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BOWLES, PAUL E., JR. The efficacy of the Bug-in-the-Ear Technique in Training Teachers as Mediators of Behavior Modification. (1974)
Directed By: Dr. Rosemary O. Nelson. Pp. 55

In the past, training of mediators in behavior modification principles and techniques centered around clinical settings and involved parents and institutional staff as the mediators. More recently, interest has grown in training teachers as mediators of behavior modification in the classroom. The primary types of training have been inservice workshops, in-class signaling, and video-taped feedback. Earlier success in clinical settings with the "bug-in-the-ear" (BIE) training of parents suggested that this technique might be useful to supplement teacher training workshops. The BIE is a portable radio and ear piece worn by the teacher. The experimenter broadcasts instructions to the teacher from a portable booth while observing the teacher's behavior through a one-way mirror.

The purpose of the present study was to determine if teachers' in-class behaviors could be changed as a result of workshop training and/or BIE training subsequent to the workshop. The workshop consisted of six two-hour sessions, which included lectures on the behavioral model (antecedents, behaviors, consequences), behavior modification techniques, and their application to problems in the classroom. Each teacher was also required to do a case study on one behavior in her classroom.

In Phase I, pre- and post-workshop tests, consisting of 20 multiple choice questions were given to the thirteen teachers who participated in the workshop, and to a control group of five teachers who did not participate. Analysis of variance of these test scores indicates that the workshop produced significantly higher scores in

the experimental group. Thus the workshop successfully increased teachers' academic knowledge of behavior modification.

In addition to the tests, another dependent measure was pre- and post-observations of teacher classroom behavior. The behaviors observed by a time sampling method included prompts, appropriate and inappropriate verbalizations contingent on inappropriate behavior, contingency statements, and positive (reinforcing) verbalizations. An analysis of variance revealed no significant differences between the experimental and control groups on the observed in-class behaviors as a result of the workshop.

In Phase II, the experimental group was divided into two groups of four: one group received BIE training; the second was used as a control group. The Phase I control group was used as a control in Phase II. BIE training consisted of two hours of experimenter prompting of teacher in-class behaviors, especially prompts, contingency statements, and praise. A post-treatment test and observation period indicated that the experimental group remained unchanged in their academic knowledge of behavior modification, but made significant increases (over the control groups) in numbers of praises and contingency statements given in the classroom. Theoretical explanations as well as implications for inservice workshops and future research are discussed.

THE EFFICACY OF THE BUG-IN-THE-EAR TECHNIQUE
//
IN TRAINING TEACHERS AS MEDIATORS
OF BEHAVIOR MODIFICATION

by

Paul E. Bowles, Jr.

A Thesis Submitted to
the Faculty of the Graduate School at
The University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree
Master of Arts

Greensboro
1974

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ACKNOWLEDGEMENTS

I would like to thank Dr. Rosemary Nelson, my thesis adviser, for her encouragement and guidance in the conception and execution of this thesis. My appreciation also goes to the members of the thesis committee, Dr. Ernest Lumsden and Dr. Jacquelyn Gaebelein, for their contributions to this work. Leroy Delionbach, Patricia Santoro, and Elaine Talbert assisted in conducting the workshop, and their efforts are greatly appreciated. Special thanks go to Mrs. Sarah Smith, Director of the Title VI Project for the Guilford County School System for providing the forum for the thesis and for giving continued support for research in this area. The principals and teachers in the Title VI Project are to be commended for their patient cooperation during this entire study.

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INTRODUCTION

One of the basic assumptions of behavior modification is that behavior is a function of the environment. Therefore, most behavior modification that is done with children involves the training of persons who are influential in the child's naturalistic environment. These persons, such as parents and teachers, are referred to as mediators, and as such (1) have control over the individual's reinforcers, and (2) are able to use these reinforcers contingently (Tharp and Wetzel, 1969). As a part of the child's environment, the mediator contributes to the maintenance of the child's behavior, whether it is appropriate or inappropriate; a prerequisite, therefore, to changing the child's behavior is a change in the mediator's behavior.

In the past, training of mediators centered on the triadic model of consultant-parent-child. The training was conducted on an individual basis with each mediator, and involved some type of signal system informing the parents as to the appropriate times to prompt or to reinforce desired behavior changes, or to punish or ignore undesired behaviors. Hawkins, Peterson, Schweid and Bijou (1966) used hand signals from the experimenter to train a mother to correctly consequence her son's objectionable behaviors. Sanders (1966) used a bug-in-the-ear (BIE) radio communication to a parent who was learning to manage the behavior of her clinging two-and-a-half year old. This was accomplished in the clinic setting but could be used just as easily in the home. Bernal, Duryee, Pruett, and Burns (1969) trained a parent to

manage her child's "brat" behavior by showing the parent video tapes of the parent-child interactions. The mother-mediator was instructed to command (prompt), ignore and/or praise her son's behaviors; a tone cue was piped into the therapy room to indicate the time for the appropriate parent behavior. Wahler, Winkel, Peterson and Morrison (1965) used a signal light to cue the mother-mediator in the successful management of her target-child's behavior. The BIE radio communication device was also used by Krapfl, Bry, and Nawas (1968) in training a parent to use operant techniques in managing their child's behavior.

In addition to parents, teachers are also important mediators of child behaviors with the school being an important arena for this process. Therefore, the teacher is often trained as a mediator, to intervene effectively with classroom behaviors. Cooper, Thomson and Baer (1970) successfully modified teacher attention to appropriate child responses by providing the teacher with instruction on appropriate attention to students, and feedback on her actual attending behavior during each day's session. Appropriate teacher attention to study behavior was increased by Hall, Lund, and Jackson (1968) who cued the teacher response by holding up a small square of colored paper when the child was studying. Coleman (1970) used a blinking light to signal a teacher when to praise a student if he were working appropriately.

Two behaviors of teachers which seem paramount in producing changes in child behaviors are the appropriate uses of prompts and of reinforcers. Prompting was emphasized by Wetzel (1970) in teaching classroom trainees, especially when there was an absence of correct and appropriate responses by the child. The majority of teachers in

one of Melching's teacher in-service workshops were deficient in the number of opportunities they gave the children to respond and also in the number of their own approving behaviors (Melching, 1970). Therefore, instructions or prompting by the teacher is necessary in providing the opportunity for students' responses; but, as concluded by Madsen, Becker, and Thomas (1968), teacher approval of appropriate responses is also required for effective classroom management. Thomas, Becker, and Armstrong (1968) found that appropriate student behaviors occurred at an increased frequency when followed by approval from the teacher. Schutte and Hopkins (1970) found that teachers were able to increase the number of responses to their instructions when they properly consequated the responses of the students.

Currently there is a shortage of qualified personnel who can train teachers in prompting, in the contingent use of reinforcers, and in the general application of the behavior management techniques which are available to the classroom. To meet this shortage, workshops on behavior management in the classroom are now available to groups of teachers. A variety of techniques and formats for workshops are now in use, but to insure success, workshops seem to follow generally Hall's (1971) responsive teaching model. In this model, the teachers are active participants in the workshop. The teachers are exposed not only to general principles of behavior management but are also required to conduct a case study in their own classroom. Hall has also recommended that the teachers should receive some form of academic credit for their efforts; in states where continuing education is necessary for the renewal of teaching certificates, this is especially attractive.

This teacher-involved type of workshop is recommended in part due to the failure of the lecture model to produce desired changes in the teachers' in-class behaviors. As Gardner (1972) has shown, lectures are a good method for teaching behavior modification principles, but not for teaching performance skills. In training nurses as mediators, Martin found that "lectures and discussions and examinations alone, even when coupled with an assignment involving the completion of one behavior modification project, is not enough to generate persistent desirable behavior in people being trained in behavior modification" (Martin, 1972). Edgar in a 1972 dissertation study found few empirical studies which indicate that teachers do generalize from inservice training to actual situations in the classroom. "The current training programs which emphasize the stimulus input (didactic training) and not the systematic consequence of desired teacher behavior fail to achieve major changes in teacher behavior" (Edgar, 1972). In an experiment involving teachers, Cantrell (1969) showed that though the experimental group of teachers demonstrated a significant gain in the knowledge of behavior modification principles, there was no significant difference between experimental and control groups in social reinforcement contingent upon appropriate behavior. As Altman and Linton (1971) have pointed out, the ultimate test of the efficacy of the principles of behavior modification will be not only how well they are understood but also how well they are applied in natural settings.

The problem at stake is the insurance that the principles learned in behavior modification workshops transfer to the classroom where they are appropriately applied. Several studies indicate that a

direct intervention into the classroom is effective. Wetzel (1970) accompanied every trainee into the class for on-the-spot shaping and reinforcement of appropriate behaviors. In a study comparing the effectiveness of three different types of feedback to teachers who were being trained in effective classroom behaviors, Rule (1972) found that direct intervention, primarily modeling, was more effective in changing teacher praise behaviors than instructions plus feedback, or viewing and scoring one's own behavior on video tape.

To facilitate the generalization of principles learned in workshops to actual applications in the classroom, several systems have been suggested. One of these is the bug-in-the-ear (BIE). This system consists of a portable FM radio worn by the teacher, and listened to via the small earpiece (the bug) that is used with these radios. The trainer usually views the teacher from an observation room or booth and communicates to the teacher over an FM wireless microphone. The equipment specifications are described in several studies (Cohn, 1973; Herold, Ramirez and Newkirk, 1971; Stumphauzer, 1971). One of the early uses of the BIE centered around the training of psychotherapists in a therapy situation. Korner and Brown (1952) and Ward (1960) both used the BIE to allow supervisors to make suggestions and to provide feedback to trainee-therapists. Sanders (1966) similarly used a "bug" to train clinical psychologists in interviewing, in psychodiagnostic testing, and in psychotherapy. Krapfl et al. (1968) used the BIE to train parents in appropriate behaviors to use with their children. These authors report that the major advantage of the BIE is the immediacy of feedback and reinforcement to the trainee, and the flexibility of the instrument

as compared to other devices such as lights or noise generators. The BIE has also been used in training teachers in desired classroom behaviors. Herold et al. (1971) reports the use of a BIE in prompting teachers on appropriate verbalizations when working with Mexican-American children, in situations where the teachers had not worked with this population before. As these authors have contended, from the standpoint of operant conditioning, the immediacy of feedback via a BIE would be "far superior to the customary practice of delayed feedback regarding a teacher's performance for hours or even days" (Herold et al., 1971). Thompson and Cooper (1969) used a bug as a form of feedback to student teachers regarding their prompting and reinforcing techniques. The use of immediate feedback has value in the initial establishment of a particular behavior at critical times. The BIE was significantly more effective in increasing these behaviors than was feedback delayed for only ten minutes. Tramontana (1971), after reviewing teacher-training techniques, suggests that the bug-in-the-ear could be used initially to prompt appropriate teacher behaviors and then gradually be faded out. Thus, based on the many studies which have used the BIE successfully, it would seem that the BIE would facilitate the transfer of learning or generalization of knowledge gained in a behavior modification inservice workshop to actual applications in the classroom.

To test this hypothesis an experiment was conducted in which an experimental group and a control group of teachers were selected. The experimental group attended an inservice training workshop (based on the responsive-teacher model) on behavior management in the classroom,

while the control group did not. This portion constituted Phase I. In Phase II, the experimental group was sub-divided into E_1 and E_2 groups. The E_1 group was given two hours of BIE training in each of their own classrooms. The training consisted of the experimenter cuing teacher behaviors, such as prompts, contingency statements, and praise. E_2 and the control group from Phase I were used as controls during Phase II, and did not receive BIE training. There were two types of dependent measures: classroom observations of teacher behaviors, and written tests on behavior management principles and techniques. These two measures were repeated three times: prior to Phase I, after Phase I, and after Phase II.

Three hypotheses were tested in this experiment:

Hypothesis 1: It was hypothesized that the experimental group of teachers, as a result of receiving an inservice training workshop on behavior modification principles, would demonstrate significantly greater knowledge of behavior modification principles and techniques as demonstrated in the written test than a control group of teachers who did not receive the workshop.

Hypothesis 2: It was hypothesized that there would be no significant difference between selected in-class teacher behaviors between the experimental and control groups due to the training received in an inservice workshop.

Hypothesis 3: It was hypothesized that the experimental group of teachers who received two hours of BIE training in their classroom would demonstrate significantly higher frequencies of selected in-class behaviors than would the control group.

METHOD

Subjects

In conjunction with the objectives of an ESEA Title VI project, inservice training programs concerning behavior modification and learning disabilities were offered to teachers in four elementary schools for either the fall or the spring semester. Those thirteen teachers who signed up for the fall session were designated as the experimental group. They included kindergarten through sixth grade teachers as well as one Educable Mentally Retarded resource teacher. Six teachers were randomly chosen from the respondents who signed up for the spring training session and were designated as the control group; they taught a range of classes from kindergarten through sixth grade.

Apparatus

A bug-in-the-ear device was used for this experiment. The teacher wore an adjustable belt on which was mounted a portable FM radio. The radio was positioned in the small of her back with the antenna running up her spine, reducing the distraction for the children. The radio ear piece was also worn by the teacher. The experimenter used a wireless FM microphone to broadcast instructions to the teacher as she performed her normal activities in the classroom. The experimenter broadcast from a three-sided portable booth which was soundproof and had a two feet by two feet one-way mirror in one side. The booth included fan ventilation and was transported from school to school on top of the experimenter's car.

Dependent Measures

The experiment was divided into two sequential phases: the first centered on an inservice training workshop, and the second dealt with in-class training. Observations were made in each of the experimental and control teachers' classrooms at three points during the experiment. Observations were made prior to Phase I, at the end of Phase I, and at the conclusion of Phase II. The observation at the beginning of Phase I was a pre-treatment measure for that phase. The observation at the end of Phase I served as both a post-treatment measure for Phase I and as a pre-treatment measure for Phase II. The final observation was a post-treatment measure for Phase II. Each observation totaled one hour and consisted of four fifteen-minute intervals (Appendix A). A time sampling procedure was used, with each fifteen-minute observation period subdivided into sixty fifteen-second intervals. In each interval, the teachers were observed for the occurrence of any of five verbal behaviors, or the absence of all five, for a total of six measures (Appendix B). The behaviors were 1) prompt (P): a verbal prompt from the teacher directed to a student(s) or the class as a whole, to which a response was indicated as the appropriate reaction; 2) contingency statement (C): a statement made by the teacher indicating a contingency for the recipient; 3) praise (Pr): verbal praise from the teacher for appropriate classroom behavior, including successful responses to verbal prompts; 4) appropriate verbalizations (AV): teacher verbalizations which are directed toward inappropriate behavior(s) in the classroom and which could decrease the frequency of inappropriate behaviors (e.g., a "soft" reprimand; O'Leary, Kaufman, Kass, and Drabman, 1970); 5) inappropriate

verbalizations (IV): teacher verbalizations which are directed toward inappropriate behaviors and which could increase the frequency of those behaviors (e.g., distraction, or "loud" reprimand); 6) absent (Ab): none of the above teacher behaviors occurred during the time sampled. The observers were psychology graduate students who at the time of the observations had no knowledge of the nature of the experiment or the group to which their assigned teachers belonged.

The reliability of the observations was assessed by the experimenter during each of the three one-hour observation periods. The experimenter observed one of the four fifteen-minute intervals in each period, and a comparison was made with the assigned observer's recordings to determine the reliability of the findings.

Both the experimental and control groups of teachers were given a series of three tests, each test consisting of twenty multiple-choice questions on behavior modification. Prior to the experiment, sixty multiple choice questions were constructed from the material to be presented in the behavior management portion of the workshop. The questions were then randomly divided into three sets of twenty questions and each set was randomly assigned to an experimental phase. One 20-question set (Appendix C) was given at the beginning of Phase I and served as a pre-treatment measure for that phase. The second set (Appendix D) was given after Phase I and served as a post-treatment measure; this set also was a pre-treatment measure for Phase II. The third set (Appendix E) served as a post-treatment measure for Phase II.

Procedure

Phase I. The experiment was divided into two phases. In Phase I, the

subjects included (1) the experimental group who were signed up to take the fall inservice training workshop on behavior management and on learning disabilities; and (2) the control group consisting of six teachers chosen randomly from a group of teachers who had signed up for the course in the spring. As one of the pre-treatment measures, the teachers in both groups were observed for one hour in their classroom (O_1), with the only stipulation for the observer being that the subject be engaged in actual teaching as opposed, for example, to testing, lunch or rest period. A variety of teaching activities was observed, including mathematics, reading, social studies, and arts and crafts. The teacher had an opportunity to engage in any or all of the five observed behaviors during the observation hour. On the first day of the workshop, the first of the three tests (T_1) was administered to the thirteen experimental teachers; within the same week, the control group received the same test (T_1).

After pre-treatment observations were completed and upon receipt of the first quiz from the experimental group, the experimenter began the sixteen hour inservice training workshop. The topics for the workshop were behavior management in the classroom (12 hours) and learning disabilities (4 hours). The behavior management portion of the workshop was presented by the experimenter and the behavior management consultant from the Department of Psychology at the University of North Carolina at Greensboro. Two graduate students from this department also assisted in portions of the workshop. It was with the behavior management portion of the workshop that this experiment was concerned. The teachers received one hour credit toward the state-required renewal of their teaching certificate if they successfully completed the course, which they all did.

The twelve hours on behavior management consisted of six two-hour sessions. As part of the workshop teachers were required to do a case study of a problem behavior of their choice in their classroom. The components of the case study were keyed to occur simultaneously with the workshop topics. The case study was due the last session. The first workshop session was an introduction to behavior management and consisted of a lecture on the history of the conceptualizations of human behavior, i.e., supernatural, medical, and behavioral models; there followed an open discussion with teachers on the implications of each of these models. The teachers were asked to list five problems in their classroom for use in the next session. The second session was concerned with the identification of behavior problems in the classroom, and with the observation and recording of these behaviors. A skit was presented by the experimenter and two assistants depicting a sampling of behaviors performed by humans. An open discussion was conducted regarding the re-statement in behavioral terms of the teacher-identified problems in the classroom, e.g., "immature" was restated as "cries when asked a question". A video tape depicting six inappropriate behaviors was presented, and the teachers were required to observe and record the occurrence of the behaviors using a frequency count. They were then given simulated data and practiced graphing baseline information. Each teacher was assisted in determining a behavior problem from her own classroom for her case study, and a method of recording this behavior selected. The third session included a brief explanation of reinforcement, punishment, and extinction, followed with teacher responses to the film Who Did What To Whom? (Mager, 1972). The film was followed by an

in-depth presentation by the experimenter on consequences, including their effects on behavior, and the side effects associated with each. Session four centered on antecedent conditions. A variety of examples of structuring classroom activities to produce better results were discussed, e.g., rules, modeling, instructions. The teachers were assisted with their case studies during the latter part of the session. The fifth session dealt with the use of behavioral techniques in the classroom. The experimenter led a discussion on "praise and ignore", the Premack Principle, the use of token economies, contingency contracting, group contingencies, and self-imposed contingencies. The last session involved a discussion of the teachers' case studies, other behavior problems which they encounter in the classroom with possible solutions to these problems, and a general review of the twelve-hour course. As has been mentioned, each teacher was required to complete a case study of a problem behavior in her classroom. This requirement coincided with the workshop instruction and practice in counting behaviors, in recording behaviors, in graphing data, and in applying behavioral techniques. The case could concern increasing appropriate behaviors or decreasing inappropriate behaviors. The case study was turned in during the last session, and a written critique of each case was provided by the experimenter. The case study allowed each teacher to apply the principles of behavior modification in her classroom during the training workshop.

During the last session of the workshop, the experimental group was given the second 20-question test (T_2). Within three days of the last class, the control group received the same test. Subsequent to

the last class, all subjects, both experimental and control were again observed for one hour (O_2).

Phase II. At the conclusion of Phase I, one of the teachers from the experimental group resigned for maternity reasons. One of the teachers in the control group was dropped from that group because she was receiving intensive individual instruction on behavior management in conjunction with a behavior program for a student in her classroom. There remained, therefore, five persons in the control group (C). The remaining ten of the twelve teachers from the Phase I experimental group were randomly assigned to two groups of five (E_1 and E_2). Before Phase II began, it was decided to drop one of the teachers in E_2 as she had not missed any questions on the second test (T_2), and thus would not have been able to demonstrate an improvement on her score over time. As Phase II began, a teacher in the control group (C) refused to continue in the experiment. One of the teachers in E_1 did not complete Phase II before the school year ended, and hence was not included in the analysis. The three groups were thus composed of four teachers each. The reasons for which the teachers were lost to or dropped from the experiment should not have affected the results of the experiment.

Approximately two months after the conclusion of the workshop, Phase II began. The four teachers of group E_1 , were then each given one hour of bug-in-the-ear (BIE) training in her own classroom on two consecutive days, a total of two hours. The only requirement was that the BIE be used during a period when the teacher was actually engaged in teaching. Prior to beginning the BIE session, the experimenter

instructed the teacher on the three cues which the experimenter would use. If the experimenter said "prompt", it indicated the appropriate time for the teacher to verbally prompt a student behavior. If the student to whom the experimenter referred was not obvious to the teacher, the experimenter would verbally direct the teacher's attention to the appropriate child. The same procedure was used for "praise" and "contingency". If the experimenter said "praise", it required the teacher to verbally praise a behavior. If the experimenter said "contingency", the teacher was to make a contingency statement to the child with whom she was interacting. To avoid "flooding" the teacher with too much information, verbal explanations or directions other than the above three cues were kept to a minimum. The other two observation categories, appropriate verbalizations (AV) and inappropriate verbalizations (IV), were not included in the BIE training phase because the first and second set of observations had revealed that they were occurring infrequently.

Groups E_2 and C did not receive BIE training during Phase II and were therefore controls for group E_1 . At the completion of BIE training for E_1 , all three groups (E_1 , E_2 , and C) were again administered a twenty-question test (T_3) and were again observed for one hour (O_3).

Upon completion of the entire experiment, all subjects were informed of the nature of the experiment and relevant data were presented upon request.

RESULTS

Preliminary Analysis of Dependent MeasuresTest Item Analysis

At the conclusion of Phase II, a test-item analysis (Helmstadter, 1964) was made of the sixty questions used for the three tests (T_1 , T_2 , T_3) given during the experiment. The test-item analysis was made to determine the capacity for each particular item or question to discriminate among the varying levels of knowledge at the time of the taking of the test. Scores were pooled into discrete interval categories of items correct for a particular 20 question quiz, e.g., 15-16 correct, 17-18 correct, 19-20 correct. These categories are referred to as the test-score interval. The percentage of individuals passing a particular item was calculated separately for the subjects falling within each score interval. The percentage passing the item (ordinate) as a function of the test-score interval (abscissa) is graphed as the "item discriminability curve". The steeper the slope of the item's characteristic curve, the more discriminating it is among levels of knowledge. An item with perfect discrimination would be represented by a vertical line. An examination of the 60 item discriminability curves suggested that about 26 were good discriminators. That is, the variability among scores was attributable to only 26 out of the 60 test items. The experimenter assumed that each subject had an equal opportunity to choose the correct answer in the remainder of the questions. As will

be demonstrated, the test scores did reveal significant changes in the teachers' level of knowledge over the three tests given.

Reliability

Psychology graduate students were used as observers in each of the three observation periods (O_1 , O_2 , and O_3). To determine if their observations and recordings of the teachers' five in-class behaviors were reliable, the experimenter observed in the same class for one 15-minute interval per one hour of observation. The observation sheet was divided into 60 15-second blocks, and the six categories were represented in each block. The observer's and experimenter's blocks were compared on the basis of "agree" or "disagree" on the individual categories within the block. An "agree" was recorded if both the observer and the experimenter had marked the particular category in the same block. If one had marked the category but the other had not marked it, it would be recorded as "disagree". If neither had marked the category, it was not recorded. Reliability of observations for each teacher was computed by dividing the "agrees" for individual categories over all 60 blocks by the "agrees" plus "disagrees" for the same blocks. The reliability was calculated for each teacher observed for each of the observation periods (O_1 , O_2 , and O_3). The reliability on the 50 occasions for observation ranged across teachers from .85 to .97 (see Table 1a). There were only 12 teachers observed at O_3 , but they are indicated in Table 1a by their numbers from O_1 and O_2 . Table 1b shows the percentages for each observation category in O_1 and the overall reliability across observation categories for O_1 (90%) which was computed by adding the category (P through Ab) numerators, and by

TABLE 1a
 OBSERVATION RELIABILITY PERCENTAGES FOR INDIVIDUAL TEACHERS
 ACROSS O₁, O₂, AND O₃

TEACHER	O ₁ RELIABILITY	O ₂ RELIABILITY	O ₃ RELIABILITY
1	.89	.88	.90
2	.88	.88	.87
3	.87	.94	.95
4	.96	.93	.86
5	.90	.91	
6	.86	.91	
7	.90	.91	.97
8	.92	.90	.92
9	.85	.90	.91
10	.88	.89	
11	.97	.91	.93
12	.94	.87	
13	.94	.88	
14	.94	.91	.86
15	.87	.87	
16	.93	.91	.86
17	.86	.86	.88
18	.87	.90	.86
19	.89	.85	

TABLE 1b
 RELIABILITY OF O₁ OBSERVATIONS ACROSS MEASURES

OBSERVATION MEASURE	AGREE/AGREE + DISAGREE	RELIABILITY
Prompt (P)	641/697	.95
Contingency (C)	24/24	1.00
Praise (Pr)	169/197	.86
Appropriate Verbalization (AV)	18/23	.78
Inappropriate Verbalization (IV)	45/49	.92
Absent (Ab)	369/418	.88
O ₁ Overall	1237/1377	.90

dividing the result by the sum of all the denominators (P through Ab). Tables 1c and 1d reveal the same information concerning O_2 and O_3 , with the overall reliability being 89% and 90% respectively. It is hypothesized that the relatively low reliability for Appropriate Verbalizations (AV) in Tables 1b and 1c is due primarily to the low frequency of occurrence of the behavior and was simply missed by the recorders. The overall reliability, however, with a range for individual teachers of 85%-95% was very acceptable for this experiment.

Analysis of Experimental Effects

Phase I

As a pre-treatment measure of Phase I, the teachers in both the experimental and control groups were observed in their classrooms for four 15-minute sessions or a total of one hour (O_1). Each teacher was observed for the occurrence of five verbal behaviors: prompts (P), contingencies (C), praise (Pr), appropriate verbalizations (AV) to inappropriate behavior, inappropriate verbalizations (IV) to inappropriate behavior, and for the absence (Ab) of these five verbal behaviors. The teachers in both groups were also given a 20-question test (T_1) as another pre-treatment measure. Following the inservice training workshop in which the experimental group participated, a post-treatment observation (O_2) was made. The one hour observation consisted of the same categories as O_1 . A second 20-question test (T_2) was also administered to both groups.

To determine if there were any differences between the experimental and control groups prior to Phase I due to the method of assignment, a simple one-way analysis of variance was conducted on the

TABLE 1c
 RELIABILITY OF O₂ OBSERVATIONS ACROSS MEASURES

OBSERVATION MEASURE	AGREE/AGREE + DISAGREE	RELIABILITY
Prompt (P)	709/768	.92
Contingency (C)	12/13	.92
Praise (Pr)	273/304	.90
Appropriate Verbalization (AV)	23/28	.82
Inappropriate Verbalization (IV)	44/47	.94
Absent (Ab)	284/343	.83
O ₂ Overall	1345/1504	.89

TABLE 1d
 RELIABILITY OF O₃ OBSERVATIONS ACROSS MEASURES

OBSERVATION MEASURE	AGREE/AGREE + DISAGREE	RELIABILITY
Prompt (P)	459/503	.91
Contingency (C)	19/19	1.00
Praise (Pr)	172/187	.92
Appropriate Verbalization (AV)	2/2	1.00
Inappropriate Verbalization (IV)	5/5	1.00
Absent (Ab)	184/200	.92
O ₃ Overall	842/939	.90

pre-treatment test (T_1) and on the pre-treatment observation (O_1) for both groups. The results, as indicated in Table 2, show that there were no significant differences between the two groups on the pre-treatment measures given prior to Phase I.

The difference scores between the number of errors on the pre-treatment test (T_1) and the post-treatment test (T_2) were determined for both experimental and the control groups, and an analysis of variance was conducted on these differences. The same procedure was used to analyze the differences between the two groups on the pre- and post-treatment observations, O_1 and O_2 . The results are shown in Table 3. The ANOVA of T_1-T_2 shows that there was a significant difference ($F=13.72$; $df=1, 17$; $p<.01$) between the experimental and control groups after exposure of the experimental group to the inservice training workshop. The teachers in the experimental group made significantly fewer errors on T_2 ($M=2.0$) than did the control group ($M=6.5$). There was no significant difference between the experimental and control groups on the five in-class verbal behaviors on which they were observed as a result of the inservice workshop.

Phase II

Initially Phase II began with five teachers in each of three groups: five in the experimental group 1 (E_1), five in experimental group 2 (E_2), and five in control group (C). As previously explained, one teacher was lost or eliminated from each group. Therefore, in order to ensure that the groups were matched prior to Phase II, a post hoc ANOVA was conducted on the T_2 and O_2 measures of the three groups. The results are shown in Table 4. As indicated in Table 4, there were

TABLE 2

ANALYSIS OF VARIANCE: EXPERIMENTAL AND CONTROL
GROUPS ON OBSERVATION 1 AND TEST 1

VARIABLE	SOURCE	df	MS	F
P	BETWEEN	1	350.77	3.34
	WITHIN	17	105.16	
C	BETWEEN	1	.08	0.02
	WITHIN	17	4.92	
Pr	BETWEEN	1	359.92	3.03
	WITHIN	17	130.53	
AV	BETWEEN	1	2.85	0.61
	WITHIN	17	4.64	
IV	BETWEEN	1	14.78	1.01
	WITHIN	17	14.68	
Ab	BETWEEN	1	406.33	3.86
	WITHIN	17	105.20	
T ₁	BETWEEN	1	.36	0.03
	WITHIN	17	11.30	

TABLE 3

ANALYSIS OF VARIANCE: EXPERIMENTAL AND CONTROL GROUPS
ON THE DIFFERENCE SCORES FOR O_1-O_2 AND T_1-T_2

VARIABLE	SOURCE	df	MS	F
P_1-P_2	BETWEEN	1	20.20	0.08
	WITHIN	17	247.17	
C_1-C_2	BETWEEN	1	2.51	0.46
	WITHIN	17	5.41	
Pr_1-Pr_2	BETWEEN	1	76.63	0.72
	WITHIN	17	106.38	
AV_1-AV_2	BETWEEN	1	10.71	1.84
	WITHIN	17	5.83	
IV_1-IV_2	BETWEEN	1	.0006	0.00004
	WITHIN	17	16.50	
Ab_1-Ab_2	BETWEEN	1	14.19	0.65
	WITHIN	17	218.68	
T_1-T_2	BETWEEN	1	81.72	13.72**
	WITHIN	17	5.95	

** $p < .01$

TABLE 4

ANALYSIS OF VARIANCE: COMPARISON OF GROUPS E_1 , E_2 ,
AND C ON OBSERVATION 2 AND TEST 2

VARIABLE	SOURCE	df	MS	F
P_2	BETWEEN	2	4.08	.02
	WITHIN	9	240.83	
C_2	BETWEEN	2	.00	.00
	WITHIN	9	.00	
Pr_2	BETWEEN	2	105.58	.87
	WITHIN	9	121.94	
AV_2	BETWEEN	2	13.58	.67
	WITHIN	9	19.06	
IV_2	BETWEEN	2	31.08	1.63
	WITHIN	9	19.06	
Ab_2	BETWEEN	2	69.75	.20
	WITHIN	9	344.28	
T_2	BETWEEN	2	30.33	7.38**
	WITHIN	9	4.11	

** $p < .01$

no significant differences between groups E_1 , E_2 , or C on the six categories observed in the classroom at the conclusion of Phase II. Groups E_1 and E_2 had predictably fewer errors than C on the second test (T_2), as had been established in the previous statistical analysis ($F=7.38$; $df=2, 9$; $p<.01$).

During Phase II, group E_1 which had participated in the inservice training workshop was given two hours of bug-in-the-ear training. Group E_2 , which had participated in the inservice training workshop, was used as a control, and group C continued as a control group. After the BIE treatment was completed for E_1 , a third one-hour observation (O_3) was made in each of the 12 teachers' classrooms. A third 20-question test (T_3) was also administered to each teacher in the three groups.

To determine if there were significant changes among groups E_1 , E_2 , and C as a result of the Phase II treatment, an analysis of variance was done on the differences for the three groups between test 2 and test 3 (T_2-T_3), and between observation 2 and 3 (O_2-O_3). The findings are indicated in Table 5. The results show that there were no significant changes among the groups between test 2 and test 3. There were no significant differences among the groups on differences between O_2 and O_3 for prompts (P_2-P_3), appropriate verbalizations (AV_2-AV_3), inappropriate verbalizations (IV_2-IV_3), nor absences (Ab_2-Ab_3). There was a significant difference among the groups for contingency statements (C_2-C_3) ($F=4.41$; $df=2, 9$; $p<.05$) and for praises (Pr_2-Pr_3) ($F=9.22$; $df=2, 9$; $p<.01$). A Newman Keuls test among means for Pr_2-Pr_3 revealed that group E_1 differed significantly from groups E_2 and C

TABLE 5

ANALYSIS OF VARIANCE: COMPARISON OF GROUPS E_1 , E_2 , AND C
ON THE DIFFERENCE SCORES FOR O_2-O_3 AND T_2-T_3

VARIABLE	SOURCE	df	MS	F
P_2-P_3	BETWEEN	2	77.58	.45
	WITHIN	9	172.86	
C_2-C_3	BETWEEN	2	56.58	4.41*
	WITHIN	9	12.83	
Pr_2-Pr_3	BETWEEN	2	758.33	9.22**
	WITHIN	9	82.22	
AV_2-AV_3	BETWEEN	2	14.33	.73
	WITHIN	9	19.58	
IV_2-IV_3	BETWEEN	2	20.33	1.38
	WITHIN	9	14.69	
Ab_2-Ab_3	BETWEEN	2	511.00	1.63
	WITHIN	9	313.81	
T_2-T_3	BETWEEN	2	4.75	.78
	WITHIN	9	6.06	

* $p < .05$ ** $p < .01$

and that E_2 and C did not differ significantly. A Newman Keuls test among means for C_2-C_3 revealed that group E_1 differed significantly from E_2 but not from C ($p < .05$). Groups E_2 and C did not differ significantly from one another.

Another dependent measure of interest was the proportion of praise per the number of prompts (Pr/P) which a teacher gave. Since the BIE training emphasized that teacher-prompted student behavior should be reinforced, it was predictable that the ratio of praises per prompts should be higher for E_1 than for E_2 or C as a result of BIE training. Table 6a shows that there was a significant difference between the three groups ($p < .01$) on Pr_3/P_3 at O_3 . An ARCSIN transformation, correcting for the use of ANOVA for proportions, indicates the same significance ($p < .01$) (Table 6b). The ANOVA of the difference of the proportions ($Pr_2/P_2 - Pr_3/P_3$) was computed and revealed (Table 6c) that there was a significant difference ($p < .07$) between the three groups. Newman Keuls tests on each of the three findings (6a, 6b, and 6c) reveals that E_1 had a significantly higher ratio of praises to prompts than did E_2 or C. There were no significant differences between E_2 and C.

TABLE 6a

ANALYSIS OF VARIANCE: COMPARISON OF GROUPS
 E_1 , E_2 , AND C ON PRAISES PER PROMPTS
 (Pr_3/P_3) AT O_3

VARIABLE	SOURCE	df	MS	F
Pr_3/P_3	BETWEEN	2	.18	15.8**
	WITHIN	9	.01	

TABLE 6b

ANALYSIS OF VARIANCE WITH ARCSIN TRANSFORMATION:
 COMPARISON OF GROUPS E_1 , E_2 , AND C
 ON Pr_3/P_3 AT O_3

VARIABLE	SOURCE	df	MS	F
Pr_3/P_3	BETWEEN	2	.86	14.24**
	WITHIN	9	.06	

TABLE 6c

ANALYSIS OF VARIANCE: COMPARISON OF GROUPS
 E_1 , E_2 , AND C ON THE DIFFERENCE
 SCORES FOR $Pr_2/P_2 - Pr_3/P_3$

VARIABLE	SOURCE	df	MS	F
$Pr_2/P_2 - Pr_3/P_3$	BETWEEN	2	.08	3.98*
	WITHIN	9	.02	

* $p < .07$ ** $p < .01$

DISCUSSION

Situation and Response Mode Specificity of Behavior

This study demonstrated that there was a significant disparity between teachers' behaviors as measured in two different situations and in two different response modes. As the result of the inservice workshop on behavior management, the test results indicated that the teachers could report the types of teacher behaviors that were appropriate in different classroom situations. The hypothesis being tested was if teachers make a significant gain in the knowledge of behavioral principles and techniques, will they in fact also demonstrate a significant change in appropriate target behaviors in the classroom situation. As the results of this experiment indicate, the in-class behavior did not change significantly. These results are consistent with what is known regarding the situation and response mode specificity of behavior. Since behavior depends on the stimuli in the situation in which it occurs, then behaviors taught in a workshop situation are specific to that situation. The responses learned and tested within an inservice training workshop are specific to that situation and are controlled by the stimuli, both antecedent and consequent, involved in that situation. In the workshop setting, the experimenter describes the teacher behaviors which are most productive in the classroom (e.g., prompting, praising, contingency statements). The experimenter also explains the benefits within the classroom which can accrue to the teacher if she learns and applies these behaviors in the classroom. Teachers, however, having been

students themselves, are quite familiar with the contingencies of the workshop setting: meet the test and attendance requirements and be reinforced with renewal credit. The teachers will behave in a workshop to earn the consequences offered in the workshop, not those consequences promised in the classroom situation. In the teachers' own classrooms, the consequence of their behavior is not the loss or gain of renewal credit. The eliciting stimuli are not the experimenter's queries or test questions, but rather the actual behaviors of the children and the classroom setting.

In the case of this particular workshop, as is true of any workshop based on the responsive teaching model, a sample of the criterion situation was provided by requiring the case study assignment. Each teacher was required to identify a problem behavior in her own classroom and, during the course of the workshop, design and execute a behavioral program to modify that behavior. The teachers successfully completed this requirement and yet their post-treatment behaviors indicated no significant change in the general classroom situation. Again specificity of the case study to the workshop requirements limited the generalizability of the workshop-related behavior to general classroom performance. Even though the problem behaviors of the case studies were modified successfully, a large part of the reinforcement for the teachers was the meeting of the course requirements. In many instances, the case study behaviors were viewed entirely as an extension of the workshop behaviors and not as part of a teacher-initiated change in a classroom problem.

Studies comparing verbal-cognitive behavior (e.g., projective tests, questionnaires) and overt-motor behaviors found no consistency in the behaviors across situations (Campbell and Fiske, 1959; Skolnick, 1966). Again the inconsistency of antecedents and consequences across situations is offered as a possible explanation. As Skinner (1966) has emphasized, when teaching new behaviors, it is necessary that the behaviors be directly reinforced. It seems to be insufficient to merely prompt behaviors by verbal instructions or by information. Prompts are ultimately effective only if the behaviors are subsequently performed and reinforced. Merely prompting teachers during inservice training workshops does not guarantee that those behaviors described will be attempted by the teachers, thus allowing them the opportunity to be reinforced by naturally occurring consequences in their own classrooms. The behaviors remain specific to the situation in which they are conditioned.

In addition to behavior not generalizing across situations, it also does not generalize across response modes. Lang's (1968) conclusion of a "triple response mode" as measured in fear assessment situations reveals that there is little correlation between verbal, overt-motor, and somatic responses to fear-provoking stimuli. The three responses are each specific to particular stimuli, and the change in one response mode does not guarantee a related change in another response mode. Mischel (1966) concurs that there is little consistency across response modes. Behaviors generalize across response modes only when they are uniformly reinforced across stimulus conditions. The response mode of in-class verbal and motor behaviors are not subject to the same reinforcement

contingencies as are the workshop behaviors. In the workshop situation, there may be consistency across response modes. The verbal reports elicited in group discussions during the workshop indicated teacher knowledge of the principles and applications of behavior modification. The similarity of these verbal reports and the paper-and-pencil tests suggest the consistency of responding across modes within a single situation. However, this consistency across response modes does not generalize to other situations. In a different situation, e.g. the classroom, the required response mode is different, e.g., overt-motor behavior. The results of La Piere (1934) corroborate this lack of generalization across response modes in different situation. He discovered that there was little correlation between the questionnaire answers concerning food and lodging that would be offered to Chinese guests and the actual hospitality received when the guests arrived. On the questionnaire, 92.5 percent of the innkeepers indicated they would refuse lodging to Chinese guests, whereas only .40 percent actually refused a Chinese couple when they were accompanied by a Caucasian, as opposed to the situation presented in the questionnaire. The overt-motor and verbal behaviors are response modes different from the paper-and-pencil responses of the questionnaire. Endler and Hunt (1966), in an analysis of variance of fear behaviors, report that only some of the variation in an experiment is accounted for by the main effects of the situation, the individual, and the mode of responding. Additional variance is accounted for by simple interactions among these three. Most importantly, these authors reveal that over one third of the variance is accounted for by a triple interaction between the setting,

the individual, and the response mode in question. It is predictable that different behaviors will occur with each variation of the combination of the person, the setting, and the mode of responding. With this type of interaction accounting for so much of the variance, it is therefore important to insure that teacher-training takes place in the situation and in the response mode of the criterion behaviors. The teacher, her classroom, her own unique response style, and the interactions of these variables are specific to each teacher's classroom and must be dealt with in that specific situation.

To facilitate generalization from the workshop situation to the classroom, direct intervention was utilized in the present experiment with the BIE training. The appropriate teacher behaviors specific to the classroom chosen for this experiment were prompted and were given the opportunity to be reinforced by the events occurring consequent to the prompted behaviors. The two hours of BIE training prompted the teacher utilization of specific response modes other than verbal and paper-and-pencil. The response modes utilized in the classroom were those specific to the classroom. The criterion interaction of the specific teacher, the classroom setting, and the teacher's own unique style of responding was directly taught.

Other Findings

The analysis of variance of the classroom behaviors of the experimental and control groups at the conclusion of Phase II (see Table 5) showed no significant difference between the groups on prompts (P) as a result of BIE training. The prompting of students by the teachers in

E_1 had already been occurring at a sufficiently high rate prior to Phase II, i.e., there were few times that the experimenter had to prompt a "prompt". At the conclusion of Phase II, however, there was a significant difference between the groups on the number of praises (Pr) per prompts (P). Using the BIE, the experimenter was able to cue "praise" statements directly. The teachers were taught to use a new response (verbal praise) in the specific classroom situation, i.e., after a teacher-prompted behavior has been performed appropriately by the student, the teacher was taught to praise the occurrence of that response. As the appropriate student behavior was reinforced with teacher praise, the probability that the appropriate student behaviors would occur again should increase. An increase in appropriate student behaviors should be reinforcing to the teacher and will, hopefully, maintain a high praise to prompt ratio.

Implications for Future Workshops

The results of the present study have implications for future workshops. It should be apparent that changes in verbal behaviors in the workshop and even the successful completion of a case study do not guarantee behavior changes in the classroom, which is the accepted goal of inservice training. Whereas other techniques (e.g., video feedback, graphs of observational data, and consultation) have been developed to facilitate the generalization to the classroom of behaviors learned in a workshop, none have been shown to have a generalized effect on in-class teacher behavior. A technique such as the BIE can be introduced in the teacher's ongoing class situation and because of the immediacy of feedback, will increase the probability of appropriate classroom

behaviors. One suggestion then to improve inservice training is to provide more direct in-class training than is now offered. Where BIE training is not possible, teachers could be required to monitor their own behavior. The teachers could be required to self-record the occurrence of the prescribed behaviors, e.g., prompts, praises, and contingencies, for specified periods of time during the day. A teacher with a low ratio of praises to prompts could be encouraged to increase this ratio and to continue self-recording. The teacher who modifies her behavior in the classroom setting is more likely to be reinforced by the naturally occurring events that are specific to her own classroom rather than those contrived in the workshop setting.

Implications for Future Research

The results of this experiment suggest that future research might focus on the results of in-class (BIE or other techniques) training as compared with inservice workshop training.

Variations of current inservice workshops could be tested as to their effectiveness in modifying in-class teacher behaviors. Such variations could include the workshop plus a follow-up consultation service to the teacher; total in-class training with take-home reading assignments in the usual course materials; a workshop with a telephone follow-up, requiring teachers to call in behaviors recorded in the classroom in order to receive consultation concerning classroom management problems. These are but a few of the many variations of teacher-training techniques which can be studied for possible utilization in the schools.

Other dependent measures could include a variety of teacher behaviors which are considered productive classroom behaviors, e.g.,

prompting, reinforcing appropriate behaviors, utilization of response cost or time out procedures, non-target teacher behaviors. As in many classroom studies, the behaviors of target children could be used as dependent measures since appropriate teacher interaction with the students should modify or maintain appropriate student behavior. Also total classroom production can be used as a dependent measure, e.g., average grades on quizzes, percentage of assigned tasks completed, or number of classroom resources that are used.

If the goal of inservice training workshops on behavior management is to train teachers to behave more productively in their classrooms then 1) their behaviors must be measured in the classroom to determine if the desired changes do in fact occur, and 2) a variety of techniques, including ones as effective as the BIE, must be used to shape the behaviors that are set as the criteria for the teachers to obtain. It is through these methods that successful behavior management will occur in the schools.

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APPENDIX A

OBSERVATION CODE SHEET TITLE VI TRAINING MODULE
GUILFORD COUNTY SCHOOLS

TEACHER: _____
 SCHOOL: _____
 OBSERVER: _____
 OBSERVATION NO.: _____

DATE: _____
 TIME: _____
 INTERVAL: _____
 RELIABILITY: _____

P	AV	P	AV	P	AV	P	AV
C	IV	C	IV	C	IV	C	IV
Pr	Ab	Pr	Ab	Pr	Ab	Pr	Ab
P	AV	P	AV	P	AV	P	AV
C	IV	C	IV	C	IV	C	IV
Pr	Ab	Pr	Ab	Pr	Ab	Pr	Ab
P	AV	P	AV	P	AV	P	AV
C	IV	C	IV	C	IV	C	IV
Pr	Ab	Pr	Ab	Pr	Ab	Pr	Ab
P	AV	P	AV	P	AV	P	AV
C	IV	C	IV	C	IV	C	IV
Pr	Ab	Pr	Ab	Pr	Ab	Pr	Ab
P	AV	P	AV	P	AV	P	AV
C	IV	C	IV	C	IV	C	IV
Pr	Ab	Pr	Ab	Pr	Ab	Pr	Ab
P	AV	P	AV	P	AV	P	AV
C	IV	C	IV	C	IV	C	IV
Pr	Ab	Pr	Ab	Pr	Ab	Pr	Ab
P	AV	P	AV	P	AV	P	AV
C	IV	C	IV	C	IV	C	IV
Pr	Ab	Pr	Ab	Pr	Ab	Pr	Ab
P	AV	P	AV	P	AV	P	AV
C	IV	C	IV	C	IV	C	IV
Pr	Ab	Pr	Ab	Pr	Ab	Pr	Ab
P	AV	P	AV	P	AV	P	AV
C	IV	C	IV	C	IV	C	IV
Pr	Ab	Pr	Ab	Pr	Ab	Pr	Ab
P	AV	P	AV	P	AV	P	AV
C	IV	C	IV	C	IV	C	IV
Pr	Ab	Pr	Ab	Pr	Ab	Pr	Ab
P	AV	P	AV	P	AV	P	AV
C	IV	C	IV	C	IV	C	IV
Pr	Ab	Pr	Ab	Pr	Ab	Pr	Ab
P	AV	P	AV	P	AV	P	AV
C	IV	C	IV	C	IV	C	IV
Pr	Ab	Pr	Ab	Pr	Ab	Pr	Ab

APPENDIX B

BEHAVIOR OBSERVATION CODE

- P = Prompt. A verbal prompt or instruction (excluding motor prompts). Teacher verbalizes so as to elicit or re-direct an immediate specific response from a child or the group. This includes asking a question, and providing a word for the child to repeat. It excludes providing facts or information, unless an immediate response is intended to be elicited.
- C = Contingency. Explicit statements of contingencies. Both the behavior and its consequences must be specifically stated.
- PR = Praise. Verbalizations for appropriate responses. This is positive reinforcement, e.g., "good boy", "thank you", "good", "fine", and positive statements, e.g., "O.K.", "that's right", "hmmmm", "yes".
- AV = Appropriate Verbalization to an inappropriate or negative behavior, e.g., a contingency statement appropriately consequenting the behavior, verbal direction to time out, or a soft reprimand, i.e., one which only the child can hear.
- IV = Inappropriate Verbalization to an inappropriate or negative behavior; e.g., positively reinforcing an inappropriate behavior, using the distraction method, or a loud reprimand.
- Ab = Absent. No verbalization occurred, or no verbalization which fit into one of the above categories or a verbalization that was indistinguishable and hence un-codable occurred.

APPENDIX C
INSERVICE TRAINING PROGRAM

Name: _____ Date: _____

Draw a circle around the letter which you think is the best answer to the questions.

1. You estimate that Johnny hits other children 5 or 10 times a day. The measure you would probably choose to use during baseline recording would be:
 - A. Frequency count
 - B. Duration
 - C. A yardstick
 - D. Time sampling

2. A behavior is most quickly learned under conditions of _____ reinforcement, and it is more likely to be maintained for a longer period of time under conditions of _____ reinforcement.
 - A. Continuous; intermittent
 - B. Continuous; continuous
 - C. Intermittant; continuous
 - D. Intermittant; intermittent

3. A statement such as "you dry the dishes before you watch TV" is an example of all of the following except
 - A. A rule
 - B. The Premack Principle
 - C. Consequating a behavior
 - D. A group contingency

4. Group contingencies are different from individual contingencies because they utilize the powerful effects of
 - A. Punishment
 - B. Clearly specifying desirable behaviors
 - C. The Premack Principle
 - D. Peer reinforcement

5. The kind of behaviors of which a teacher tries to increase the frequency, or alternatively to decrease the frequency
 - A. Involves a value judgement
 - B. Is determined by scientific principles
 - C. Is decided after baseline is taken
 - D. Depends upon the type of reinforcers which are available

6. What should be done to weaken the frequency of a behavior?
- A. Ignore the behavior
 - B. Provide an alternative for that behavior
 - C. Withhold reinforcement
 - D. All of the above
7. It is wise to reinforce a new behavior _____ it occurs.
- A. At the end of the class period during which
 - B. At the end of the day during which
 - C. Every time
 - D. At the end of the week during which
8. Spankings are a form of _____.
- A. Positive reinforcement
 - B. Punishment
 - C. Avoidance behavior
 - D. Consistent reinforcement
9. It is necessary to punish a child
- A. When training must be rapid for reasons of safety
 - B. When reinforcement is ineffective
 - C. When reinforcement is bothersome (i.e., not much time)
 - D. All of the above
10. A drawback associated with the use of spankings and the like by teachers and parents is that it provides the child with a _____ for such behavior.
- A. Dislike
 - B. Indelible dread
 - C. Model
 - D. Desire
11. Behavior is
- A. Instinctive
 - B. Motivated by drives
 - C. Innate
 - D. Learned
12. To get greater frequencies of a desirable behavior, one should first try
- A. Teaching alternative behaviors
 - B. Reinforcing that behavior
 - C. Planned ignoring of all other behaviors
 - D. Mild punishment for failure to show the desired behavior

13. Which three are methods of changing behavior?
- A. Punishment, reinforcement, shaping
 - B. Strengthening, weakening, shaping
 - C. Ignoring, timing, avoidance
 - D. Escape, strengthening, reinforcement
14. Can teachers shape behavior?
- A. Yes
 - B. No
15. To increase the frequency of the desired behavior, the consequence (reinforcer) must be
- A. Food
 - B. Given by the classmates
 - C. Given by the teacher
 - D. Immediate
16. A quick, easy, practical, and reliable way to record frequency of behavior as it occurs is
- A. Making marks on a pad
 - B. Hiring an "observer"
 - C. Keeping mental count
 - D. Purchasing a special recorder
17. Using the wrong things as a reinforcer will lead to
- A. A decrease in the desired behavior
 - B. An increase in the desired behavior
 - C. No change in the desired behavior
 - D. Wrongly shaped behavior
 - E. No change or a decrease in the desired behavior
18. Avoidance is
- A. A reaction to punishment
 - B. A neutral event
 - C. A reinforcer
 - D. A punisher
19. A slap is usually a (n)
- A. Reinforcer
 - B. Punisher
 - C. Substitute behavior
 - D. Immediate consequence for a desired behavior

20. Too little reward will lead to:

- A. No change in behavior
- B. An increase in the desired behavior
- C. A decrease in the desired behavior
- D. Incorrectly weakened behavior

What is the effect of the reward which you think is the best reward in the situation?

- 1. "Punish the wrong" behavior
 - a. A particular kind of reward
 - b. The likelihood of avoiding punishment
 - c. The frequency of positive children in military schools
 - d. A method of giving feedback to students

The desire to use primary reinforcement in your classroom is based on the fact that children are naturally attracted to their parents. They get a supply of chocolate and vanilla, especially, jelly, doesn't even try to get the rest of the class.

- 2. The principle of reinforcement does not work for my child
 - a. The principle of reinforcement does not work for Johnny
 - b. That you had better not exercise control, that is, punishment, which Johnny refuses to get his way or
 - c. That punishment and control are not effective reinforcements for Johnny

- 3. If a desirable behavior increases in frequency, it is not that it is
 - a. Reinforcing or rewarded
 - b. Praise
 - c. Being reinforced
 - d. An example of shaping

- 4. How teachers' reactions to the _____ because they do not intervene the frequency of the desired behavior that occurs?
 - a. Ignored
 - b. Encouraged
 - c. Reinforced
 - d. Defective

- 5. When after an extinction procedure has been begun, it is not unusual to see for a short time
 - a. An increase in the frequency of the behavior under extinction
 - b. A continuation of the extinction procedure
 - c. A drastic decrease in the frequency of the behavior under extinction

APPENDIX D

INSERVICE TRAINING PROGRAM

Name: _____ Date: _____

Draw a circle around the letter which you think is the best answer to the questions.

1. "Bug-in-the-ear" refers to
 - A. A particular kind of phobia
 - B. The S-O-R model of treating stuttering
 - C. The insensitivity of autistic children to auditory stimuli
 - D. A method of giving feedback to mediators

2. You decide to use primary reinforcers in your classroom to reward children for putting on their coats. You get a supply of chocolate and raisins. One child, Johnny, doesn't even try to put his coat on. You should conclude that:
 - A. The principle of reinforcement does not work for any child
 - B. The principle of reinforcement does not work for Johnny
 - C. That you had better use aversive control, that is, punishment, when Johnny refuses to put his coat on
 - D. That chocolate and raisins are not effective reinforcers for Johnny

3. If a desirable behavior increases in frequency, we can say that it is
 - A. Receiving no reinforcer
 - B. Shaped
 - C. Being reinforced
 - D. An example of shaping

4. Some teachers' rewards are not _____ because they do not increase the frequency of the desired behavior (best answer)
 - A. Appreciated
 - B. Understood
 - C. Reinforcing
 - D. Relative

5. Soon after an extinction procedure has been begun, it is not uncommon to see for a short time
 - A. An increase in the frequency of the behaviors under extinction
 - B. A sublimation of the extinction procedure
 - C. A drastic decrease in the frequency of the behavior under extinction

- D. Calmness and placidity in the subject because extinction has finally begun
6. Most children in your class do seatwork for about 15 minutes. Joey does seatwork for 3 minutes. You decide to begin reinforcing the 3 minutes of work initially, and then increase the requirement to 5 minutes, then 8 minutes, etc. This is an example of
- A. Reversing a contingency
 - B. Time out for longer periods of work
 - C. Using aversive consequences to change an undesirable behavior
 - D. Shaping approximations to the desired response of working for 15 minutes
7. The most important value of shaping is
- A. A teacher can control the student
 - B. It allows a teacher to teach a complex behavior by building on little ones
 - C. It starts with a complex behavior and works down to a simple behavior a child can understand
 - D. It by-passes several steps in the learning process for quick results
8. An effective reinforcer will always
- A. Increase the frequency of a behavior
 - B. Reduce deviant behavior
 - C. Be reinforcing to all children
 - D. Decrease the frequency of a behavior
9. If you come when I call you, I should _____ your behavior
- A. Shape
 - B. Reinforce
 - C. Punish
 - D. Model
10. Ignoring a behavior will cause that behavior to
- A. Increase
 - B. Decrease
 - C. Remain stable
 - D. Vary indefinitely
11. Which of the following is a concrete observation?
- A. He is lazy.
 - B. He has an inferiority complex.
 - C. He is frustrated by math.
 - D. He comments that no one likes him.

12. Smiling at a child while he is contributing to a group activity increases his participation in that activity. Smiling is then an example of
- A. A social reinforcer
 - B. Time out
 - C. Extinction
 - D. A primary reinforcer
13. Teaching a substitute behavior is a method for
- A. Indirectly punishing a child
 - B. Increasing an undesirable behavior
 - C. Decreasing an undesirable behavior
 - D. Weakening a desirable behavior
14. When is it best to specify the desired behavior or to give hints?
- A. Under the proper conditions for the desired behavior to occur
 - B. As the desirable behavior occurs
 - C. As the children are shaped up
 - D. As the punisher occurs
15. When a teacher frequently reprimands undesirable classroom behaviors
- A. The frequency of the undesirable behavior will quickly decrease.
 - B. The frequency of the undesirable behavior will initially increase and will then decrease.
 - C. The frequency of the undesirable behavior will increase.
 - D. The frequency of the undesirable behavior will remain at 70%.
16. Severe punishment
- A. Avoids the need for reinforcing another behavior
 - B. Does not teach desirable behaviors
 - C. Has temporary side effects such as escape and avoidance
 - D. Never loses its effectiveness
17. Carol is two and is playing with poison. You should
- A. Reinforce a substitute behavior
 - B. Punish that behavior
 - C. Ignore that behavior so it will weaken
 - D. Reason with Carol about the dangers of poison
18. "Do your homework before you watch TV" is an example of
- A. A group contingency
 - B. Time out

- C. Response cost
 - D. The Premack Principle
19. All behavior is _____.
- A. In born
 - B. Learned
 - C. Unchangeable
 - D. Phylogenetically determined
20. A child will work for tokens only if
- A. He likes the person distributing the tokens
 - B. The tokens are a primary reinforcer for that child
 - C. The tokens can be carried around
 - D. The tokens have been established as secondary reinforcers for that child

APPENDIX E
INSERVICE TRAINING PROGRAM

Name: _____ Date: _____

Draw a circle around the letter which you think is the best answer to the question.

1. A teacher uses more punishment techniques than positive reinforcement to control her classroom. This reliance on punishment will probably produce the following effect:
 - A. The teacher will be well liked by her students.
 - B. The children will be very good when there is a substitute teacher.
 - C. The children may be physiologically aroused by the punishment and "take it out" on other objects or people.
 - D. The children will be a "model class" when they go on to their next year's teacher.

2. While taking baseline recordings, it is important to
 - A. Begin a treatment technique immediately
 - B. Conduct the class as usual, while making the observations
 - C. Vary the daily routine from day-to-day as much as possible
 - D. Tell the children that they are being observed and that they should be on their best behavior

3. A particular child behaves in the way that he does because
 - A. He has inherited certain behavior patterns physiologically
 - B. He knows the principal of reinforcement and he is consciously using it
 - C. He has learned certain behavior patterns from his environment
 - D. All behavior is caused solely by the physical maturation process

4. Examples of punishment include all of the following except
 - A. Ignoring a behavior
 - B. Time out
 - C. Response cost (fines)
 - D. Verbal reprimands

5. Punishment should be used only with caution because of all the following reasons except
 - A. Although punishment suppresses behavior, it does not extinguish it; therefore, the behavior may reoccur when punishment is withdrawn

- B. The use of punishment is highly disapproved of in our society because methods of punishment are frequently unavailable
 - C. Since punishment generates an aversive emotional reaction, the reaction may become conditioned to the person administering the punishment
 - D. Punishment may produce undesirable side effects, e.g., aggression, or lying to avoid further punishment
6. A child watches another child draw a picture; he then makes a similar picture. This is an example of learning through
- A. Extinction
 - B. Modeling
 - C. Shaping
 - D. Premack Principle
7. The kind of behaviors of which a teacher tries to increase the frequency or, alternatively, to decrease the frequency
- A. Involves a value judgement
 - B. Is determined by scientific principles
 - C. Is decided after baseline is taken
 - D. Depends upon the type of reinforcers which are available
8. The reasons why many children are "reading failures" include all of the following except
- A. Learning to read is by its very nature unpleasant work
 - B. The usual reinforcements (social, mastery) are insufficient for some children
 - C. Stimulus materials are often poorly presented in large units
 - D. Early failure begins a vicious cycle of increasing failures
9. How much reinforcement should be used?
- A. Generally, a one-third increase over baseline amount is sufficient
 - B. Enough to maintain the target behavior
 - C. It depends on the availability of reinforcers during any given time period
 - D. No more than is necessary to keep the other children from being jealous of the target child
10. The one biggest criticism of punishment is that it fails to teach
- A. The child who the boss really is
 - B. The other children that the same consequence can happen to them
 - C. The desired behavior or the alternative for the punished behavior
 - D. The punished child anything but the most complex tasks

11. If you delay a reinforcer, what would probably happen?
- A. The student would get over it.
 - B. The student would remind you of the problem.
 - C. There would probably be little change in the target behavior as reinforcement must be immediate.
12. Punishment, when used by teachers and parents, is usually intended to _____ an undesired behavior.
- A. Suppress
 - B. Indicate
 - C. Reorient or redirect
 - D. Eliminate or weaken
13. The purpose of keeping records during an experiment in modifying behavior is to:
- A. Be able to compare before and after frequencies of the behavior
 - B. Show the child that you planned to modify his behavior
 - C. Show what reinforcers serve to modify the child's behavior
 - D. Determine the amount of reinforcer to be used
14. In teaching a behavior, irregular reinforcement should be used only
- A. Immediately
 - B. After the behavior is taught
 - C. On very young children
 - D. To initially "cement in" the behavior
15. All behavior is controlled by
- A. M & M's
 - B. Its impact on others
 - C. Its benefit or lack of benefit to the behavior
 - D. Authority figures
16. In our "system" for behavior management, reinforcement means
- A. Pleasing consequences that increase behavior
 - B. Consequences that may or may not increase behavior
 - C. No consequences
 - D. Shaping of behavior
17. Punishment should be administered _____ to be effective
- A. Occasionally
 - B. Regularly
 - C. In anticipation of the offense
 - D. Immediately

18. A teacher or parent who is a poor source of reward is probably best described as a persistent
- A. Reinforcer
 - B. Model
 - C. Shaper
 - D. Punisher
19. Who determines what is reinforcing?
- A. The teacher
 - B. The classroom environment
 - C. The child
 - D. Immediacy of reinforcement
20. Shaping is a method for
- A. Teaching complex behavior by progressive steps
 - B. Weaning children from reinforcers
 - C. Decreasing an undesirable behavior
 - D. Arranging the physical environment of the classroom