contingent reinforcement - subject received reinforcement (candy and praise) contingently upon matching slide preference of model; 3) nurturance or non-contingent reinforcement - prior to modeling situation subject experienced 7.7 minutes of non-contingent rewarding interaction with model and 4) nonreinforcement - subject received no reinforcement from model. The study was divided into two phases. During Phase I, model and subject were exposed to black and white
slides and were instructed to select preferred slides. Model selected first and, in the contingent reinforcement condition, reinforced for matching model's responses. Model and subject made preferences in different rooms in Phase II. The subject was still aware of the model's preferences but no rewards were administered. The nonreinforcement and nurturance group received no reinforcement during the modeling procedures. As anticipated, the contingently reinforced groups: 1) displayed significantly more matching in both phases than did the nurturance (for both phases, \( p < .01, p < .001 \)) and nonreinforcement (\( p < .001 \)) groups; 2) improved significantly with matching across treatment trials (\( p < .01 \)) and matched significantly more than chance for acquisition (\( p < .01 \)) and maintenance (\( p < .01 \)). The nurturance and nonreinforced groups matched at or below chance for both phases. Thus, the results of this study strongly suggest the importance of direct contingent reinforcement in developing and maintaining imitative responses.

Thus, the scientific literature on social modeling or observational learning reveals that this methodology may be a powerful tool for acquiring and maintaining relatively novel behaviors. Although the source of reinforcement has been questioned, several valid studies have been conducted which demonstrate the effectiveness of social modeling without observable external reinforcers being administered to either the observer or the model. The findings on vicarious reinforcement are still somewhat inconclusive. It appears that the effectiveness of vicarious reinforcement is dependent, to some extent, upon the learning
situation - e.g., if the observer expects to perform the modeled behavior, then vicarious reinforcement is facilitating. The evidence on direct reinforcement, however, is more conclusive. As might be expected, the research in this area indicates that direct reinforcement significantly increases the occurrence of imitative behavior.

The literature also suggests that behaviors established with social modeling are maintained at relatively high levels for long periods, whereas, behaviors developed with operant procedures are highly susceptible to extinction once treatment conditions have been removed. Therefore, the most efficient method for establishing new social behaviors appears to be to: 1) first model the behavior, 2) set the occasion for the observer to perform the modeled behavior and 3) provide direct reinforcement to the observer for emitting the desired behavior.

Attention

This section reviews the literature that deals with the dimensions of attention and attention training. The first part discusses the behaviors involved in paying attention and the possible physiological aspects of these behaviors. Studies which demonstrate efforts to increase attention are considered in part two.

The Dimensions Of Attention

The literature on attention suggests that attention is not a singular process but consists of several distinct behaviors. Berlyne (1960) described attention as being the processes which determine the degree or "intensity" to which the stimulus controls behavior and
determines which elements of the stimulus field will be "selected" for attention - i.e., will exert a dominating influence over behavior. Generally, these processes refer to the amount of time that the organism will attend to one stimulus (attention span) and the number of things the organism can attend to at any one time. In addition to attention span and selective attention, Alabiso (1972) lists a third aspect of attention referred to as focus. Wachtel (1967) describes focus as a beam of light which is considered to be more intense at the center of one's perceptual field. The closer stimuli are to the center of an individual's perceptual field the more likely the individual is to respond to it. In tests of attention, focus, according to Alabiso (1972), is directly related to the number of correct responses made. This is differentiated from span in that span refers primarily to the amount of time spent on a task rather than the type of performance.

Deutsch and Deutsch (1963) proposed a system in which selective attention is presented as a function of stimulus importance and state of arousal. In this system, the organism is bombarded by "signals" which vary in a dimension referred to as "height." The "height" of these signals is determined by their respective importance and is capable of pushing up some "level" to its own height. The organism acts upon or attends to the signals of greatest height (importance). Attention to these signals may be replaced by signals which consist of greater importance. Whether or not a signal is attended to also depends on the general level of arousal of the organism. For example, messages attended to while awake will not necessarily be acted upon
while drowsy or asleep. Only the most important messages (such as one's own name) will reach the sleeping individual. Messages have the potential of increasing the general level of arousal, in proportion to their importance.

Diagram to illustrate operation of proposed system. The interrupted horizontal line -I- represents the "level" of importance in the specific alerting system which is raised and lowered according to the incoming message. The solid horizontal lines represent levels of general arousal. At X, the organism is asleep and none of the actual messages produce alerting. At Y, the organism is drowsy and only some incoming messages produce alerting. At Z, the organism is awake. All messages could be alerted to, but the specific alerting system allows only b to be heeded. (Deutsch & Deutsch, 1963, p. 85).

Consideration has been given to the neurophysiological aspects of concentrating on one stimulus and "blocking" others. Inhibition is generally considered to occur through either habituation, process through which a stimulus ceases to produce a desynchronization of the electroencephalogram after repeated presentations (Krumholtz and Goodwin, 1966), or distraction, displacement of present stimuli of attention by more important stimuli. Experiments by Hernandez-Peon,
Scherrer, and Jouvet (1956) are reported by both Deutsch & Deutsch (1963) and Berlyne (1960) which demonstrate that inhibition results from the blockings by afferent fibers, at the level of the first sensory synapse, which prohibit transmission of this information to other sensory processes. In these studies, electrical activity was generated into the cochlear nucleus of cats where electrodes had been implanted. The experimenters reported a gradual decrease, during the course of the experiment, of the amplitude of the evoked response.

However, Horn (1965) conducted more recent studies which did not support these earlier findings. Brain cell responses of unanesthetized cats, when presented flashes of light in a series, did not vary consistently during the course of the experiment. No difference was recorded in the response to the last flash and the first in a series. As a result of these findings and similar ones found by Worden and Marsh (1963) and Hubel and Wiesel (1964), Horn concluded that, "Studies of evoked potentials in the sensory pathways and elsewhere have either failed to give any hint of the role of the sensory pathways in relationship to this behavioral phenomenon, or have yielded results that have seriously been contested (p. 199)."

According to Horn, the available experimental literature suggests that only a minority of cells in afferent pathways change when stimuli are repeated a number of times, but, on the other hand, a high proportion of certain cells in the brain stem, outside the afferent pathways but connected to them, weaken on repeating a stimulus only a few times. Both of these occurrences may be
accomplished by habituation of the behavioral response to the stimulus.

To date, (1975) most of the research that has been conducted to study attention has studied attention span. According to Berlyne (1960), attention in learning is directly related to attention span. That is, attention in learning is brought under the control of some particular stimuli from the entire stimulus field. Alabiso (1972) in a review of the literature on attention states that the research in this area has used span as a measure of the child's capacity for attending. Gale and Lynn (1972), recognizing attention to be a "polymorphous" concept, conclude that until its role can be described in greater detail, the vigilance task will remain the best measure of sustained attention.

Several investigators have attempted to study the developmental aspects of attention. Gale and Lynn (1972) used a vigilance task to study the sustained attention differences among 612 children, ranging in age from 7 to 13 years. While remaining in regular classroom groups of approximately 31, the subjects listened to 40-minute tapes of random numbers. Single digits, labeled 'wanted' signals, occurred at a variable interval rate of one per minute. Attention was assessed by having the subjects 'tick-a-square' for each letter and write each number. In order to ascertain the relationship between intelligence and attention and personality and attention, intelligence tests were administered to the 7 to 10 year sample and the Junior Eysenck Personality Inventory was administered to the 7 year olds only. The main and most obvious finding from this study was that performance
on this vigilance task improved with age ($p < .001$), with an acceleration in performance between ages 8 and 9 years. Other findings were: 1) 7, 8, and 12 year old girls performed better than same aged boys; 2) the correlations between vigilance and intelligence were negative and insignificant; and 3) the correlation between personality and vigilance were negative and insignificant.

The results of this study were consistent with those of several studies on attention reviewed by Alabiso (1972). It was concluded that attention appeared to be a multidimensional process consisting of learned behaviors, independent of intelligence and largely dependent upon the developmental level of the individual and the characteristics of the stimulus.

Stimulus characteristic is an aspect of attention emphasized by several researchers (Berlyne, 1960; Alabiso, 1972). In these studies the attributes of a test stimulus was manipulated so that its "holding power" was increased or reduced. That is, the particular properties of a stimulus would hold the attention of a subject for a longer period than that of a less intense stimulus. Alabiso (1972) reported two studies conducted by Berlyne (1950) where subjects presented two stimuli varying only in size and brightness, demonstrated a significant attention preference for the larger brighter stimulus. These results led to the conclusion by Berlyne that attention span was directly related to stimulus intensity. In learning theory terminology, behavior which has come under the control of one or more properties of a particular stimulus is considered to be under stimulus control (Ferster & Perrot, 1968).
Training Attending Behaviors

Whereas the experiments conducted by Berlyne (1950) achieved stimulus control of attention through the alteration of the text stimulus, more recent studies have extended this control with the introduction of operant procedures.

Staats, Staats, Schultz and Wolf (1962) used trinkets and edibles to extend the 'attention-span' of four year old pre-school children. The six subjects were equally divided into the two conditions of No Reinforcement - Reinforcement and Reinforcement - No Reinforcement - Reinforcement. Under the former condition, only social reinforcement or praise was given until the subject requested that the activity be terminated, then intermittent or primary reinforcers were given. In the second situation, reinforcement was given for the initial sessions, terminated, and reinstated when the subject indicated a desire to discontinue the activity. Sessions consisted of presenting word cards to set the occasion for reading or 'textual' responses. The words, initially presented out of context, were gradually put into sentences and eventually story form. The experimental conditions lasted for eight 45-minute sessions for each subject. Under the No Reinforcement condition for both groups, the experimenters observed extensive 'escape' behaviors on the part of the subjects and comparatively few, if any, textual responses were acquired. In contrast, under 'extrinsic' reinforcement as many as 17 textual responses were acquired and escape behaviors were greatly reduced or non-existent. Thus, it was concluded that the external reinforcement was effective in bringing the behavior of these subjects under
Redd (1972) examined the effects of various reinforcement schedules upon the development of stimulus control with profoundly retarded subjects. One girl and one boy, 13 and 11 years of age respectively, were placed individually in a playroom equipped with toys. Three different tasks required insertion of pegs, blocks or poker chips into canisters were presented at different times during each session. Each session was divided into six 4-minute periods so that each task was presented twice. Different schedules of reinforcement were assigned to each task: 1) pegs – contingent reinforcement (initially involved shaping); 2) chips – non-contingent reinforcement and 3) blocks – no reinforcement. Once stable responding had been established, probes were conducted which involved varying conditions, settings and reinforcement conditions in order to determine effects of various experimental variables. Extinction was then introduced and the entire study was repeated with reinforcement attached to different tasks. Continuous observation of the subjects revealed that stimulus control was obtained for the contingently reinforced task only. The experimenter reported that the attention spans (periods of continual responding) were at least 150 percent longer during contingent reinforcement than during other tasks. Average periods of uninterrupted responding for each subject are presented in the following Table.
AVERAGE PERIODS OF UNINTERRUPTED RESPONDING

<table>
<thead>
<tr>
<th>Subject Number</th>
<th>Contingent Reinforcement</th>
<th>Non contingent Reinforcement</th>
<th>Extinctions (No Reinforcement)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>13.90 seconds</td>
<td>.91</td>
<td>.30</td>
</tr>
<tr>
<td>2</td>
<td>16.00 seconds</td>
<td>.25</td>
<td>.70</td>
</tr>
</tbody>
</table>

Redd (1972) noted that stimulus control, as demonstrated in this study, was due not only to the presence of extrinsic reinforcers but also to the fact that the contingent task was paired only with contingent reinforcement and never with other reinforcement schedules.

While the efforts of the previous two experimenters were aimed at establishing stimulus control and thereby increasing continuous periods of responding, other attention training efforts have focused on reinforcing attending behaviors. Initially, these attempts were aimed at eliminating behavior incompatible with attention such as acting-out, tantrums, or general disruptiveness. Zimmerman and Zimmerman (1962) reported the effects of positive teacher attention and ignoring inappropriate behaviors on producing behavior conducive to classroom instruction. The authors reported the procedure followed with two 11-year old emotionally disturbed boys who were residents at a mental health treatment center. Although behavior topographies differed, both boys engaged in attention-getting, inappropriate behaviors in the classroom. In order to eliminate
these responses, the classroom teacher systematically ignored undesirable behaviors and rewarded with attention and various social reinforcers, such as praise, for the appropriate responses. As a result of these procedures, the authors reported that for both boys unproductive classroom behavior was considerably reduced and "... working more efficiently in class and making good progress."

Hall, Lund and Jackson (1968), using similar procedures, reported significant increases in the study behavior of primary grade pupils enrolled in regular first and third grade classes. Six subjects identified as having poor attending behaviors were observed by trained observers daily for 30 minute periods. Treatment consisted of observers cueing teachers when the target child was attending and the teacher providing contingent attention and social reinforcement. A reversal design was employed. The graphing of individual pupil behavior lead the experimenters to conclude that the experimental conditions were effective in increasing study behavior. Corresponding gains in academic achievement were also reported.

One of the most extensive experimental attempts to increase attention through rewarding attending behavior was conducted by Krumboltz and Goodwin (1966). Fourteen classroom teachers and twenty-eight second grade male pupils were observed for the application of reinforcement procedures and the exhibition of task-oriented behavior respectively. Seven of the teachers were trained in the application of operant procedures according to the Skinnerian model. The remaining seven teachers served as controls. From each classroom, two pupils, identified by the teacher as having poor attending
behaviors, were selected for study. Only one of these pupils was identified to the teacher as being a subject for study. Treatment consisted of the provision of social reinforcement (praise, smile, etc.) by the teacher for task-oriented behavior and the ignoring of non-task-oriented behavior. The experimenters hypothesized that teachers trained in principles of applying reinforcement would exhibit more behaviors according to this model than the controls. Secondly, they hypothesized that pupils in the classes of the experimental teachers would show more task-oriented behaviors than pupils enrolled in classes of the control teachers. An analysis of the observation scores revealed that the application of reinforcement procedures of the experimental teachers was not statistically significant over the controls. Similarly, the experimental pupils did not exhibit statistically significant more task-oriented behaviors than the control pupils. Negligible differences were found between identified and non-identified pupils. The authors concluded that the primary factor contributing to the lack of statistical significance in the predicted direction was the inconsistent application of reinforcement procedures by the experimental teachers. More intensive and precise teacher training was recommended.

While Krumboltz and Goodwin (1966) focused on increasing the attending behaviors of target students within regular classes, Packard (1970) attempted to increase the attention of an entire class through group contingencies. A special timer-light device was used by the teacher to record the attending behaviors of her class. The operation of this device involved the teacher switching it on when one
or more students, in her opinion, were inattentive. The timer stopped when the light was switched off (periods of total class attention). The subjects used in this study included entire classes of one kindergarten (32 pupils), one third grade (34 pupils), one fifth grade (25 pupils), and one sixth grade (30 pupils). The experiment was conducted during the reading period for kindergarten, third and fifth grade groups and during social studies for the sixth grade. These periods ranged from 30 to 50 minutes in length. Treatment involved the teacher instructing the students in the type of attending behaviors they were expected to exhibit. Also explained was the reward (points or play activity for kindergarten) the students would receive contingent upon meeting a certain criterion for attention. This criterion, although varying from class to class, was established at a slightly higher value based on previous stabilized performances. For example, if a class met criterion for three sessions, on the fourth session the criterion was raised 5 percent. Bonuses were given for exceeding the criterion level by 5 percent. The back-up reinforcers for the "point" groups consisted of special privileges such as sitting next to a friend or using the class typewriter. A reversal design was employed where reinforcements were discontinued during the fifth phase and reinstated in phase six. These procedures, according to the author, resulted in dramatic increases and maintenance of high percentages of attention for individual students. Stabilized class percentages for kindergarten and third grade were approximately 70 percent and for fifth and sixth graders, approximately 80 percent. Analysis of observation data revealed that the classroom teacher was
capable of reliably measuring and controlling individual student attention. Also observed was the fact that the attending behavior of individual children varied greatly depending on their own past performance and the present performance of a peer. The Instructions Only Phase (Phase 3) resulted in immediate and significant differences in the attending behavior for the two older groups. The effects of instructions appeared to be temporary. Only marginal effects were noted for kindergarten and grade three. The investigator attempted to explain the changes observed in the Instructions Only Phase in terms of individual teacher's 'personality or approach' and/or due to the student's level of sophistication. However, Bandura (1969) points out that instructions may have a facilitating effect upon establishing a desired behavior which may not be achieved through operant procedures alone. This occurrence appears to support the theory that students frequently need to be instructed in the kinds of behaviors they are expected to emit and then provided contingent reinforcement for exhibiting the desired behaviors.

In a more recent study, Hops and Cobb (1973) trained teachers to apply operant procedures in order to significantly increase the attending behaviors of their entire first grade classes. Experimental groups (N = 42) and one control group (N = 20) were used. The teachers were taught to pair social and non-social reinforcers, apply vicarious reinforcement for non-attending pupils rather than prodding them to pay attention, to utilize shaping procedures and to gradually fade nonsocial reinforcers as pupils progressed. Experimental conditions were in effect for twenty school days. As a result of these procedures
the experimenters reported a mean proportional "survival skill" gain of .12 for the experimental group compared to a control group gain of only .03. These scores indicated statistically significant treatment ($p \leq .0005$) and interaction ($p \leq .005$) effects. Similar results were obtained in reading achievement. The subjects were given, prior to the study, the Gates-MacGinitic Reading Readiness Test and, approximately four to six weeks after interventions, the Primary A battery. The experimental scores were statistically significant (treatment, $p \leq .0005$ and interaction $p \leq .005$) over the controls. It might be assumed that the greater success of this study over the one by Krumboltz and Goodwin (1966) is due largely to the systematic application of reinforcement procedures. It should also be noted, however, that Hops and Cobb (1973) employed nonsocial as well as social reinforcers. The effectiveness of nonsocial reinforcers over social reinforcers alone has been cited in previous studies (Broden, et. al., 1970 and O'Leary, et. al., 1969). The relatively short period of time (approximately eight to ten weeks) for pre- and posttesting of reading performance makes these results questionable. Both studies emphasized the importance of teacher training and the consistent application of reinforcement principles. Implied is the need for very specific teacher directions for particular classes of pupil behaviors.

Attention is considered to be a multidimensional process, involving at least three distinct behaviors. Why an individual attends to one stimulus and not another, is not completely understood. However, generally this behavior is related to the properties of the
stimulus and the state of the individual. The studies reviewed indicate that the observable behaviors of attention can be trained through behavior modification techniques. Also, there is some evidence, though limited, that such training in the classroom may simultaneously result in increased academic achievement.

Summary

The effectiveness of behavior modification procedures in developing and increasing desired social behaviors has been well established in the scientific literature. However, the most effective and expedient behavior change procedures are still debatable. Presently (1975), operant procedures, in the form of token economies, are probably the most prevalent techniques for behavior change. Although effective, limitations have been identified in these systems. Most important are the facts that behaviors established under these systems tend not to generalize to other conditions and are highly susceptible to extinction. Other positive reinforcement procedures, for the most part, have the same limitations and generally are less effective. On the other hand, the social modeling paradigm provides for the development of novel social behaviors which generally remain at high rates even after the termination of treatment conditions. The research suggests that the most effective method for establishing and maintaining desired social behaviors is through a combination of operant and social modeling procedures. Which behaviors should be changed is also a question. Although apparently consisting of several behaviors, there is evidence that attention can be
increased through increasing the reinforcing properties of the stimulus or directly reinforcing attending behaviors per se. Efforts to reinforce attending behaviors indicate an increase in attention and corresponding increases in academic performance as well.
Subjects were selected from a population of third-, fourth- and fifth-grade children. The students were enrolled in a public school located in a lower-middle to middle-class predominately white neighborhood in Columbus, Ohio. Each teacher was asked to rate the attending behaviors for each pupil in her class, using the Directive Teaching Instructional Management System Assessment Form. (For a discussion of how the assessment form is used see Instrument design pp. 60-62.) From each classroom nine students with the poorest ratings (poorest attending skills) were identified as possible target subjects.

Trained observers, observing in each classroom one-half hour daily for two weeks, collected attending data on the 27 identified students. (Data collection for attending behaviors is described in detail under Response Definition and Measurement Procedure and Recording Procedure pp. 62-67.) As a result of these procedures, fifteen students were selected for participation in this study. Criteria for selection included mean attending rates less than 50 percent and/or extremely erratic attending behavior.

Subjects were assigned to one of three treatment groups based on observation data and class assignments. Three subjects were selected
from the fifth grade, seven from the fourth grade and five from third grade. Each group contained at least one subject from each grade. Mean percentages of attending ranged from 32 percent to 74 percent. Students were grouped so that the groups mean attending percentages (number of attending intervals divided by total number of intervals observed for each group) did not differ significantly. Mean percentages for attending behaviors were 49 percent, 51 percent, and 49 percent for Groups I, II and III, respectively. All of the subjects were considered to have at least average ability with no serious behavioral or learning disorders. However, informal observation by the experimenter revealed that several of the subjects were experiencing at least mild academic retardation. Subject characteristics and group assignments are presented in Table 1.
### TABLE I

**SUBJECT CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Age</th>
<th>Grade</th>
<th>Sex</th>
<th>Average Percentages of Attending Behavior During Baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>GROUP I</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>9-6</td>
<td>4</td>
<td>M</td>
<td>33</td>
</tr>
<tr>
<td>2</td>
<td>12-4</td>
<td>5</td>
<td>M</td>
<td>56</td>
</tr>
<tr>
<td>3</td>
<td>9-5</td>
<td>3</td>
<td>F</td>
<td>59</td>
</tr>
<tr>
<td>4</td>
<td>11</td>
<td>4</td>
<td>M</td>
<td>50</td>
</tr>
<tr>
<td>5</td>
<td>10-7</td>
<td>4</td>
<td>M</td>
<td>45</td>
</tr>
<tr>
<td>Average</td>
<td>10.6</td>
<td></td>
<td></td>
<td>49</td>
</tr>
<tr>
<td><strong>GROUP II</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>9-3</td>
<td>3</td>
<td>M</td>
<td>62</td>
</tr>
<tr>
<td>7</td>
<td>10-6</td>
<td>4</td>
<td>M</td>
<td>32</td>
</tr>
<tr>
<td>8</td>
<td>11-2</td>
<td>5</td>
<td>M</td>
<td>56</td>
</tr>
<tr>
<td>9</td>
<td>9-10</td>
<td>4</td>
<td>F</td>
<td>48</td>
</tr>
<tr>
<td>10</td>
<td>8-11</td>
<td>3</td>
<td>M</td>
<td>47</td>
</tr>
<tr>
<td>Average</td>
<td>9.6</td>
<td></td>
<td></td>
<td>51</td>
</tr>
<tr>
<td><strong>GROUP III</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>10-8</td>
<td>4</td>
<td>M</td>
<td>37</td>
</tr>
<tr>
<td>12</td>
<td>11-7</td>
<td>5</td>
<td>M</td>
<td>74</td>
</tr>
<tr>
<td>13</td>
<td>8-11</td>
<td>3</td>
<td>M</td>
<td>45</td>
</tr>
<tr>
<td>14</td>
<td>8-10</td>
<td>3</td>
<td>M</td>
<td>41</td>
</tr>
<tr>
<td>15</td>
<td>10-9</td>
<td>4</td>
<td>M</td>
<td>52</td>
</tr>
<tr>
<td>Average</td>
<td>9.9</td>
<td></td>
<td></td>
<td>49</td>
</tr>
</tbody>
</table>

*Intelligence test scores were not available. Ability testing was reported in stanines. According to school principal, all target subjects scored within low-average to average range.*
Teachers

Three female teachers agreed to participate in this study when approached by the experimenter. They each had previously been recommended by the school principal based on teaching competency and general cooperativeness. Each teacher was 28 years of age and had seven years of teaching experience in elementary schools. The third-grade teacher reported having received previous training in behavioral approaches during a summer workshop conducted by university personnel. No formal training in behavioral methodologies was reported by the fourth- and fifth-grade teachers.

Setting

Subjects receiving the social modeling strategies were removed from the classroom and instructed in a separate classroom. This room was a regular classroom in size (approximately 22' x 30'), consisting of a large seminar table, a piano and folding chairs. For this study, only the pupil chairs, table and chalkboard were utilized. During the modeling sessions, the subjects and experimenter were seated at the table facing each other. Observations for attending behaviors were made in the respective classrooms. All observations were made in the morning during reading. The third grade class consisted of twenty-three students, fourth grade, twenty-eight students and fifth grade, twenty-nine students.

Instrument Design

The Directive Teaching Instructional Management System (DTIMS) assessment form was used by the teachers to rate each student in her
class on attending behaviors. The DTIMS Assessment Form was an outgrowth of another dissertation project (Milburn, 1974) which resulted in the identification of 138 specific social behaviors considered to be requisites for student school success. Clusters of behaviors were listed under the four major categories of Self-Related Behaviors, Environmental Care Behaviors, Interpersonal Behaviors, Task-Related Behaviors. The specific (138) behaviors were listed under the major categories as sub-categories. For example, Attending Behaviors and On-Task Behaviors were two sub-categories under the major category of Task-Related Behaviors. Within each sub-category specific social skills were identified and written in behavioral terminology, i.e., specifying the response and conditions under which response would occur. The specific social skills used in this study were:

**Attending Behavior**

S-TR-AT-0002-L1-S To look at the teacher when a lesson is being presented.
S-TR-AT-0004-L1-S To watch an audio visual presentation quietly.
S-TR-AT-0006-L1-S To listen to someone speaking to the class.

**On-Task Behavior**

S-TR-OT-0004-L1-S To do a seatwork assignment quietly.
S-TR-OT-0006-L1-S To work steadily for the required length of time.
S-TR-OT-0008-L1-S To ignore distractions from peers when doing a seatwork assignment.

For each skill the teachers were required to rate each child on a three point scale, ratings from one to three:

1. The student exhibits the skill at an acceptable level.
2. The student exhibits the skill occasionally at a lower-than-acceptable level.

3. The student never exhibits the skill.

Students obtaining the greatest scores were those considered by the teacher to be most deficient in these skills. (See Appendix B for sample assessment form.)

**Materials**

Materials for the observations included a Panasonic cassette tape recorder with earphones, clip-board and recording forms. The procedures for using these materials are described in the following section headed Response Definition and Measurement Procedure.

Equipment used in the social modeling teaching sessions was determined by the specific teaching strategies. For example, if the strategy was designed to teach children to attend to audio-visual media presentations, then audio-video equipment such as a television or film projector would be included. Therefore, the required materials have been listed on each teaching strategy. (See Appendix A for social modeling teaching strategies used.)

**Response Definition and Measurement Procedure**

Pupil behaviors recorded consisted of attending or non-attending responses (AT; NAT). Attending referred to general orienting behaviors such as eyes focused on the appropriate person or object, e.g., teacher, another pupil, text, video equipment, etc. On-task behaviors such as working on a worksheet and managerial behaviors such as following teacher directions to put away materials also were classified
as "attending." Behaviors which did not fall into the foregoing categories were considered "non-attending." That is, the student was not oriented toward the appropriate person or object, was not working on assigned tasks and generally was not following teacher's directions. The observation procedures involved the recording of pupil behaviors, teacher behavior and classroom structure.

Each subject was assigned a number from one through seven in each classroom. The observations began with the first subject being observed for ten seconds. After observing and recording the first subject, the observer then observed the second subject in the next ten seconds. This procedure continued through the last subject in that class and then the entire sequence was repeated. Each observation was conducted for a thirty-minute period.

Four categories were used to classify classroom structure: Individual (I), Transitional (T), Unstructured (U), and Group (G). Individual activities were characterized by the subject working independently on some teacher assigned activity. If the student was originally instructed by the teacher to work in a group but the student isolated himself, he was still coded as group but nonattending. Transitional referred to periods when the subject was changing from one activity to another. For example, the subject is putting away instructional materials, sharpening pencils, passing out papers or some similar managerial task. When the subject was involved in an unstructured activity, that interval was coded U. Unstructured activities may have been teacher directed but lacking in specific routine or organization. Examples were activities such as "free-time",...
snack and recess. The final category for classroom structure was
the Group activity. The Group code was used if the subject was
involved in either a large or small group as long as the subject
was working on some teacher assigned/directed activity.

Target subjects were observed for attending and nonattending
behaviors. Attending behaviors were divided into five subcategories
of: 1) attending to teacher (ATch), 2) attending to audiovisual
material (ATav), 3) attending to peer (ATp), 4) attending to text
(ATx) and 5) attending through compliance (ATco). For the sub-
categories one through four, attending was assumed if the subject was
exhibiting orienting behaviors. That is, the subject had his/her
head turned toward and eyes focused upon the specified person and/or
objects. Attending through compliance referred to the compliance
to specific teacher directions. For example, teacher directed the
subject to perform some managerial task such as sharpening pencil or
passing out papers. This may also pertain to periods when the subject
was moving about the classroom appropriately, according to some
immediate or on-going teacher instruction. Nonattending (NAT) was
coded whenever the subject was not attending according to the above
specifications. Nonattending included behaviors such as looking
around, being disruptive, reading or looking at materials other than
those assigned by the teacher.

Teacher behaviors were coded in the same ten-second interval
during which pupil behaviors were recorded. Approving (Ap) was
coded when the teacher expressed approval toward an individual or a
group of pupils. Examples of approving behavior might be a smile,
physical contact such as a pat or praise. Disapproval (D1) was coded when the teacher expressed displeasure with some pupil behavior. Displeasure might have been expressed through facial expression, physical contact and verbally. No response (NR) was recorded when the teacher was not reacting or interacting with pupils in any way. For example, teacher was working alone at desk or was writing on chalkboard. Verbal Interaction (VI) referred to periods when the teacher was talking to pupils but was not expressing approval or disapproval.

**Recording Procedure**

Each numeral on the observation form represented a ten-second interval and a target subject who had been assigned that numeral. (See Appendix C for sample recording form.) The observer looked at that subject and observed the subject and teacher for five seconds. During the next five seconds, the observer recorded the classroom structure, the subject's behavior and the teacher's behavior, according to the categories listed. The timing device used was a cassette tape recorder with an earphone attachment. On the tape was recorded, at ten-second intervals, numbers representing the intervals and target subjects. Each time the observer heard a number the observer looked at the corresponding subject and the teacher for five seconds. At the end of five seconds, the observer heard the word "record." This word was the observer's signal to stop observing and record the subject's and the teacher's behaviors and the classroom structure. Five seconds were allotted for recording. The observer then
heard the succeeding number, indicating that the observer should
then observe the subject assigned to that number. This sequence
continued until each target student had been observed. Observation
periods lasted for thirty minutes. The same number of observations
were made for each subject. If the thirty minute period ended before
a particular sequence had been completed, the observer continued
recording until that particular sequence had been completed. Students
were recorded only in their respective intervals. For example, if
subject number five (5) was absent, each time the observer heard
"five" on the cassette the observer waited out that interval and did
not record again until a number for a present student was given.
For any one interval only one teacher and one pupil behavior were
coded, even if it appeared that more than one behavior was occurring.
For example, a subject looking at the teacher present a lesson while
engaging in self-stimulating behavior such as tapping his foot was
recorded as attending (ATch). Observers were instructed to record
the behavior the subject was engaged in for the major portion of a
particular interval. If the subject spent the major portion of an
interval attending, even though there may have been momentary
instances of nonattending, that interval was coded as attending (AT).
Teacher behavior was also coded for each interval. When the teacher
behavior was directed to the subject being coded, the code was
circled. While recording, if an observer observed the same behaviors
and situations with succeeding students, a check (✓) was entered
rather than repeating the same symbols.
Observers were instructed to enter the classroom in as unobtrusive manner as possible and attempt to become part of the "furniture." Conversations between the observers and the classroom teacher were kept to an absolute minimum. Inquiries or approaches from the students to the observers were ignored. Recording was continuous with every effort made to avoid interruptions. Although the observers attempted to record from an inconspicuous location, in order to accurately record each target student, it occasionally was necessary for the observer to move about the classroom.

Five one-hour sessions prior to the commencement of this study were devoted to observer training. During the first session, the observation form and observable behaviors were discussed. In the remaining training sessions the observers practiced using the recording forms in regular classroom situations. While training, two observers were assigned to observe the same pupils at the same time in order to obtain interobserver agreement. The criterion for acceptable agreement between the two observers was set at 80 percent or above. Reliability was calculated by scoring each interval as agree or disagree and dividing the total number of agreements by disagreements plus the number of agreements (Bijou, Peterson, and Ault, 1968). One observer was assigned to observe daily in the third grade; another observer was assigned to conduct observations in the fourth and fifth grades. A third observer was used for interobserver agreement in all grades every third day.
Experimental Conditions

A multiple baseline design across groups was employed for implementing the social modeling treatment conditions. This design made possible the manipulation of one behavior, attending, across groups. Applying the experimental conditions across groups provided for the necessary controls and the power of replication. The exact point of intervention, i.e., social modeling strategies, was determined by the stability of attending rates. That is, for any one group, conditions were not changed if observation scores indicated a continuing increase or decrease in attending behaviors. Steady rates were assumed when the data points for five consecutive days fell generally at the same level without an indication that a continuing, systematic change was taking place.

Two successive baseline conditions were used. The first baseline involved no changes in the classroom procedures. The second baseline included potential social reinforcement in the classroom for attending behaviors. This condition was maintained as a constant throughout the study.

After two weeks of social modeling instruction, reversal to Baseline II conditions were instituted, where target subjects received only potential social reinforcement for attending in the classroom. This condition allowed for the assessment of the maintenance of these behaviors once instruction had been withdrawn. A hypothetical multiple baseline-reversal graph to show these relationships can be seen in Figure .
A hypothetical multiple baseline-reversal graph across conditions
Baseline I. During the baseline period, the teachers were instructed to conduct their classes in the usual manner. Observers recorded the attending behaviors of the fifteen target pupils according to the previously described procedures. Numeral cards were pinned on all the students in each class so that students believed they were all being observed. Once observers learned the target students, the numeral cards were discontinued. The baseline period, consisting of twelve school days, was terminated when stable rates were obtained. The stability criterion was based on the visual inspection of the data. Steady rates were considered to exist if the attending rates remained approximately at the same level throughout the baseline period, if a systematic steady decline in attending rates was observed, or if extremely erratic attending behaviors were observed throughout this period. The attending rates obtained during the first baseline were used to assign students to the respective social modeling groups.

Baseline II. Under this condition, the subjects were scheduled to receive potential social reinforcement (praise) from the classroom teacher. The teachers were given a list of social skills (see Appendix D) and told which skills would be taught in the modeling sessions. The teachers were instructed to look at the target students and make specific approving comments about their attending behaviors. For example, the teacher was to observe a target student looking at her while she was teaching a lesson and say, "Alice, I like the way you are looking at me." Other examples might have been, "Ray, I like the way you were listening" or "Renee, you are
doing a good job or working on your assignment." Specific praise statements were given to teachers. (See Appendix E.) Potential reinforcement in the classroom for attending behaviors was scheduled to continue beyond the Baseline II period for the remainder of the study for all subjects. The Baseline II period continued for nine school days.

**Social Modeling.** The social modeling sessions basically involved five elements: 1) the stating of the skill to be learned by the experimenter to the subjects; 2) the identification of the specific behaviors that comprise that skill; 3) the modeling of those behaviors by the experimenter; 4) the performing of the same behaviors by the subjects and 5) praise of the subjects by the experimenter for the proper performance. A typical social modeling teaching session would begin by assembling the students at the table, facing the experimenter, and the experimenter saying, "Today we are going to learn the best way to act in the classroom when something like a television program is being shown." The experimenter would then set the occasion for students to give reasons why one should sit still and attend to an audiovisual presentation. Questions such as, "Why should we be quiet? What is the best way to watch a film?" were asked. Through this discussion, specific behaviors were identified and written on the chalkboard. For example, sitting still, looking at the film, listening to the narrative and not speaking aloud. A television (or some other audiovisual equipment) was turned on and the experimenter demonstrated to students how to attend. This lasted for approximately two minutes. Following the
experimenter's modeling of this behavior, the students were asked to describe the experimenter's behavior. Behaviors such as sitting still, looking at the television, not talking out, etc., were listed. The television was then turned on again and students were asked to practice this behavior. Students were praised for exhibiting the appropriate behaviors. While the students were practicing this skill, the experimenter rated each student for the performance of the desired behaviors. For instance, if the behaviors for a particular session were a) sitting relatively still in seat; b) looking at the screen, speaker, etc.; c) listening to the narrative; and d) not speaking aloud, then the experimenter would observe each subject and rate the subject on each behavior. Ratings were on a two point scale - 1) the subject adequately performed the behavior and 2) the subject did not adequately perform the behavior. A second observer was used in alternate sessions to rate the subjects' behaviors in order to determine the reliability of the rating procedures. These procedures provided an assessment of the subjects' acquisition of the skills presented during the social modeling sessions.

The social modeling teaching strategies characterized the third phase of this study. These sessions consisted of small groups of five subjects each. They were conducted in the afternoon in an empty classroom according to the procedures described previously. The three modeling groups received the same instruction but the groups were staggered across time in order to provide for replication and group controls. The schedule for the social modeling sessions
was as described in Table 2.

### TABLE 2

**SOCIAL MODELING SCHEDULE**

<table>
<thead>
<tr>
<th>Week</th>
<th>Group(s)</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>1</td>
<td>12:30 to 1:00</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>12:30 to 1:00</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>2:00 to 2:30</td>
</tr>
<tr>
<td>6</td>
<td>11</td>
<td>2:00 to 2:30</td>
</tr>
<tr>
<td>7</td>
<td>III</td>
<td>12:30 to 1:00</td>
</tr>
</tbody>
</table>

Each training session lasted approximately thirty minutes. Three sessions were conducted so that a total of six strategies were presented to each group. Phase III lasted for five weeks; four weeks social modeling; one week (fifth) of observations only.

**Post Check.** Two weeks after the intervention procedures were completed, a follow-up post check was conducted. Observers recorded the attending behaviors of the fifteen target subjects in essentially the same manner as conducted during the baseline and intervention periods. Interobserver agreement was obtained also during the post check.

**Data Analysis**

The data analyzed in this investigation consisted of data collected during classroom observations and social modeling sessions. Observers in the classrooms recorded the number of intervals each target student was engaged in attending and nonattending behavior.
Rates of attending behavior were obtained for each subject and averaged into individual and group attending percentages.

In addition to pupil behavior, the observers recorded teacher behavior during the classroom observations. The number of praise and disapproving teacher behaviors were recorded and also computed into percentages. Classroom observation data for pupil behaviors are presented in Appendix F.

Data collected in the social modeling sessions are shown in Appendix G. Since this data was dichotomous in form, only percentages were calculated showing the percent of students acquiring the modeled behavior during the modeling sessions.

Due to the small sample size (N = 5 per group) and the lack of randomization, nonparametric statistics were employed to statistically analyze this data. This decision was based on the fact that this study severely deviated from the two major assumptions of parametric statistics, normality and homogeneity of variance (Kerlinger, 1967).

A major interest of this study was whether or not attending behaviors could be changed through these procedures. A pre and post analysis of the data was conducted. For this analysis, the Wilcoxon T test for correlated data was used. The Wilcoxon T test is a nonparametric alternative to the parametric t. Its use was based on the fact that the data was correlated; that is, the same subjects were measured prior to and after treatment. This test was used to analyze each group's pre- and posttest scores (ranks).

A second interest was the relative efficacy of the social modeling and operant (praise) procedures. A Friedman two-way analysis
of variance by ranks was applied to the three treatment conditions (Baseline II, Social Modeling plus Praise and Baseline III) for each group. The Friedman test, another nonparametric alternative, was used since the data analyzed was correlated. That is, the same instrument was used across conditions for the same group.

For the third hypothesis, the effect of three treatment methods was being assessed on three independent groups. This assessment required a one-way analysis of variance. The Kruskal-Wallis one-way analysis of variance by ranks was used because it was the most efficient nonparametric ANOVA test for independent samples available (Seigel, 1956). The question to be answered by this test was whether or not the attending behaviors of the subjects of one group differed significantly from another group.
CHAPTER IV
ANALYSIS OF THE DATA

Results

As a result of the previously described sample selection procedures, fifteen target subjects were identified, which consisted of five third, seven fourth and three fifth grade students. Daily observations in the regular classroom yielded mean attending percentages for each phase of this study: Baseline I, Baseline II (Praise), Social Modeling, Baseline III and Follow-up. Mean percentages of attending behavior for each subject were calculated by dividing the total number of attending intervals, i.e., number of intervals which the observer rated the subject as attending, by the total number of intervals observed. Mean attending percentages for each subject, listed by study condition and group, can be seen in Table 3. Mean group attending percentages, also shown in Table 3, were determined by dividing the total number of attending intervals for all subjects in the group by the total number of intervals observed.
### TABLE 3

**MEAN PERCENTAGES OF ATTENDING BEHAVIOR**

**FOR GROUPS I, II & III FOR EACH STUDY CONDITION**

<table>
<thead>
<tr>
<th>Subject Number</th>
<th>Baseline I</th>
<th>Baseline II</th>
<th>Social Modeling</th>
<th>Baseline III</th>
<th>Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP I</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>33</td>
<td>32</td>
<td>25</td>
<td>18</td>
<td>54</td>
</tr>
<tr>
<td>2</td>
<td>56</td>
<td>74</td>
<td>61</td>
<td>80</td>
<td>58</td>
</tr>
<tr>
<td>3</td>
<td>59</td>
<td>71</td>
<td>57</td>
<td>47</td>
<td>69</td>
</tr>
<tr>
<td>4</td>
<td>50</td>
<td>68</td>
<td>52</td>
<td>47</td>
<td>26</td>
</tr>
<tr>
<td>5</td>
<td>45</td>
<td>39</td>
<td>36</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>49</td>
<td>52</td>
<td>46</td>
<td>54</td>
<td>54</td>
</tr>
<tr>
<td>GROUP II</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>62</td>
<td>63</td>
<td>62</td>
<td>52</td>
<td>36</td>
</tr>
<tr>
<td>7</td>
<td>32</td>
<td>23</td>
<td>43</td>
<td>0</td>
<td>52</td>
</tr>
<tr>
<td>8</td>
<td>56</td>
<td>58</td>
<td>38</td>
<td>60</td>
<td>43</td>
</tr>
<tr>
<td>9</td>
<td>48</td>
<td>48</td>
<td>43</td>
<td>28</td>
<td>33</td>
</tr>
<tr>
<td>10</td>
<td>47</td>
<td>59</td>
<td>55</td>
<td>51</td>
<td>53</td>
</tr>
<tr>
<td>Average</td>
<td>51</td>
<td>52</td>
<td>48</td>
<td>43</td>
<td>44</td>
</tr>
<tr>
<td>GROUP III</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>37</td>
<td>47</td>
<td>34</td>
<td>39</td>
<td>63</td>
</tr>
<tr>
<td>12</td>
<td>74</td>
<td>72</td>
<td>76</td>
<td>91</td>
<td>76</td>
</tr>
<tr>
<td>13</td>
<td>45</td>
<td>42</td>
<td>64</td>
<td>51</td>
<td>61</td>
</tr>
<tr>
<td>14</td>
<td>41</td>
<td>76</td>
<td>67</td>
<td>59</td>
<td>24</td>
</tr>
<tr>
<td>15</td>
<td>52</td>
<td>45</td>
<td>63</td>
<td>51</td>
<td>41</td>
</tr>
<tr>
<td>Average</td>
<td>49</td>
<td>56</td>
<td>62</td>
<td>67</td>
<td>55</td>
</tr>
</tbody>
</table>

*Moved following Social Modeling Condition*
The Friedman two-way analysis of variance for correlated data was used to determine statistically significant differences among conditions for each group: Baseline II (Potential Reinforcement), Social Modeling and Baseline III (Potential Reinforcement) for each group. The results of these analyses are presented in Table 4.

### TABLE 4

**STATISTICAL ANALYSIS OF DIFFERENCES AMONG CONDITIONS FOR EACH GROUP UTILIZING THE FRIEDMAN TWO-WAY ANALYSIS OF VARIANCE BY RANKS**

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>$X^2$</th>
<th>Significance Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>4</td>
<td>3.50</td>
<td>NS</td>
</tr>
<tr>
<td>II</td>
<td>5</td>
<td>3.60</td>
<td>NS</td>
</tr>
<tr>
<td>III</td>
<td>5</td>
<td>0.40</td>
<td>NS</td>
</tr>
</tbody>
</table>

The Friedman test was applied in order to determine whether or not the null hypotheses number 1 was tenable. Hypothesis No. 1 was stated as:

1. There will be no statistically significant ($\alpha = .05$) differences in observable attending behaviors for elementary-grade subjects receiving praise prior to social modeling, praise plus social modeling and praise following social modeling as measured by an interval recording form. That is, the sum of
the ranks of the three conditions will be equal. As a result of the nonsignificant $\chi^2$ value for each group, hypothesis number 1 was found tenable. Since statistical significance was not obtained, additional statistical analyses to determine sources of differences were unwarranted under the present research design conditions.

Pre- and posttest measures of mean attending rates were also statistically analyzed, using the Wilcoxon Match-pairs signed-ranks test for each group. These results are presented in Table 5.

**TABLE 5**

**WILCOXON T ANALYSIS**

**OF MEAN PRE- (BASELINE 1) AND POSTTEST ATTENDING PERCENTAGES**

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>T Value</th>
<th>Z Value</th>
<th>Significance Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>4</td>
<td>4</td>
<td>.7114</td>
<td>NS</td>
</tr>
<tr>
<td>II</td>
<td>5</td>
<td>1</td>
<td>.0784</td>
<td>NS</td>
</tr>
<tr>
<td>III</td>
<td>5</td>
<td>1</td>
<td>.0787</td>
<td>NS</td>
</tr>
</tbody>
</table>

Hypothesis number two was stated as:

2. There will be no statistically significant ($\alpha = .05$) differences between pre- and posttest scores of observable attending behavior for elementary grade subjects receiving social modeling strategies for attending and positive reinforcement (praise) for attending as measured by an interval recording form. That is, the differences between the negative and
positive ranks will be equal to zero.

The findings presented in Table 5 show no statistically significant differences for any group between the two (pre and post) conditions. Null hypothesis number two was, therefore, found tenable. Although Groups II and III obtained probability scores approaching significance they were actually in opposing directions. Specifically, Group II had higher pre- than posttest scores and Group III had higher post- than pretest scores.

Comparison among groups also resulted in nonsignificance. Posttest scores of the three groups were analyzed, using the Kruskal-Wallis one-way analysis of variance. These procedures resulted in the following:

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>H Score</th>
<th>Significance Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group I (4) &amp; Group II (5) &amp; Group III (5)</td>
<td>2</td>
<td>2.52</td>
<td>NS</td>
</tr>
</tbody>
</table>

Hypothesis number three was stated as:

3. There will be no statistically significant ($\alpha = .05$) differences in mean observable attending scores as measured by an interval recording form for three groups of elementary-grade public school students receiving social modeling teaching strategies and
positive reinforcement in the classroom. That is, the sum of the ranks of the three groups will be equal. Null hypothesis number three was found tenable. These findings, as well as a visual inspection of the data presented in Table 3, indicated that further statistical analysis for this hypothesis was not warranted. That is, additional statistical analysis among/between groups also would have resulted in nonsignificance.

In order to determine the existence of statistical differences between the mean posttest and mean follow-up attending scores, the Wilcoxon matched-pairs signed-ranks test was applied to these data for each group. The results of these analyses can be seen in Table 7.

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>T Value</th>
<th>Z Value</th>
<th>Significance Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>3.5</td>
<td>.56</td>
<td>NS</td>
</tr>
<tr>
<td>11</td>
<td>5</td>
<td>7</td>
<td>.135</td>
<td>NS</td>
</tr>
<tr>
<td>111</td>
<td>5</td>
<td>5.5</td>
<td>.54</td>
<td>NS</td>
</tr>
</tbody>
</table>

Hypothesis number four was stated as:

4. There will be no statistically significant ($\alpha = .05$) differences between the posttest and follow-up scores of observable attending behaviors for subjects receiving social modeling and positive reinforcement
for attending as measured by an interval recording form. That is, the differences between the positive and negative ranks will equal to zero.

Differences between posttest and follow-up scores did not reach statistical significance for any group as can be seen in Table 8. Again, the null hypothesis was found tenable.

For further analysis, the mean attending percentages for each group were plotted on multiple concurrent graphs (Cooper, 1974) across conditions. (See Figure 2.) Readily evident in Figure 2 is the consistency of attending behaviors across conditions. Mean attending percentages ranged from 46 percent to 54 percent for Group I, from 43 percent to 52 percent for Group II and from 49 percent to 67 percent for Group III. Although all groups made slight gains (not statistically significant), these gains did not occur across the same conditions, thus, prohibiting the ability to attribute these changes to the treatment conditions. More specifically, the greatest mean attending percentages for Groups I and II occurred during Baseline III while the greatest mean attending percentages for Group II were observed during Baseline II.

Teacher Behaviors

Although Baseline II and III were intended to be intervention conditions (periods when target subjects received praise from classroom teachers for exhibiting attending behavior), as can be seen in Figure 3, teacher praise statements were either nonexistent or occurred at a minimal level. Figure 3 shows the number of praise statements made by each teacher across conditions. Since each
FIGURE 2. MULTIPLE BASELINE-REVERSAL GRAPH OF MEAN ATTENDING PERCENTAGES ACROSS CONDITIONS

- Represents range of attending behaviors
FIGURE 3. NUMBER OF TEACHER PRAISE BEHAVIORS ACROSS CONDITIONS
teacher had subjects in each of the three groups, the Social Modeling and Baseline III (Praise) conditions were combined for graphing teacher behaviors. The mean number of approving behaviors for each teacher is presented in Table 8.

**TABLE 8**

**MEAN NUMBER TEACHER APPROVING BEHAVIORS ACROSS CONDITIONS**

<table>
<thead>
<tr>
<th>Teacher Number</th>
<th>Grade</th>
<th>Baseline I</th>
<th>Baseline II</th>
<th>Social Modeling and Baseline III (Praise)</th>
<th>Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>1.0</td>
<td>1.8</td>
<td>1.09</td>
<td>.80</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>.20</td>
<td>2.44</td>
<td>1.0</td>
<td>0.0</td>
</tr>
<tr>
<td>3</td>
<td>5</td>
<td>1.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

It can be seen in Table 8 that although the mean number of approving behaviors were small, there were changes in these behaviors between conditions. Also seen in Table 8 is the continuous decline in mean approving behaviors for all teachers. In order to determine the statistical significance of the differences in approving behaviors, a Wilcoxon matched-pairs signed-ranks test was conducted between conditions for teachers 1 and 2. Except for two days, no approving behaviors were recorded for teacher 3. Statistical analysis was not possible for only two data points. The results of these analyses can be seen in Tables 9 and 10.
TABLE 9

WILCOXON T ANALYSIS OF TEACHER APPROVING BEHAVIORS FOR BASELINE I AND BASELINE II CONDITIONS

<table>
<thead>
<tr>
<th>Teacher</th>
<th>N</th>
<th>T Score</th>
<th>Z Score</th>
<th>Significance Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10</td>
<td>2</td>
<td>2.63</td>
<td>.008</td>
</tr>
<tr>
<td>2</td>
<td>9</td>
<td>1.5</td>
<td>2.50</td>
<td>.012</td>
</tr>
<tr>
<td>3</td>
<td>10</td>
<td>No analysis possible</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 10 shows that there was a statistically significant difference in approving behaviors between Baseline I and Baseline II for Teachers 1 and 2. Statistical differences between Baseline II and Social Modeling plus Baseline III conditions were found for Teacher I only in Table 10. Where statistical significance was found, Baseline II was the direction of the changes. That is, significantly more teacher approving behaviors were recorded during this period.
than the two adjacent periods.

Social Modeling Sessions

Data were collected by the experimenter and a second observer on subjects demonstrating the modeled attending behaviors during the practice phase of the modeling sessions. The data collected were dichotomous in type. That is, during the practice period the experimenter and assistant observed each student and noted by check (✓) whether the student was exhibiting the previously modeled behavior for the specified time. The results of this data collection are shown in Table 11. From Table 11 it is apparent that no student failed to demonstrate the desired behavior more than once for the total six sessions and that thirteen out of the fifteen students demonstrated the modeled behavior every time.
TABLE 11
ATTENDING BEHAVIORS
DEMONSTRATED IN SOCIAL MODELING SESSIONS

<table>
<thead>
<tr>
<th>Subject #</th>
<th>Group</th>
<th># of Sessions Attended</th>
<th># of Sessions Behavior Demonstrated</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>6</td>
<td>6</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>6</td>
<td>6</td>
<td>100</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>6</td>
<td>6</td>
<td>100</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>6</td>
<td>5</td>
<td>83</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>5</td>
<td>5</td>
<td>100</td>
</tr>
<tr>
<td>6</td>
<td>11</td>
<td>6</td>
<td>6</td>
<td>100</td>
</tr>
<tr>
<td>7</td>
<td>11</td>
<td>3</td>
<td>3</td>
<td>100</td>
</tr>
<tr>
<td>8</td>
<td>11</td>
<td>5</td>
<td>5</td>
<td>100</td>
</tr>
<tr>
<td>9</td>
<td>11</td>
<td>6</td>
<td>6</td>
<td>100</td>
</tr>
<tr>
<td>10</td>
<td>11</td>
<td>6</td>
<td>5</td>
<td>83</td>
</tr>
<tr>
<td>11</td>
<td>III</td>
<td>6</td>
<td>6</td>
<td>100</td>
</tr>
<tr>
<td>12</td>
<td>III</td>
<td>5</td>
<td>5</td>
<td>100</td>
</tr>
<tr>
<td>13</td>
<td>III</td>
<td>6</td>
<td>5</td>
<td>83</td>
</tr>
<tr>
<td>14</td>
<td>III</td>
<td>6</td>
<td>6</td>
<td>100</td>
</tr>
<tr>
<td>15</td>
<td>III</td>
<td>3</td>
<td>3</td>
<td>100</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>84</strong></td>
<td><strong>81</strong></td>
<td><strong>96</strong></td>
</tr>
</tbody>
</table>

For the total fifteen subjects and eighteen sessions, the overall percentage for exhibiting the previously modeled behavior was 96 percent.

**Inter-Observer Agreement**

Inter-observer agreements for data collection were taken during classroom observations of attending behaviors and social modeling sessions. Although the data reported, in each case, is that of the first observer, the independent observation recordings of the second observer were used to determine the reliability of the data of the first observer. Inter-observer agreement was calculated according to the following:
The percentages of inter-observer agreement, according to study conditions, for the classroom observations are presented in Table 13.

### TABLE 12

**INTER-OBSERVER AGREEMENT PERCENTAGES**

**FOR CLASSROOM OBSERVATIONS**

<table>
<thead>
<tr>
<th>Condition</th>
<th># of Sessions with Observer</th>
<th>Highest Agreement</th>
<th>Lowest Agreement</th>
<th>Average Percentage of Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline I</td>
<td>6</td>
<td>99</td>
<td>87</td>
<td>90</td>
</tr>
<tr>
<td>Baseline II</td>
<td>4</td>
<td>98</td>
<td>89</td>
<td>94</td>
</tr>
<tr>
<td>Social Modeling</td>
<td>8</td>
<td>86</td>
<td>96</td>
<td>93</td>
</tr>
<tr>
<td>Baseline III</td>
<td>2</td>
<td>96</td>
<td>96</td>
<td>95</td>
</tr>
<tr>
<td>Follow-up</td>
<td>3</td>
<td>91</td>
<td>82</td>
<td>88</td>
</tr>
</tbody>
</table>

Inter-observer reliability for the social modeling sessions is given in Table 13.

### TABLE 13

**INTER-OBSERVER AGREEMENT**

**FOR SOCIAL MODELING SESSIONS**

<table>
<thead>
<tr>
<th>Number of Subjects Observed</th>
<th>Number of Agreements</th>
<th>Number of Disagreements</th>
<th>Percentage of Observer Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>42</td>
<td>37</td>
<td>5</td>
<td>88</td>
</tr>
</tbody>
</table>
Discussion

The major objective of this study was to validate formal social skills teaching strategies, incorporating reinforcement and social modeling procedures. The scientific literature has thoroughly established the effectiveness of reinforcement (*Journal of Applied Behavior Analysis*, 1968 to present) and social modeling (Bandura, 1969) procedures in changing and maintaining observable social behaviors. By incorporating these techniques into specific teaching strategies, an effort was made to change the attending behaviors of fifteen elementary-grade subjects.

Data collected in the social modeling sessions revealed that 96 percent of the subjects exhibited the desired behavior to criterion following training. Three subjects failed to meet criterion in one session. Since the data collected were dichotomous in type and over a relatively short period of time, it is not known how long these behaviors would have maintained over time within this setting. Informal observations, however, tended to lend support to the procedure of providing instruction for behaviors desired. After approximately two social modeling sessions for each group, it appeared that a certain
"set" had developed where the subjects associated the room and the experimenter with attending and general appropriate behaviors. This was seen in the fact that subjects began exhibiting attending behaviors immediately upon entering the experimental room, whereas, previously they tended to engage in many inappropriate behaviors before training. Since no rewards were administered, these changes were largely attributed to the strategies being taught. During the instruction period, attending behaviors of subjects who tended to regress could easily be reestablished by statements such as, "Robert, will you show us the proper behaviors for watching a television program?" or "Terry, do you have attending eyes?" These observations suggested that if these strategies were taught in the classroom, conceivably, students would learn to associate the classroom with the appropriate attending behaviors and attending behaviors which were beginning to wane could be reinstated through the use of verbal cues from the teacher. Implied in these findings is that instruction through modeling may have been effective in producing the target responses as well as causing generalization to related behaviors. It was at least evident that the target students possessed attending behaviors within their repertoires.

The failure of these behaviors to generalize to the classroom is not surprising. Investigators of several studies reviewed in Chapter II (Meichenbaum, et. al., 1968; Glavin, et. al., 1971 and O'Leary & Becker, 1967) reported the failure of behavior to generalize from one setting to other non-treatment conditions. A paucity of
evidence exists in the literature demonstrating generalization across behaviors, settings, or time (Hanley, 1970). Although some studies have reported the maintenance of generalization of behaviors (Kazdin, 1973), few efforts have been made to program for generalization in study designs (Drabman, Spitalnik & O'Leary, 1973).

Procedures for maintaining behaviors once treatment conditions have been removed have been identified (Bandura, 1969; Kazdin & Craighead, 1973) which include changing the frequency or magnitude of the reinforcement, changing the form of the reinforcement, and changing the locus of reinforcement. Generalization in this investigation was attempted through changing the locus of reinforcement. Specifically, by programming reinforcing consequences (teacher praise) in the natural environment (classroom) for behaviors developed in the contrived setting (social modeling). Prior to the modeling condition, the teachers were given "Reinforcement Strategies" containing the specific skills to be taught and suggested praise statements. The teachers were instructed to praise students observed exhibiting these behaviors. It was expected that these praise statements would serve to reinforce the behaviors developed through modeling, thus, functioning as a mechanism for maintaining and/or increasing desired attending behaviors.

Mean teacher approving behaviors ranged from a low of .20 responses per observation during Baseline I to a high of 2.44 responses per observation during Baseline II. The increase in teacher praise during
Baseline II may have been due to experimenter instructions, initiating the reinforcement condition. Although statistically significant differences were found across conditions, these figures may be misleading. From Figure 2 it can be seen that teacher approving behavior was erratic. For example, Teacher 2 emitted twelve approving behaviors one day, four the following day and zero the third day. Research has shown that for operant procedures to be effective, they must be consistently and systematically applied (Hanley, 1970). In conversation with the experimenter, the teachers stated that they were trying to be positive but they were "finding little to praise". This was questionable since observation reports frequently showed high rates of individual pupil attending behaviors with no teacher approving behaviors. A more plausible explanation may have been that the teachers found the praise condition too contrived and preferred to resort to their old, familiar behaviors, although clearly ineffective with certain pupils. Another explanation might be that the teachers viewed these procedures as a possible indictment of their teaching competencies. Teachers generally prefer to believe that the classroom problems manifested by their pupils are beyond their immediate control. If attending behaviors had increased significantly as a result of these procedures, that would have suggested that the teachers should have been instrumental in developing these behaviors instead of expecting them to occur incidentally. The lack of facility in implementing operant procedures appears to be the most salient of possibilities. Despite the fact that one teacher (No. 1) reported previous training, the data indicating inconsistent and
Unsystematic applications cast doubt on her mastery of operant techniques. Certainly one must question the legitimacy of requesting teachers to perform behaviors where the only training is in the form of verbal instructions. Krumboltz (1966, p. 64) in a study with similar results suggested, "... future investigations should provide teachers a sufficiently long period of time for new responses to be learned and practiced before an attempt is made to measure their effect on pupil behavior." Apparently, praise behavior, in order to be effective in bringing about change, must be trained and sufficient opportunities provided to practice this behavior over long periods of time. Although teacher training was not a primary goal of this investigation, the implications are that change agents cannot simply rely upon instructions to the teacher (as typically given in inservice training) but extensive training coupled with ample opportunity to practice these behaviors in the natural setting and some incentives for the teacher are needed.

Instruction through social modeling resulted in the subjects producing the desired attending responses within the modeling settings. However, analysis of data collected in the classrooms showed no significant gains in attending rates. The failure of attending behaviors to increase was attributed largely to teacher behavior and generalization variables for which there were inadequate controls. Clearly, the modeling strategies were not powerful enough to effect change across settings without reinforcing consequences to maintain the behavior. The evidence suggests that the modeling strategies may have been instrumental
in producing the desired attending behaviors in the modeling setting. However, the efficacy of these procedures in increasing and maintaining the desired behavior in the classroom was not established.

Limitations and Sources of Error

The subjects used in this study (lower-middle-class; 14 white, 1 black) cannot be considered representative of the general population of elementary public school students. Elementary school populations differ greatly, resulting from factors such as socioeconomic background, ethnic background, cultural experiences, etc. In addition to these external factors internal variables such as mental, emotional and physical handicaps also contribute to pupil differences. While the social modeling strategies were apparently effective in facilitating attending behaviors in the modeling setting for the subjects of this study, it is not known what effect these strategies would have on greatly differing populations. The subjects of this study, while poor in attending behaviors, did possess the necessary prerequisite behaviors for the skills taught. They were able and willing to follow directions, sit appropriately and comply to the requests of the experimenter. Social reinforcement in the form of praise was sufficient to maintain these behaviors throughout the modeling condition. For subjects lacking in the prerequisite social skills, modifications (such as more primary reinforcers) of the procedures used in this study would be necessary.
The modeling procedures as presented in the Directive Teaching Instructional Management System Social Skills curriculum make certain assumptions regarding students' level of functioning. Participation in the modeling sessions required at least minimal language skills and the ability to imitate behaviors observed. Therefore, these study procedures would not appear applicable to severely handicapped individuals such as the autistic or severely mentally retarded. Generalization was also limited by the absence of randomization and selection procedures. Due to the rather small school population, it was not possible to find a sufficient number of students exhibiting the attending behaviors specified by the criteria of this study, i.e., mean attending percentages below 50 percent and/or highly erratic attending behaviors. A larger number of such students would have permitted the random selection of subjects as well as the random assignment to groups.

The teachers used in this study were those recommended by the school principal. Out of the four recommended, three agreed to participate. Teachers willing to participate in investigations of this nature are, conceivably, the more effective teachers and would produce changes irrespective of treatment. However, in this study there was no evidence of a biasing effect resulting from teacher efficiency. Teacher attitude, as evidenced by the low frequency of approving behaviors, did appear to affect the study results. As previously discussed, teacher behavior warranted greater controls.
Finally, daily observations conducted within a classroom could possibly have affected pupil attending behaviors. Ideally, these observations should have been conducted so that students were not aware that they were being observed. However, research in classrooms as well as the results of this study, indicate that the observers' presence was not a factor in pupil behavior recorded.

**Recommendations for Further Research**

Teacher behavior was a critical variable in the present investigation. Future studies might attempt to provide for greater controls through more extensive training in operant procedures. Such training should provide considerable opportunity for teachers to practice applying the praise behaviors consistently and systematically. Related research might consider identifying possible incentive systems for teachers and comparing the performance of teachers receiving the incentives to those not receiving incentives. Educators (Clark, 1971) have recognized the need for incentive systems in order to increase teacher effectiveness. Mager and Piper (1970), in their model for increasing performance, suggests that first the worker is trained, then given the opportunity to practice the learned behavior and finally provided reinforcers which will function to maintain that behavior. Research using Mager and Piper's model appears warranted.

The social modeling teaching strategies were taught by the experimenter in this study in order to avoid the variable of teacher
differences. Additional research is needed where trained classroom teachers use the strategies to teach the desired behaviors. The effectiveness or ineffectiveness of the teaching strategies in the social skills curriculum will not be conclusive until they have been implemented extensively by regular classroom teachers.

Expanding the study to include a larger sample, randomly selected, is certainly recommended for future research. A larger sample should include more teachers as well as more subjects. Future studies should be designed to include handicapped children such as the mentally retarded, learning disabled and behaviorally disordered. Handicapped children are frequently characterized as having deficit behavioral repertoires. The effects of social skill strategies on the behavior of handicapped children is of major importance. Such studies may be extended so that comparisons may be made between children considered average and children manifesting various handicapping conditions.

Implications for investigations related to mainstreaming are also evident. Using handicapped subjects (M.R., B.D. and L.D.), and approximately the same design of this study, i.e., teaching the behaviors in the special class and arranging reinforcing consequences for these behaviors in the regular classroom; a model may be developed for the smooth and successful transition of special students into mainstream education.

From the above, several research studies may be designed, incorporating either one or a combination of the variables mentioned.
Whatever the form, it appears imperative that investigations of efficient means for developing and maintaining desired social skills continue.

**Summary**

Interacting appropriately with others, with one's environment and with one's self formulate a class of behaviors typically referred to as social skills. Little doubt exists that children and adults must possess these skills, to some degree, in order to successfully function in today's society. In school, children must learn to follow directions, persevere, volunteer, cooperate, attend, etc. The failure to develop these and numerous other task-related and interpersonal behaviors may seriously limit the student's educational experience. Of interest, is whether or not these behaviors can be taught.

The scientific literature has shown repeatedly that certain behavioral approaches such as operant procedures and social modeling have been effective in developing and maintaining desired social behaviors. The most prevalent methodology for behavior change has been with operant techniques, specifically, token systems. Empirical evidence exists establishing the efficacy of token systems in developing/increasing a variety of classroom behaviors from attending to social interaction. Although effective, studies employing operant procedures have generally failed to demonstrate generalization across time, setting and/or behaviors.

Social modeling, another behavioral approach, is predicated on the process of an observer imitating a behavior exhibited by some
model. Although generally requiring more elaborate settings for implementation, modeling is considered by its advocates to be a more natural and, in some cases, superior paradigm for developing and maintaining novel behaviors. However, the combination of both social modeling and operant procedures are considered ideal for the most effective and lasting results in behavior change.

The principal objective of this study was to validate formal teaching strategies which utilized behavioral approaches to develop social behaviors. The social skills selected for this study were attending and on-task behaviors. This selection was based primarily on the results from predictive correlational studies which showed a positive correlation between these behaviors and achievement. Secondly, attending behaviors are highly valued in the classroom.

Fifteen elementary-grade (5 third, 7 fourth, and 3 fifth) subjects were identified as poor attenders based on mean attending percentages of 50 percent or below and/or highly erratic attending behaviors. The target subjects were assigned to one of three groups and subjected to three potential treatment conditions. Intervention consisted of teacher praise and social modeling. A multiple-baseline design with reversal conditions was employed where each group received the same treatment but intervention was staggered over time. These procedures allowed for the power of replication and group controls. The five phases of this study were as follows:

**Baseline I** - No changes were made in classroom conditions. Observations were conducted on attending behaviors.
Baseline II - Classroom teachers were instructed to praise students exhibiting attending behaviors. Observations continued. 

Social Modeling - In modeling sessions each group was taught strategies on attending and on-task skills. Praise and observations continued.

Baseline III - Same as Condition II.

Follow-up - Same as Baseline I.

For all conditions, trained observers, using an interval recording form, rated the attending behaviors of target subjects. Mean attending rates across conditions and groups were analyzed statistically. Data collection within the classroom also resulted in mean numbers of approving behaviors emitted by each teacher. Within the social modeling setting data-collection indicated whether or not the target behavior(s) was acquired. The following null hypotheses were proposed and analyzed statistically:

1. There will be no statistically significant (α = .05) differences in observable attending behaviors for elementary-grade subjects receiving praise prior to social modeling, praise plus social modeling and praise following social modeling as measured by an interval recording form. That is, the sum of the ranks of the three conditions will be equal.

2. There will be no statistically significant (α = .05) differences between pre- and posttest scores of observable attending behavior for elementary-grade
subjects receiving social modeling strategies for attending and positive reinforcement for attending as measured by an interval recording form. That is, the differences between the negative and positive ranks will be equal to zero.

3. There will be no statistically significant ($\alpha = .05$) differences in mean observable attending scores as measured by an interval recording form for three groups of elementary-grade public school students receiving social modeling teaching strategies and positive reinforcement in the classroom. That is, the sum of the ranks of the three groups will be equal.

4. There will be no statistically significant ($\alpha = .05$) differences between the posttest and follow-up scores of observable attending behaviors for subjects receiving social modeling and positive reinforcement for attending as measured by an interval recording form. That is, the differences between the positive and negative ranks will equal to zero.

All of the above hypotheses were found tenable.

Data analysis showed that although the target behaviors were exhibited 96 percent of the time in the social modeling setting, no significant increases in attending behaviors occurred in the classroom. The data also revealed that teacher approving behaviors peaked at Baseline II and gradually declined across the remaining conditions. Although changes in teacher praise statements were
observed, these behaviors were considered too inconsistent and unsystematic to be effective. These results (failure of classroom attending behaviors to increase) lead the experimenter to the following major conclusions:

1. Behaviors taught in contrived settings demand highly developed and well trained mechanisms in order to be instrumental in causing these behaviors to generalize to the natural environment.

2. In order to get teachers to emit unfamiliar behaviors in a desired manner, extensive training accompanied with practice in the natural setting and incentives for maintaining these behaviors over time are required.
APPENDIX A

SOCIAL MODELING TEACHING STRATEGIES
SOCIAL SKILL

TEACHING STRATEGY

Skill: The student looks at the teacher when he is presenting a lesson.

Social Modeling

1. Identify a need for the behavior through a classroom discussion. Discuss the students' need to watch the teacher to learn the material being presented. Have students contribute ideas to the discussion of what constitutes looking at the teacher during presentation. Ask questions such as: "Why is it important to look at the teacher during a lesson? If you are looking away at someone else, what might happen?"

2. Identify specific behaviors to be modeled, e.g.,
   1. Look at the teacher while he or she is presenting a lesson.
   2. Look at what the teacher points to during the lesson.

3. Model the behavior for the class. Assign one student to "play teacher" and to pretend he is teaching a lesson to the class. Sit in the student's chair, or where the rest of the class can see you easily, and model appropriate looking at the teacher. Ask students to describe your behavior. Reward appropriate responses with praise. For contrast you might combine appropriate looking with look out the windows, under the desk, at other students. Ask students to indicate which is good "looking" behavior by raising their hands for undesirable behavior and keeping them down for good behavior.

4. Have class practice the behavior. Teach a lesson and observe the looking behavior. Reward students who look at you, pointing out what the reward is for, i.e., "Thank you, Carla, for watching me so closely;" "Good watching, Margo;" "Tammie, you are very observant."

5. Maintain looking at the teacher through social reinforcement.
SOCIAL SKILL

TEACHING STRATEGY

Skill: The student watches an audio visual presentation by 1) sitting relatively still and 2) without speaking aloud.

Social Modeling

1. Identify a need for the behavior through a classroom discussion. Have students contribute reasons why one should sit still and be quiet during a movie or other similar event, including the possibilities of learning new information and consideration of others who want to watch. Ask questions to stimulate discussion. For example, when we are watching a movie, what happens if someone starts wiggling around in his seat, getting up and down, or talking to his neighbor? Why should we be quiet? What if we do have to get up and leave? What is the best way to act? What are some of the things people do during programs which make it hard for other people to watch?".

2. Identify specific behaviors to be modeled, e.g.,
   a) sitting relatively still in seat
   b) looking at the screen, speaker, etc.,
   c) listening to the narrative,
   d) not speaking aloud.

   Write key words or phrases on the board.

3. Model the behavior for the class. Show a movie or turn on the television. Take a seat among the students and show them the proper way to watch presentation. For contrast, show some inappropriate things to do during a movie or other similar event. Ask students to describe your behavior. Praise those students whose responses include the elements identified.

4. Show a movie or television show. Ask the class to practice watching properly. Before the class or target students are to go to a movie, play or similar event, role play appropriate behavior again and review the specific appropriate and inappropriate ways to behave.

5. Observe the students and reinforce with praise those who sit still and watch quietly.

6. Maintain the behavior through reinforcement.
Social Skill

TEACHING STRATEGY

Skill: The student demonstrates that he has listened to the person speaking by repeating some of what the person has said (i.e., the main idea).

Social Modeling

1. Identify a need for the behavior through a classroom discussion, illustrating story etc. Have students contribute ideas. Help students identify what listening is, why listening is important, and how to remember things they have heard.

2. Identify specific behavior to be modeled.
   a) listen to the person speaking to the class
   b) remember what is said so you can repeat or discuss it.

3. Model the behavior for the class. Assign a student or aide to speak to the class. Sit at one of the student's desks and listen to the speaker. Have the speaker ask questions to which you can respond. Ask the students to describe your listening behavior. Praise students who describe your behavior accurately.

4. Have class practice the behavior. Speak to the class and have them listen to you.

5. Ask students to repeat what you have said and praise those students who respond adequately, demonstrating that they have listened.

6. Maintain listening behavior through reinforcement.
Skill: When given an assignment to complete at his seat, the student works without speaking aloud.

**Social Modeling**

1. Identify a need for the behavior by having students tell things which make it easier for them to work. Students might be asked questions such as, "Suppose you are working hard at your desk and someone else starts talking. What happens to your train of thought?" What are some reasons for sitting quietly in your seat?"

2. Identify specific behaviors to be modeled. When given an assignment to do at your seat, sit at your seat and work quietly without talking out loud.

3. The teacher may choose a student to model this behavior for the others by giving him a specific assignment to work on and asking him to show how he would follow the rules about working quietly at his desk. She will ask other students to describe his appropriate behavior. Students who make good responses should be praised. For contrast, teacher may want to choose another student to demonstrate improper behavior. Praise those students who identify the distracting elements.

4. Have everyone in the class practice good seatwork behavior by giving each student an assignment to do at his seat.

5. Praise students who carry out the assignment quietly at their desks without talking to others.

6. In order to maintain good work habits, the desired behavior must be reinforced when it occurs.
SOCIAL SKILL

TEACHING STRATEGY  

CODE S-TR-OT-0006-L1-Lm

Skill: The student, when given an assignment to work on, will work steadily for the length of time required by the teacher.

Social Modeling

1. Initiate a class discussion about the need for working on an assignment steadily for the length of time required by the teacher. Hold the discussion following a time when this behavior should have been exhibited. Begin by praising several students for exhibiting the desired behavior, e.g., "Samantha, you worked on that assignment for the entire 10 minutes. I really appreciate that"; "You worked the whole 15 minutes without stopping. Fantastic!" Next, ask the students to identify reasons for working on an assignment. Write the reasons on the blackboard.

2. Identify specific behaviors to modeled. When given an assignment, the student decides what materials and equipment he needs to do the assignment, gathers the needed materials together, gets himself to the appropriate location, e.g., his seat, the listening booth, the library, etc., begins to work on the assignment, continues working on the assignment for the required time.

3. Use filmstrips, records and/or reading materials to provide models of working steadily for the required time.

4. Model the desired behaviors for the class. The teacher may prepare a tape recording of directions for typical classroom assignments. Example: Put the following on a tape and play it in the classroom. Model all of the desired behaviors. "Work the math problems on your worksheet. You will have 10 minutes to work." (Two minutes of blank tape during which specific behaviors are modeled.) "Put your math work away and get ready for reading." Have the students identify the specific behaviors exhibited. Students responding correctly should be praised. Have one or more students model this behavior for the rest of the class by giving him (them) directions. The rest of the class will observe and identify the desirable behaviors. The teacher should praise appropriate responses.

5. Have the class practice the behavior by giving them an assignment on which to work for a specified time.

6. Sustain working steadily for a specified time by reinforcement.
TEACHING STRATEGY

Skill: When presented with potentially distracting actions or verbalizations from peers while doing a seatwork assignment, the student will ignore the distractions by not responding and continuing with his work.

Social Modeling

1. Determine through a classroom discussion a need for working and ignoring distracting stimuli. This discussion may follow a puppet show displaying how difficult it is to work with distractions. Students can contribute ideas for ways to handle distractions from inside or outside the classroom. Write key words on board.

2. Identify specific behaviors to be modeled, e.g., Student will continue doing his work and not respond to distracting actions or verbalizations from peers.

3. Model behavior for the class, e.g., Teacher may take the role of a student working and ignoring another student who whispers to him, pokes him, or otherwise attempts to distract him. Students will identify elements of desired ignoring behavior. Students contributing ideas should be praised.

4. Have the class take turns being the student doing work and the ones who attempt to distract him. Make sure each student has an opportunity to practice the appropriate behavior.

5. Praise students who exhibit the desired ignoring behavior during the role playing situation.

6. In order to have the desired behavior continue, reinforce it when it occurs in the classroom.

© 1973 by Thomas H. Stephens
APPENDIX B

SOCIAL SKILLS ASSESSMENT FORM
Class Profile Form No. 4: Task Related

Directions: Circle number in box corresponding to the student's level of performance on each skill. Refer to Assessment Task pages in the Social Skills Manual.

Key: 1. Student exhibits the skill at an acceptable level.
2. Student exhibits skill occasionally at a lower-than acceptable level.
3. Student never exhibits the skill.

<table>
<thead>
<tr>
<th>Student Name</th>
<th>AT-0002</th>
<th>AT-0004</th>
<th>AT-0005</th>
<th>AT-0008</th>
<th>AT-0010</th>
<th>AT-0012</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
</tbody>
</table>
DTIMS SOCIAL SKILLS ASSESSMENT

Class Profile Form No. 4: Task Related (cont.)

<table>
<thead>
<tr>
<th>Student Name</th>
<th>IW-0004</th>
<th>IW-0005</th>
<th>OT-0002</th>
<th>OT-0004</th>
<th>OT-0005</th>
<th>OT-0006</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
</tbody>
</table>

Note: The numbers in the table represent the assessment scores for each task.
### DTIMS Social Skills Assessment

**Class Profile Form No. 4: Task Related (cont.)**

<table>
<thead>
<tr>
<th>Student Name</th>
<th>OT-0010</th>
<th>OT-0012</th>
<th>PF-0002</th>
<th>Pr-0004</th>
<th>PF-0006</th>
<th>PF-0003</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
<tr>
<td></td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1 2 3</td>
</tr>
</tbody>
</table>
APPENDIX C

OBSERVATION RECORDING FORM
<table>
<thead>
<tr>
<th>SUBJECTS</th>
<th>TOTAL ATTENDING BEHAVIORS</th>
<th>TOTAL INTERVALS OBSERVED</th>
<th>TOTAL NON-ATTENDING BEHAVIORS</th>
<th>% ATTENDING BEHAVIOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TEACHER APPROVAL**

<table>
<thead>
<tr>
<th>Symbols</th>
<th>Total No. Observed</th>
<th>Total Intervals Observed</th>
<th>Percent Intervals in which Behavior Observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VI</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[
\text{AP} = \frac{\text{AP} + \text{DI} + \text{NR} + \text{VI}}{4} \\
\text{AP} + \text{DI} + \text{NR} + \text{VI} \\
\]
IMPERATIVE SKILLS

SOCIAL

Major Category: TASK RELATED
Sub-Category: ATTENDING BEHAVIOR

S-TR-AT-0002-L1-S To look at the teacher when a lesson is being presented
S-TR-AT-0004-L1-S To watch an audiovisual presentation quietly
S-TR-AT-0006-L1-S To listen to someone speaking to the class
S-TR-AT-0008-L1-S To listen to assignment directions
S-TR-AT-0010-L1-S To listen to the answer of a question
S-TR-AT-0012-L2-S To look at the chalkboard for assignment directions

© 1973 by Thomas H. Stephens
IMPERATIVE SKILLS

SOCIAL

Major Category: TASK RELATED
Sub-Category: ON TASK BEHAVIOR

S-TR-OT-0002-L1-S
To sit straight at desk when required by teacher

S-TR-OT-0004-L1-S
To do a seat-work assignment quietly

S-TR-OT-0006-L1-S
To work steadily for the required length of time

S-TR-OT-0008-L1-S
To ignore distractions from peers when doing a seatwork assignment

S-TR-OT-0010-L1-S
To discuss academic materials with peer when appropriate

S-TR-OT-0012-L1-S
To change from one activity to another when required by the teacher
APPENDIX E

SOCIAL REINFORCEMENT STRATEGIES
PLEASE NOTE:

This page not included in material received from the Graduate School. Filmed as received.

UNIVERSITY MICROFILMS
SOCIAL SKILL

TEACHING STRATEGY

Skill: The student watches an audiovisual presentation
1) sitting relatively still and
2) without speaking aloud.

Social Reinforcement

Identify by name and praise aloud the target student(s) when observed watching an audiovisual presentation quietly. Tell the student what he is being praised for. "Nancy, you are watching very quietly. Thank you;" "Janie, you did a good job of sitting still during the movie." In order not to disrupt the ongoing program, immediate social reinforcement may need to be limited to nods, smiles, pats on the back.

Cue the appropriate behavior in the target student if he isn't watching by reinforcing another student sitting near him for watching carefully and quietly. Reinforce target student immediately when he begins to watch the T.V., movie, or other presentation quietly.

Sometimes accompanying social reinforcement with a tangible reinforcer such as a token of some sort or even a piece of candy or small cookie will help to increase the behavior of sitting still and watching quietly. This is particularly useful in a situation such as this where the use of verbal praise may be disruptive.
Social Skill

TEACHING STRATEGY

Skill: The student demonstrates that he has listened to the person speaking by repeating some of what the person said (i.e. the main idea)

Social Reinforcement

Identify by name and praise out loud target student when he has demonstrated he has listened to a person speaking to the class by repeating some of what the person has said when asked, by asking knowledgeable questions about what the person has said or by discussing what was said. Praise specific behaviors i.e., "Thank-you for listening, Jane."

Cue a student who does not appear to be listening while someone is speaking by remarking how nicely a student in his close proximity is listening to the speaker. Then reinforce the student immediately upon his assuming the appearance of listening. Accompany social reinforcement with more tangible reinforcement if social reinforcement is not sufficient to maintain listening behavior.
SOCIAL SKILL

TEACHING STRATEGY

Skill: When given an assignment to complete at his seat, the student works without speaking aloud.

Social Reinforcement

When target student is observed working silently on an assignment, he will be praised aloud by name. Specific behaviors should be mentioned. "Stan, good quiet work;" "Audrey, it makes me happy to see you working so quietly;" "I like the way Greg is sitting quietly and working." Appropriate behavior may be cued in the target student by praising others in the class who are sitting and working quietly. Watch for the behavior to occur in the target child and be sure to reinforce it.

In addition to praise, some kind of tangible reinforcer such as points, tokens, or checkmarks might be given to students at first to increase sitting and working quietly. A 3x5 card may be placed on the student's desk. The teacher can give check marks or punch holes in the card when the student is working appropriately, giving praise at the same time. The checkmarks or punches can be exchanged for something the student wants.
SOCIAL SKILL

TEACHING STRATEGY

Skill: The student, when given an assignment to work on, will work steadily for the length of time required by the teacher.

Social Reinforcement

When the target student is observed working steadily on an assignment for a specified length of time, praise him out loud and by name. Attention should be directed to specific actions, e.g., "Hal, thank you for working on your math for the entire 20 minutes."

Working steadily for a specified length of time can be cued by praising others near the target child who are exhibiting the desired behavior. Watch for steady working in the target child and reinforce it when it occurs.

If social reinforcement is insufficient to elicit working on an assignment for a specified time, pair social reinforcement with tangible reinforcement such as points, checks, tokens, etc., which may be exchanged for something desired by the student.
SOCIAL SKILL

TEACHING STRATEGY

Skill: When presented with potentially distracting actions or verbalizations from peers while doing a seatwork assignment, the student will ignore the distractions by not responding and continuing with his work.

Social Reinforcement

When the target student is observed ignoring distracting stimuli by not responding and continuing with his work, he should be praised. Teacher may praise him out loud or take him aside depending on child and situation. Identify specific actions, e.g., "Matt, I'm really glad to see you working and not paying attention to the noises around you." (Taking Brenda aside). "Brenda, I know John has been bothering you. You are doing so well continuing with your work and not paying attention to him." (Teacher should be careful not to reinforce student creating the disturbance by giving him attention for his misbehavior).

Ignoring of distracting stimuli can be cued in target student by praising others close to the target child who are successfully ignoring distracting events. When the target child shows indications of appropriate behavior, reinforce him, also.

Note: If social reinforcement in the form of praise, attention, smiles, winks, etc., is not sufficient to increase the desired behavior, it may be necessary to pair social reinforcement with tangible reinforcement, e.g., chips, coupons, tokens, stars, etc., to be exchanged for something the child wants.
APPENDIX F

CLASSROOM OBSERVATION DATA
### CLASSROOM OBSERVATION DATA

**NUMBER OF ATTENDING INTERVALS DIVIDED BY TOTAL INTERVALS OBSERVED**

<table>
<thead>
<tr>
<th>Social</th>
<th>Subject</th>
<th>Baseline I</th>
<th>Baseline II</th>
<th>Modeling</th>
<th>Baseline III</th>
<th>Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP I</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>40/122</td>
<td>41/129</td>
<td>35/141</td>
<td>16/94</td>
<td>52/96</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>60/107</td>
<td>69/93</td>
<td>55/90</td>
<td>167/210</td>
<td>73/126</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>99/167</td>
<td>67/95</td>
<td>104/183</td>
<td>54/116</td>
<td>62/90</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>51/101</td>
<td>79/117</td>
<td>66/126</td>
<td>49/105</td>
<td>19/72</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>43/96</td>
<td>81/210</td>
<td>53/146</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>293/593</td>
<td>337/644</td>
<td>313/686</td>
<td>286/525</td>
<td>206/384</td>
<td></td>
</tr>
<tr>
<td>Mean Group</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage</td>
<td>49</td>
<td>52</td>
<td>46</td>
<td>54</td>
<td>54</td>
<td></td>
</tr>
</tbody>
</table>

| GROUP II |         |            |             |          |              |           |
| 6       | 130/209 | 125/198    | 66/107      | 59/114   | 26/72        |           |
| 7       | 36/111  | 29/124     | 36/84       | 13/114   | 50/96        |           |
| 8       | 66/117  | 66/114     | 68/178      | 125/210  | 92/214       |           |
| 9       | 53/111  | 56/117     | 53/123      | 32/114   | 24/72        |           |
| 10      | 79/169  | 118/200    | 80/145      | 57/111   | 61/116       |           |
| Average | 364/717 | 394/753    | 303/637     | 286/663  | 253/570      |           |
| Mean Group |       |            |             |          |              |           |
| Percentage | 44       | 52         | 48          | 43       | 44           |           |

| GROUP III |         |            |             |          |              |           |
| 11       | 34/93   | 62/131     | 56/166      | 40/102   | 33/52        |           |
| 12       | 87/117  | 108/151    | 181/237     | 236/258  | 152/200      |           |
| 13       | 57/126  | 88/210     | 111/173     | 32/63    | 60/98        |           |
| 14       | 68/166  | 111/147    | 106/159     | 48/81    | 29/120       |           |
| 15       | 48/93   | 55/123     | 66/105      | 52/102   | 39/96        |           |
| Average  | 294/595 | 424/762    | 520/840     | 408/606  | 313/566      |           |
| Mean Group |       |            |             |          |              |           |
| Percentage | 49       | 56         | 62          | 67       | 55           |           |
APPENDIX G

SOCIAL MODELING SESSIONS DATA
### SOCIAL MODELING SESSIONS

#### SUBJECT

<table>
<thead>
<tr>
<th>GROUP 1</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Skill**

| AT-02 | AT-04 | AT-06 | OT-04 | OT-06 | OT-08 |

#### GROUP II

<p>| | | | | | | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Skill**

| AT-02 | AT-04 | AT-06 | OT-04 | OT-06 | OT-08 |

#### GROUP III

<p>| | | | | | | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Skill**

| AT-02 | AT-04 | AT-06 | OT-04 | OT-06 | OT-08 |

<table>
<thead>
<tr>
<th>Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>7</td>
</tr>
<tr>
<td>8</td>
</tr>
<tr>
<td>9</td>
</tr>
<tr>
<td>10</td>
</tr>
<tr>
<td>11</td>
</tr>
<tr>
<td>12</td>
</tr>
</tbody>
</table>

**✓** Student demonstrated desired behavior following instruction.

**-** Student did not demonstrate desired behavior following instruction.

**☐** Student absent.


