A Workshop Approach to Training Paraprofessionals in the Theory and Application of Behavior Modification Principles and Techniques

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A WORKSHOP APPROACH TO TRAINING PARAPROFESSIONALS
IN THE THEORY AND APPLICATION OF BEHAVIOR
MODIFICATION PRINCIPLES AND TECHNIQUES

by

Janice H. Schoonmaker

A Thesis
Submitted to the
Faculty of the Graduate College
in partial fulfillment
of the
Degree of Master of Arts

Western Michigan University
Kalamazoo, Michigan
December 1971
ACKNOWLEDGEMENTS

I wish to thank the members of my thesis committee, Professors E. Wade Hitzing, Robert P. Hawkins and Jack L. Michael, for their attention, advice and encouragement in the preparation of this paper. I especially wish to convey gratitude to Dr. Hitzing for his friendship and guidance as my graduate advisor, and for his leadership and effort as director of the project described herein.

Janice H. Schoonmaker
SCHOONMAKER, Janice Howe
A WORKSHOP APPROACH TO TRAINING PARAPROFESSIONALS
IN THE THEORY AND APPLICATION OF BEHAVIOR MODIFI-
CATION PRINCIPLES AND TECHNIQUES.

Western Michigan University, M.A., 1971
Psychology, clinical

University Microfilms, A XEROX Company, Ann Arbor, Michigan
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A basic tenet of behavior modification is that professionals should ultimately teach non-professionals to utilize the principles of behavior to treat behavior problems. A professional's time is often expended not in the direct treatment of problem behaviors, but rather in training the individuals who are closest to the behavior problem to effect the therapeutic changes themselves. The professional, then, serves as an advisor or consultant, while the non or paraprofessional serves in the role of therapist.

There have been three basic methodologies utilized to effect such training: 1) within clinic settings, 2) group training situations and 3) on-site training. Each of these methods has been used to train various populations. The within clinic method has been most extensively used with parents, while the group training settings and on-site training methods have been used most frequently with attendants, teachers, peers, etc.

Initial attempts at within clinic training involved the individuals who requested assistance going to the clinic or other treatment center. Generally, they were asked to describe the behavior problem(s), to observe a professional who demonstrated procedural applications, to practice the applications of the treatment procedures, under the supervision of the professional and to then conduct the treatment procedure within their own loci (Bernal, Duryee, Pruett and
Burns, 1968; Patterson, 1965b; Straughan, 1964; Wahler, Winkel, Peterson and Morrison, 1965; Wolf, Mees and Risley, 1964). Over a series of visits to the clinic for training, combined with applications in the natural environment, most individuals were successful in solving the behavioral problem through the use of behavior management techniques.

The second training method was that of group training (Galloway and Galloway, 1970; Holzschuh, 1967; Lindsley, 1966). This approach typically requires that individuals attend a series of formal training classes at a central location. There they are taught the fundamental procedures of behavior management: 1) define the problem, 2) measure the behavior, 3) consequate the behavior and 4) assess the procedure. They are required to perform a "home-work assignment— one or more behavior modification projects. The professional acts as a trainer and advisor; the individuals are expected to develop their own treatment plans from the information that they learn in the classroom. Admission to classes involves contingencies upon the participants' behavior, such as a week's worth of data points that are presented in exchange for admission to class.

The third method of training is that of direct, on-site intervention (Hawkins, Peterson, Schweid and Bijou, 1966; Patterson, McNeal, Hawkins and Phelps, 1968; Patterson, Ray and Shaw, 1969; Peine, 1968; Wahler, 1969; Zeilberger, Sampen and Sloane, 1968). In general, this method attempts
to provide both training and technical assistance within the environment in which the behavior problem is occurring.

After a period of observing and measuring an individual's means of treating the behavior problem, the professional determines a treatment plan in conjunction with the individual. That plan may include anyone who has contact with the problem behavior, such as family members or classmates. The professional demonstrates behavioral treatment techniques to the involved persons, and then directs them in their applications. As in the group training method, there is usually a contingency placed on the individual's behavior. On-site training may also involve the individuals in formal classroom training or in informal training while the professional is on-site.

The sources of therapeutic manpower have been many and varied. Within institutions attendants (Ayllon and Azrin, 1968; Ayllon and Michael, 1959; Panyan, Boozer and Morris, 1970; Schoonmaker and Hitzing, 1971), cottage parents and classroom teachers (Clements and McKee, 1968; Cohen, Filipczak, Bis, Cohen and Larsen, 1968) and peers (MacCormack, 1970; Phillips, 1968) have been trained to apply behavioral principles as management techniques.

Outside of institutional settings, workers in most mental health areas and in education have been trained to use behavior management techniques. Teachers in preschool, elementary, secondary, remedial and special education
classrooms have been successfully trained to apply behavioral techniques (Barrish, Saunders and Wolf, 1969; Cooper, Thomson and Baer, 1970; Hall, Lund and Jackson, 1968; Hall, Panyan, Rabon and Borden, 1968; Lovitt and Curtiss, 1969; Schutte and Hopkins, 1970; Sulzbacher and Houser, 1966; Wood, 1968).

Peers and peer groups have been taught to use behavior management techniques to effect the behavior of their classmates or siblings (Packard, 1970; Patterson and Anderson, 1964; Surratt, Ulrich and Hawkins, 1969). These studies typically involved one of two procedures: direct application of management techniques by the peer or peer group or indirect application of management techniques by use of group contingencies.

Most of the cited papers describe training that was conducted over a long period of time. These lend credence to the assertion that almost anyone can learn to effectively manage behavior problems if given the proper training.

The purpose of the present paper is to evaluate a short-term workshop approach as a method of training paraprofessionals to utilize learning theory and behavior management techniques with retarded populations. The first portion describes a workshop and its results conducted for attendant staff at a residential institution. This workshop served as a procedural testing ground for the second portion of the paper, which describes a series of four workshops and
their results presented to the staffs of Day Training Centers for Severely Retarded.
The Muskegon Workshop on Behavior Modification was originally proposed by the Director of Programs and his staff at the Muskegon Regional Mental Retardation Center, working in conjunction with administrative personnel in the State Department of Mental Health. The workshop represented the starting point for the implementation and development of a behavior treatment project for the Growth and Development Program at the Center.

All of the Growth and Development Program staff were required to attend the workshop during the three days (total: 27). Other nonprofessional and professional staff were invited to attend as their schedules permitted. The average number of participants each day was about 57. The total number of participants who were not required to attend full-time was about 43.

The workshop staff consisted of a project director and four group leaders. Participants were divided into groups of about 15 persons. Group assignments were made according to employment classification. The group that was comprised of supervisory personnel remained with the same group leader for all three days, while the other groups were rotated among the other three group leaders.

The presentation of the workshop as an introduction to behavior management was the first of four planned objectives.
As was mentioned, it represented the starting point for the development of a behavior treatment program. The basic purposes of the workshop were to introduce the basic principles of behavior, and their applications, with the attendant staff of the Growth and Development Program as the focal group.

**METHOD**

**Preparation of Format**

Although the educational levels of the participants ranged from less than high school to a PhD., it was decided that all written and lecture materials would be prepared at the high school graduate level. Flexibility in the level of content difficulty would be allowed in the small group discussions.

The next step in planning required that the workshop staff determine a presentation format that would be concise enough to allow for the presentation of the necessary information, and also allow the participants to effectively learn the material. The final format included three basic types of presentations: lectures, small group discussions of the lectures and related topics and programmed reading and writing assignments about the lecture topics. Audio-visual aids—both slides and commercial films were used to illustrate the lecture topics.
Lectures were used to present an overview of each topic. The objectives of the small group discussions were 1) to elaborate upon the material presented in the lectures, 2) to provide immediate feedback for questions, and 3) to provide the place for the exchange of ideas. The reading and writing assignments were planned to provide the participants practice in the application of information presented in the lectures and small group discussions.

**Daily Schedule**

Each day's sessions were scheduled so that the participants would initially attend a lecture, and then be divided into small groups for discussion of the lecture topic. This was followed by a reading and writing assignment, and a second small group discussion, which covered the prior reading and writing assignment.

Two topics were presented each day and were arranged so that the basic objective of the workshop would be met by successive approximations. These were:

1) **The Introduction**: A contrast of the traditional approach to abnormal behavior with the behavior modification approach.

2) **Principles of Behavior**: An introduction to the basic principles of behavior.

3) **Further Principles**: A continuation of basic principles.

4) **Custodial Program**: An introduction to the Growth and Development behavioral treatment program.
5) Treating Behavioral Deficits: The specific applications of treatment procedures to deficit behaviors.

6) Treating Behavioral Excesses: The specific applications of treatment procedures to excessive behaviors.

The lectures were presented with an emphasis on the generality of behavior principles to all human behavior. Most examples and audio-visuals were specific to retarded populations. The emphasis was similar in the small group discussions until the presentations of the final three topics. At this time emphasis was shifted toward the application of treatment procedures to specific problems common to all retarded populations, and to the problems specific to the Growth and Development Program population.

Preparation of Materials

During the planning stages a major problem was seen in the extensiveness of the material to be presented—both in quantity and variety. To alleviate the need for the participants to take lecture notes, the workshop staff decided to prepare a series of lecture outlines. These were to be used along with the lectures, and later as guidelines for the group discussions.

The simple outlines did not seem to convey the necessary information, however. Furthermore, a great deal of time and preparation funds were being expended on materials that could only be useful during the workshop itself. Consequently, each outline was completely developed, and these were bound together into a training manual that would serve both during
the workshop, and later as a reference source during the consultation phase of the project.

RESULTS AND DISCUSSION

Evaluations of Participant Performance

Participant performance was measured by means of a pre-test, two daily quizzes and a post-test. The pre and post-tests were used to measure attitude changes toward the treatment of the mentally retarded over the three-day period. The quizzes were an objective measure of the participants' comprehension of the material as it was presented each day. The quizzes also served as a feedback device for the workshop staff to assist in determining areas of teaching difficulty. Table 1 shows a comparison of the mean pre and post-test scores for the 27 full-time participants. The average score increase for this group was 24 percent. A Wilcoxon Matched-Pairs Signed-Ranks Test was applied to the sets of scores and resulted in a z-score of (p < .00003). The majority of the participants increased their post-test scores over their pretest scores. There were four score decreases.

TABLE 1

A comparison of mean pre and post-test scores by percent and the mean percent score change for the 27 full-time participants

<table>
<thead>
<tr>
<th>PRETEST MEAN</th>
<th>POST-TEST MEAN</th>
<th>PERCENT CHANGE MEAN</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>55%</td>
<td>79%</td>
<td>24%</td>
<td>27</td>
</tr>
</tbody>
</table>

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Evaluations of the Workshop by Participants

The second measure of effectiveness was by written evaluation. The participants were asked to evaluate each type of presentation each day, and to evaluate the workshop as a whole at the end of the third day. The daily evaluations were primarily a means of assessing likes and dislikes with respect to the topics and their presentations. The general evaluation asked for opinions and comments regarding the entire workshop presentation.

The general evaluation required two types of responses: the rating of seven questions on a numerical scale of zero (worst) to ten (best); the second asked for written comments to four "open-ended" questions. Table 2 depicts responses to the numerically-rated questions by percent.

As is shown, the workshop was well-received, especially with respect to the information imparted and the applicability of the material. Generally, if a rater gave a low evaluation on a point, he included a note of explanation, a comment or a suggestion in response to the question "How could the workshop be more effective?"

The second part of this evaluation asked the participants to comment on what they liked best about the workshop and what they liked least, how the workshop could be more effective and how they thought that their behavior as mental health workers would change as a function of the workshop. The purpose of this portion of the evaluation was to assist
<table>
<thead>
<tr>
<th></th>
<th>1,2</th>
<th>3,4</th>
<th>5,6</th>
<th>7,8</th>
<th>9,10</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Worthwhile</strong></td>
<td>82%</td>
<td>9%</td>
<td>9%</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>Too Short</strong></td>
<td>68%</td>
<td>15%</td>
<td>14%</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>Interesting</strong></td>
<td>89%</td>
<td>6%</td>
<td>5%</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>Informative</strong></td>
<td>96%</td>
<td>2%</td>
<td>2%</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>Content Clear</strong></td>
<td>48%</td>
<td>26%</td>
<td>12%</td>
<td>14%</td>
<td>---</td>
</tr>
<tr>
<td><strong>Had Immediate Application</strong></td>
<td>67%</td>
<td>26%</td>
<td>4%</td>
<td>3%</td>
<td>---</td>
</tr>
<tr>
<td><strong>Would Recommend to Other Institutions</strong></td>
<td>83%</td>
<td>7%</td>
<td>8%</td>
<td>2%</td>
<td>---</td>
</tr>
</tbody>
</table>

Responses by percent to the numerically-rated section of the third-day general evaluation.
in determining how the workshop might be improved for future presentations.

Table 3 is a summary of the participants' responses by percent regarding what they enjoyed most and least about the presentation. As is shown, the small group discussions were most preferred, with audio-visuals, lectures and reading and writing assignments next in order.

The major complaints regarded the length of the sessions, too few breaks, and the length of the lectures. The quizzes and tests, terminology, writing assignments and evaluations were mentioned as being disliked with some frequency.

Table 4 is a summary of responses by percent to the question "How could the workshop be more effective?" The most frequent response regarded lengthening the workshop in some manner. Interestingly enough, no one suggested decreasing the amount of material presented.

Other frequent suggestions included our providing the manual prior to the workshop, decreasing lecture length, increasing the length of the small group discussions, and decreasing the length of the reading and writing assignments. These evaluations were instrumental in our effecting format changes for the Day Training Centers workshops, as will be discussed in the next section.
**TABLE 3**

Responses by percent to the questions "What did you enjoy most about the workshop?" and "What did you enjoy least about the workshop?".

<table>
<thead>
<tr>
<th>Activity</th>
<th>MOST</th>
<th>LEAST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures</td>
<td>18%</td>
<td>14%</td>
</tr>
<tr>
<td>Small Group Discussions</td>
<td>36%</td>
<td>0%</td>
</tr>
<tr>
<td>Reading and Writing Assignments</td>
<td>2%</td>
<td>5%</td>
</tr>
<tr>
<td>Audio-Visuals—</td>
<td>24%</td>
<td>0%</td>
</tr>
<tr>
<td>Amount of time Allotted to Learn the Material</td>
<td>0%</td>
<td>19%</td>
</tr>
<tr>
<td>Terminology</td>
<td>0%</td>
<td>5%</td>
</tr>
<tr>
<td>Quizzes and Tests</td>
<td>2%</td>
<td>8%</td>
</tr>
<tr>
<td>Sitting too Long</td>
<td>0%</td>
<td>41%</td>
</tr>
<tr>
<td>Evaluations</td>
<td>0%</td>
<td>5%</td>
</tr>
<tr>
<td><strong>TOTAL RESPONSES</strong></td>
<td>45</td>
<td>37</td>
</tr>
</tbody>
</table>
TABLE 4

Responses by percent of total responses to the question "How Could the Workshop be More Effective?"

<table>
<thead>
<tr>
<th>RESPONSES</th>
<th>PERCENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add more time to learn the material</td>
<td>45%</td>
</tr>
<tr>
<td>Provide materials beforehand</td>
<td>10%</td>
</tr>
<tr>
<td>Have shorter lectures</td>
<td>10%</td>
</tr>
<tr>
<td>Have longer discussion groups</td>
<td>8%</td>
</tr>
<tr>
<td>Have shorter reading and writing assignments</td>
<td>7%</td>
</tr>
<tr>
<td>Satisfied</td>
<td>7%</td>
</tr>
<tr>
<td>Show more applications</td>
<td>6%</td>
</tr>
<tr>
<td>Show more films</td>
<td>4%</td>
</tr>
<tr>
<td>Add more breaks</td>
<td>3%</td>
</tr>
<tr>
<td>TOTAL RESPONSES</td>
<td>29</td>
</tr>
</tbody>
</table>

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THE DAY TRAINING CENTERS WORKSHOPS

INTRODUCTION

In May, 1970, we were asked to present workshops in behavior modification for all Day Training Centers (for severely retarded) in the state. These were proposed by Mr. Duane Koshork, at that time Director of Day Training Centers for the State, and Mr. Charles Ramsey, Title I Consultant. The purpose of the workshops was to provide staff training in behavior modification.

It was determined that personnel from the Centers would attend one of four regional workshop sites at Kalamazoo, Plymouth State Home and Training School at Northville, at Flint or at Cadillac. Each four-day workshop was divided into a three-day session with the fourth day to follow about six weeks later. The workshops were presented over a three-month period between July and October.

METHOD

Use of Questionnaires

These workshops were directed towards the treatment of the same type of population as the one at Muskegon, but in settings different from a residential institution. All of the workshop staff were able to make on-site visits prior to the Muskegon workshop, but since there was less than a month before the presentation of the first workshop at Kalamazoo, and the workshops would include all Centers in the state, on-site visits were physically impossible.
Second, it was necessary to revise the workshop format and manual to be appropriate to Day Training Center problems. Thus, a questionnaire was used as an alternative to on-site visits. There were four objectives to its use, 1) to assist in the preparation of a format specific to retarded children in Day Training Centers, 2) to assist in the preparation of demonstrations specific to Day Training Centers, 3) to obtain routine information with respect to the functioning of Day Training Centers throughout the state, and 4) to determine the specific types of behavior problems encountered in Day Training Center settings.

The questionnaires, which required about 15 minutes to complete, were sent to all staff members of the Day Training Centers. Information was requested on self-care skill levels, verbal skills, daily schedules of activity, types of behavior problems exhibited, the most outstanding behavior problem at each Center and the most disruptive or troublesome behavior problem.

Table 5 is a summary of the most frequently mentioned behavior problems. Two or more behaviors were often listed as both most outstanding and most disruptive.

Presentation Revisions

A primary procedural difference between the Muskegon Workshop and the Day Training Centers workshops was the addition of a fourth day. At Muskegon, the workshop was
<table>
<thead>
<tr>
<th>Behavior Problem</th>
<th>Number of Times Mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tantrums</td>
<td>118</td>
</tr>
<tr>
<td>Not following directions</td>
<td>110</td>
</tr>
<tr>
<td>Aggression</td>
<td>107</td>
</tr>
<tr>
<td>Toilet training</td>
<td>88</td>
</tr>
<tr>
<td>Withdrawn</td>
<td>86</td>
</tr>
<tr>
<td>Self-abuse</td>
<td>79</td>
</tr>
<tr>
<td>Eating problems</td>
<td>62</td>
</tr>
<tr>
<td>Autism</td>
<td>61</td>
</tr>
<tr>
<td>Hyperactivity</td>
<td>38</td>
</tr>
<tr>
<td>Attention span</td>
<td>24</td>
</tr>
<tr>
<td>Stubbornness</td>
<td>10</td>
</tr>
<tr>
<td>Crying</td>
<td>6</td>
</tr>
<tr>
<td>Defiance</td>
<td>5</td>
</tr>
<tr>
<td>Destructiveness</td>
<td>3</td>
</tr>
<tr>
<td>Perseveration</td>
<td>2</td>
</tr>
<tr>
<td>Wandering</td>
<td>2</td>
</tr>
<tr>
<td>Disruptiveness</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total Respondents</strong></td>
<td><strong>147</strong></td>
</tr>
</tbody>
</table>
a starting point for a twelve-week consultation program, but this would not be possible at the Day Training Centers Workshops. Thus, the first three days were scheduled as they were at Muskegon, while the fourth day was scheduled about six weeks later.

During this interim, each of the participants was asked to conduct a project with one of the children at his Center. The results were to be returned to the workshop director one week prior to the fourth day. Each participant presented his project to his small group during the first half of the fourth day.

The second half of the fourth day was devoted to the presentation of the token economy as a contingency management system. Additional time was allotted for a general question and answer period.

Format Revisions

The preference data from the Muskegon Workshop were influential in inspiring a number of changes in the workshop format. Although 18 percent of the participants reported that they had enjoyed the lectures most, 14 percent said that they had liked them least. Further, 36 percent had enjoyed the small group discussions most; many suggested that the discussion time be lengthened. Forty-one percent had disliked sitting too long with too few breaks.

From these data the following format revisions were made:
(1) Lectures were scheduled to be no more than 45 minutes in length.

(2) Small group discussions were lengthened to a minimum of 45 minutes to a maximum of one and one-half hours (with the exception of the fourth day).

(3) Reading and writing assignments were revised.

(4) Short breaks (five minutes) were scheduled between lectures and discussions.

(5) Whenever possible, coffee was made available throughout the day rather than at specifically scheduled times, although a formal break was scheduled both in the morning and the afternoon.

(6) Tests, quizzes and evaluation forms were revised.

(7) Audio-visual materials were revised.

The reasons for changing the lecture and discussion groups were mentioned. The reading and writing assignment at the Muskegon Workshop were too lengthy to be completed in the allotted time, and also required too long a discussion which resulted in a loss of interest by some of the participants. Accordingly, these were shortened to only a few essay questions with the majority of the assignment being fill-in-the-answer questions. The discussions of these assignments were held to a maximum of one hour.

The tests, quizzes and evaluation forms were revised. The pretest was the same as the one used at Muskegon. The post-test length was decreased because of the quantity of
writing the participants were asked to do on the last after-
noon. A test was administered prior to the beginning of
the fourth day that was comprised of a sampling of questions
from the six quizzes administered during the three-day
session.

The daily quizzes were altered slightly with respect
to their length and the wording of questions. Their content
sampled participant comprehension of each half-day's work.
Immediate feedback to the participants was offered in the
form of a quiz key—a second copy of the quiz, this time
with the correct answer added. These were given to each
participant in exchange for his completed quiz.

Daily evaluation forms were revised primarily for
clarity. The third day evaluation was retained. Two
evaluation forms were devised for the fourth day session;
one was specific to the fourth day format, and one was
used to evaluate the total effectiveness of the workshop
after the participants had actually had a chance to apply
the techniques presented.

The audio-visual materials, primarily the slide shows
which accompanied the lectures, were changed for one basic
reason: The workshop participants at Muskegon were most
interested in demonstrations that exemplified the population
with which they worked. The slide shows for the Muskegon
Workshop were prepared using subjects from the Growth and
Development program. There were several slides of adult
mentally ill depicted in the token economy program at the Kalamazoo State Hospital. Despite the preponderance of slides from their own setting, there were comments regarding the irrelevance of the slides of the mentally ill to the participants' own situation.

Thus, audio-visual materials were "de-institutionalized". Furthermore, lecture examples were changed to exemplify mentally retarded populations regardless of the original source. The generality of behavior was heavily stressed in the small group discussions.

**Manual Revisions**

The basic purposes of the training manual remained the same as at Muskegon: 1) to provide a workbook to use during the workshop, and 2) to serve later as a reference source. The second purpose of the manual was critical, especially since the participants were expected to conduct applied projects for the fourth day.

Much of the original manual was retained. Those sections were either extensively revised to be appropriate to Day Training Center settings or were revised and expanded. Three new sections were added: Data collection, In-home behavior management and practice projects. The custodial program section was deleted because it was not appropriate.

The Basic Principles section was revised. The Specific Applications and Treating Excessive and Deficit Behaviors
sections were very extensively revised and expanded. The objective here was to provide information regarding applications of treatment procedures that could not be completely presented in the workshop.

There were several reasons for the addition of the sections mentioned. First, at Muskegon we had the opportunity to actually demonstrate procedures and techniques and provide additional information as the need arose; obviously this would not be possible in this setting. Second, at Muskegon the workshop staff was able to make six visits prior to the workshop to train the attendant staff in behavior measurement. Again this would be impossible. Since data collection and portrayal is basic to any behavioral treatment program, a very extensive section on behavior measurement, analysis and portrayal was added.

The in-home behavior management section was provided because most training aides and supervisors have at least some contact with families of their charges. This section was designed to help the aides and supervisors provide concrete technical assistance in the home environment.

The practice projects were added for several reasons. The participants were expected to conduct projects in the interim between the third and fourth days. The behaviors represented in the cookbook projects were behavior problems common to many retarded children. The projects had been
tried in practice during the Muskegon consultation program and were specific enough so that anyone with a knowledge of basic principles of behavior could conduct the project and in all likelihood experience success.

RESULTS AND DISCUSSION

Evaluation of Participant Performance

A pretest/post-test method of evaluation was utilized to determine the participants' change in attitude over the three days towards the treatment of the mentally retarded. The pretest consisted of 31 possible points and the post-test, 27. There were 12 true-false questions that were common to both tests. The questions were designed so that the manner in which they were answered would indicate either a behavioral orientation toward the treatment of the retarded, as opposed to a more traditional, medically-oriented approach.

Table 6 shows the pre-and post-test comparison of mean scores of items common to both tests for participants who were present for both tests. The number of participants per workshop who took both tests is also shown. A Wilcoxon Matched-Pairs Signed-Ranks Test was applied to the sets of scores and resulted in a z-score of ten ($p < .00003$).

The data suggest that there was an attitude change effected over the three day period. There was one
TABLE 6
Mean percent correct per test, and mean percent score change for participants who took both pre and post-tests.

<table>
<thead>
<tr>
<th>PRETEST MEAN</th>
<th>POST-TEST MEAN</th>
<th>MEAN PERCENT SCORE CHANGE</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>49.9%</td>
<td>88.2%</td>
<td>28.3%</td>
<td>146</td>
</tr>
</tbody>
</table>

individual who decreased his score from the pretest and eight who showed no change. The other 137 participants showed post-test score increases as compared to the pretest.

In order to measure retention of material over the six-week period between the third and fourth days, a test was administered at the beginning of the fourth day. This test was composed of 20 quiz questions that 30 percent or more of all of the participants had missed during the first three days. Thus, the participants had been exposed to the questions, to the answers on the quiz key and to a discussion of the questions and answers prior to taking the test on the fourth day.

The ten participants who scored highest and lowest on the quizzes were selected from the participants who had taken all of the quizzes and the fourth-day test. Their quiz performance was then compared to their performance on the fourth-day test. These data were analyzed to determine whether or not the high scoring group tended to maintain its performance level and if the low scoring group improved its performance over the interim.
Table 7 shows a comparison of the high and low groups' mean quiz and fourth-day test scores by percent. The percent score change for each group is also shown.

A Wilcoxon Matched-Pairs Signed-Ranks Test applied to both sets of scores showed that the high group's score change was not significant. The low group's score change was significant at the .05 level of confidence.

**TABLE 7**

Comparison of high and low scoring groups' mean quiz and fourth-day test scores by percent and the mean percent score change for each group.

<table>
<thead>
<tr>
<th>GROUP</th>
<th>QUIZ MEAN</th>
<th>FOURTH-DAY TEST MEAN</th>
<th>MEAN PERCENT SCORE CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIGH</td>
<td>90%</td>
<td>90%</td>
<td>0%</td>
</tr>
<tr>
<td>LOW</td>
<td>45%</td>
<td>60%</td>
<td>15%</td>
</tr>
</tbody>
</table>

As can be seen the subjects in the high group showed no overall score increase, whereas subjects in the low group averaged a 15 percent score increase. Two high group subjects decreased their scores between the third and fourth days, while one subject in the low group decreased his score.

The data shown in Table 7, and especially that of the low group, might be attributed to at least two major variables. The first is the participants' previous exposure to the fourth-day test questions. Quiz answer sheets were given to the participants following the finish of each quiz.
The answers were then discussed at the beginning of the next small group discussion.

A second explanation might be the requirement of conducting a project during the six-week interim between the third and fourth days. This necessitated the participants' using the manual, thus reviewing the material under less intense conditions. As will be discussed later, participants who conducted projects generally performed better on the fourth-day test than those who did not conduct projects.

There are several other variables which could in part account for the results. First might be the educational levels of the subjects. The position of Day Training Center supervisor requires a baccalaureate degree from an accredited university, or a nursing degree. The position of training aide requires a high school diploma or its equivalent.

Of the ten subjects in the high group, three were supervisors. (Supervisory staff comprised about 18 percent of the 226 total participants.) This might suggest that although the material was prepared at the high school graduate level, it was still too difficult for many of the participants. Furthermore, there were a number of comments on the evaluations regarding the difficulty of the material, primarily with respect to the terminology.

Previous exposure to principles of behavior could have been a factor. There were several Centers that were using
behavior management programming at the time of the workshops. Subjects from these Centers appear in the high group.

The amount of time provided to learn the material could have influenced performance, especially in the first three days. It would seem, however, that the improvement in the low groups should have been greater since not only did the participants have six weeks to review the material on their own, but were also required to conduct projects which would require at least some use of the manual.

Fatigue and the learning environment could have been a major influence in performance at two of the workshop sites. Participants at these workshops were required to drive to and from the workshop each day. In some cases, this meant a round trip of four or five hours in addition to the eight-hour workshop day.

The sample presented above is representative of the workshop population-at-large. Although there was some criticism regarding the difficulty of the material, the participants generally showed that they were able to learn and retain the material.
Behavior projects were the participants' "homework" assignments. These subjects were conducted during the six-week interim between the third and fourth days of the workshop.

A behavior project, whether successfully completed or not, represented the practical application of the material presented during the first three days at the workshop. They showed not how well the participants could talk about behavior principles, but rather how well they could isolate a behavior problem, measure it, apply a therapeutic technique and assess the results.

During the afternoon of the third day, about one hour was devoted to discussing "how to conduct a project". We reviewed defining behavior and behavior measurement in general terms. Each small group leader then designed a behavior problem and the group solved it using each of the steps that would be used in the Centers. The participants were also provided with a sheet of instructions separate from the manual. That discussion, the handout and the information contained in the manual was the only formal preparation that the participants received.

Because each Center had only about five weeks to conduct their respective projects, we stressed that they select simple behavior problems. For example, they might simply teach a child to roll a ball to his teacher, rather than
teaching the child to play with the ball with several other children.

A letter was sent to each Center supervisor two weeks prior to their scheduled fourth days. The letter requested that the results of each Center's projects be graphed and mailed to us (as previously arranged) one week before the fourth day. It also asked that a brief (about one page) description of each project be included with the graph. That communication was the only contact that we had with any Center during the interim period.

The responses from the Centers were excellent. When the first set of projects were returned to us prior to the fourth day at Kalamazoo we suspected a mass deception on the part of the participants, until we decided that that many people just could not be cheating.

The far majority of projects from the other workshop sites were as sophisticated as the first set in terms of methodological inventiveness and the range of behavior problems treated. The behaviors most frequently chosen for projects were those delineated as behavior problems in the initial questionnaire. They did not occur in the same order of frequency, however. For example, hyperactivity was the most frequently treated behavior problem, with toilet training, treating tantrum behavior, teaching eating with utensils, and instructional control next, in descending order.
Each of the above-mentioned projects were included as "cookbook projects" in the manual, and comprised about 50% of the total projects that were done. However, if an individual selected one of those, he generally used only the basic procedural outline, adding his own variations as to implementation and conducting the project. Only two participants actually used procedures exactly as they appeared in the manual.

The variety of other behavior problems that were treated was wide. These ranged from teaching simple color discrimination to a rather exotic attempt at in vivo desensitization of a "pea phobia".

Given the problems encountered by individual Centers: staff summer vacations, subjects' family vacations, Centers relocating at the end of the fiscal year, staff turnover, illness, camp and relatively short amount of time to conduct projects, the percentage of projects conducted by the groups was exceptional. Those data are summarized below.

<table>
<thead>
<tr>
<th>TOTAL NUMBER OF PARTICIPANTS</th>
<th>TOTAL NUMBER OF PROJECTS</th>
<th>PERCENT OF TOTAL GROUP WHO CONDUCTED PROJECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>227</td>
<td>141</td>
<td>61%</td>
</tr>
</tbody>
</table>

The projects constituted an important part of the workshops. It was not possible to adequately assess the procedure of including project assignments as a teaching method for several reasons. First, the workshops were presented on a contractual basis; ethically we could not include a major
deviation from the format for a particular group. Second, time, and the location of the Centers throughout the state made it impossible to assess whether or not behavior management was in actual use in the various Centers prior to the workshops. Third, we were not able to assess post-workshop performance for the same reason.

Therefore, the inclusion of the project assignment was evaluated in two ways. First, the participants themselves were asked to report their feelings about conducting the projects. Second, since the project assignment was designed to necessitate the participants' applying behavioral techniques, the content of a random sample of projects was assessed.

Participant evaluations of the project requirement were quite favorable. The majority of participants [about 90 percent] reported that they felt that conducting their projects constituted a valuable learning experience.

When asked what they liked most about the projects, the most frequent answers were "actually doing it and seeing [successful] results" and "seeing the child improve", [especially with respect to very severe or difficult behavior problems]. They also reported that although they did not like presenting the results of their projects to the group, that they could often relate the problem under discussion to their own situations. Furthermore, they felt that group discussions were also helpful because they "found out that
they were doing things right."

The participants' major complaint with regard to conducting projects was the short amount of time that they had to run them; they generally felt that they could have had better results had they had more time. The second most frequent complaint regarded a general dislike of collecting and graphing data.

The second means of evaluating the project assignment was by rating a representative sample of the total number of projects that were conducted. Fifteen projects were randomly chosen from each workshop site giving a total of 60 projects. Those projects were rated with either yes or no on the following four questions:

A. Is the description of the problem an adequate behavior definition of the problem? For example, "The problem I worked with was hyperactivity" would not be an acceptable definition.

B. Does the experimenter use behavioral terminology in his procedure—or does he attempt to use it?

C. Does the data portrayal (graph) reflect what was done?

D. Did the experimenter accomplish what he attempted—or was he successful to the point at which he had to stop?

Each of those questions was determined to reflect some aspect of the workshop program. Respectively, they were able to isolate a problem and present it in behavioral terms, use of terminology, assessment of the behavior problem, and use of procedural techniques. Rater responses to the four questions are shown in Table 8.
TABLE 8

Rater evaluations by percent of projects conducted as a workshop assignment.

<table>
<thead>
<tr>
<th>QUESTION</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Behavioral Definition?</td>
<td>87</td>
<td>13</td>
</tr>
<tr>
<td>B. Terminology?</td>
<td>87</td>
<td>13</td>
</tr>
<tr>
<td>C. Graph Correct?</td>
<td>75</td>
<td>25</td>
</tr>
<tr>
<td>D. Successful?</td>
<td>77</td>
<td>23</td>
</tr>
</tbody>
</table>

For determination of rater reliability, two sets of 15 projects each were rated by an independent rater. On each question the positive (yes) score assigned by the first rater was divided by the positive score assigned by the independent rater. This resulted in reliability scores of 88 percent, 83 percent, 93 percent, and 84 percent for the four questions, with a mean of 87 percent overall.

These data would suggest that the participants were generally able to isolate and define a problem, and to discuss their procedures in behavioral terms. They encountered difficulty, however, in portraying their data correctly, and accomplishing what they attempted.

The participants' comments, especially with respect to the amount of time that they had to conduct their projects and a dislike of recording and graphing data are reflected in the raters' evaluations of the projects. The seemingly high figure of 23 percent who had unsuccessful results with their projects primarily reflects inadequate time.
The high percentage of participants who incorrectly graphed their data is more difficult to explain. A lengthy and adequate explanation of data collection and portrayal was included in the manual. Even if it were impossible to cover the whole section during a small group discussion, the information was readily available at a later time. It is possible that that section was so complete and detailed, that it discouraged the reader before he began.

Data collection is a time-consuming, although not necessarily complex, process. In future training situations it would be appropriate to concentrate more time in the small group discussions on data collection and portrayal. An effective procedure might be to integrate the data collection section more completely into the rest of the workshop, so that it is not viewed as one more thing to learn, but rather as a major portion of a behavioral treatment program. It is, however, very difficult to convince an individual who feels that he already has more than enough to do to add another task to his repertoire.

In summary, the procedure of assigning projects would appear to have been a valuable portion of the workshop. It is highly unlikely that the participants would have returned to their Centers after the workshops to apply what they had learned in a systematic manner. Thus, the project assignment at least forced the participants to attempt systematic applications. Furthermore, the assignment allowed the participants to receive some consultative feedback regarding their work.
Participant Evaluations of the Workshop

The workshop participants were asked to respond to a series of evaluation forms during the workshop. There were two daily evaluations, a general evaluation following the third day, a final evaluation specific to the fourth day and an overall summary evaluation.

The daily evaluations were used primarily as an immediate feedback source for the workshop staff. The general, final and overall evaluations were used to make presentation format changes across the workshops.

The general evaluation form was the same as the one used at the Muskegon workshop. This form required responses to seven numerically rated questions and to four questions that asked for written comments.

Table 9 shows the distribution of responses by percent of total to each of the numerically rated questions. Responses in three categories—too short, content clear, and application—were generally more variable than those in the other categories. These were generally accompanied by comments such as, "I wish that we had more time" or "It doesn't make sense right now, but I'll keep on trying."

Responses to the questions "What did you enjoy most/least about the workshop" are summarized in Table 10. The small group discussions were most preferred, as they were at Muskegon although a total of six percent of all the participants reported to like them least.
TABLE 9

Mean responses by percent to the numerically-rated section of the third-day evaluation.

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>1, 2</th>
<th>3, 4</th>
<th>5, 6</th>
<th>7, 8</th>
<th>9, 10</th>
<th>CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worthwhile</td>
<td>65%</td>
<td>11%</td>
<td>22%</td>
<td>2%</td>
<td>1%</td>
<td>Worthless</td>
</tr>
<tr>
<td>Too short</td>
<td>22%</td>
<td>10%</td>
<td>49%</td>
<td>11%</td>
<td>9%</td>
<td>Too long</td>
</tr>
<tr>
<td>Interesting</td>
<td>68%</td>
<td>11%</td>
<td>18%</td>
<td>2%</td>
<td>1%</td>
<td>Boring</td>
</tr>
<tr>
<td>Informative</td>
<td>65%</td>
<td>10%</td>
<td>23%</td>
<td>1%</td>
<td>1%</td>
<td>Not Informative</td>
</tr>
<tr>
<td>Content Clear</td>
<td>34%</td>
<td>17%</td>
<td>33%</td>
<td>14%</td>
<td>1%</td>
<td>Content Unclear</td>
</tr>
<tr>
<td>Had Immediate Application</td>
<td>45%</td>
<td>10%</td>
<td>37%</td>
<td>6%</td>
<td>2%</td>
<td>Could See No Applica­tion</td>
</tr>
<tr>
<td>Would Recommend to Other Institu­tions</td>
<td>61%</td>
<td>7%</td>
<td>28%</td>
<td>3%</td>
<td>1%</td>
<td>Would not Recommend</td>
</tr>
</tbody>
</table>
TABLE 10

Mean responses by percent for all respondents to the questions "What did you enjoy most about the workshop?" and "What did you enjoy least about the workshop?"

<table>
<thead>
<tr>
<th>TOPIC</th>
<th>ENJOYED MOST</th>
<th>ENJOYED LEAST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures</td>
<td>21%</td>
<td>5%</td>
</tr>
<tr>
<td>Small Group Discussions</td>
<td>32%</td>
<td>2%</td>
</tr>
<tr>
<td>Reading and Writing Assignments</td>
<td>2%</td>
<td>5%</td>
</tr>
<tr>
<td>Audio-Visuals</td>
<td>16%</td>
<td>1%</td>
</tr>
<tr>
<td>Terminology</td>
<td>0%</td>
<td>12%</td>
</tr>
<tr>
<td>Too Short a Time to Learn the Material</td>
<td>0%</td>
<td>18%</td>
</tr>
<tr>
<td>Tests and Quizzes</td>
<td>1%</td>
<td>17%</td>
</tr>
</tbody>
</table>

Lectures were next preferred, although they received relatively lower ratings at one site than at the others. A primary reason for this rating was acoustics: the participants reported that they could not hear the lectures so they did not like them.

The length of time allotted to the workshop was the least preferred aspect of the workshop. As at Muskegon, no one suggested decreasing the amount of material, but rather lengthening the workshop in some manner.
Quizzes and tests, and terminology were next least-enjoyed. It seemed that no matter how many times the workshop staff explained that the test and quiz results were for our information only, that they were still regarded to be a direct threat to the participants' employment. By the end of the second day, however, the participants were generally resigned to taking the quizzes as a part of the whole experience. They were very much interested in the discussions regarding the quiz answers.

The distribution of responses within other categories did not show any particular frequency with respect to one category over another. These merely represented items that a number of participants reported to enjoy and not enjoy about the workshop.

The final evaluation was specific to the fourth-day proceedings and to the assignment of conducting projects. Data from the evaluation are described earlier.

To summarize, most participants enjoyed conducting projects, although they did not like to collect and graph data, nor did they like having to present them to the group. Many felt that they would have been more successful had they had more time, but were generally impressed with their results to the point at which they terminated their projects.

Of the questions on the overall evaluation, two were of primary importance. Those were 1) "Do you now think behavior principles are important?" and 2) "Would you have preferred to learn only specific solutions to behavior problems?"
A major problem in the small group discussions during the first three days of the workshop was that of persuading the participants to discuss behavioral treatment techniques. Their focus of interest was on treating problems specific to given individuals, rather than on learning how to apply the same behavioral principle across different conditions.

At the end of the fourth day about 94 percent of the 165 total respondents answered positively to the question regarding the importance of behavior principles, whereas six percent responded negatively. About 14 percent of the respondents would have preferred specific solutions for individual problems, and about 81 percent would not have preferred specific solutions, and five percent would have preferred both general and individual treatment plans.

These data indicate that the majority of participants felt that the ability to apply the basic principles of behavior to many conditions was more important than learning specific solutions to individual problems. Despite the resistance encountered in the first three days, many respondents made additional comment on the fact that they could visualize many ways in which procedural variations presented during the fourth day could be used in different settings.
GENERAL DISCUSSION

This paper described a short-term method of training paraprofessionals in the theory and application of behavioral treatment techniques. There were several problems that arose both during and after the workshops. Future training situations should include systematic assessments and evaluations of various ways of solving these problems.

The first problem was the participants' dislike of having to learn and use the technical language of behavior theory. Given the time available the participants were required to memorize the terms and their definitions. Considering the limited learning conditions under which the workshops were conducted, the quiz data from the first three days are surprisingly good.

The question in point, however, is whether or not paraprofessionals should be required to learn and use the technical language of behavior theory. As more and more mental health and education workers are trained, the need for a common language system will become increasingly greater. Since behavior theory already has its own unique language, it is logical to require trainees in behavior management to learn that language, just as any trainee in any technical field would learn that field's particular language.

Data presented in this paper show that the trainees were able to learn and use the technical language in a...
relatively short length of time. The data presented in the projects section show that they were generally able to apply their knowledge to at least specific behavior problems. Anecdotal data in the same section suggest that the participants did not necessarily understand the concept underlying the application of any given technique.

Future training situations, therefore, should prepare the trainee to understand the underlying concepts of the terms and definitions that they are expected to learn. Once this is accomplished, it is reasonable to assume that the requirement of a technical language would be more palatable to the trainee.

A second problem was the participants' dislike of recording and graphing data. Data collection and portrayal were stressed as basic to any behavioral treatment program. Yet the participants generally viewed behavioral measurement as an additional, unnecessary task rather than an integral part of their program. Again, this would suggest a basic lack of understanding as to the concept of measurement systems. And again, future training situations should further emphasize the integration of measurement within the training system.

On the fourth day of the workshops another problem was becoming apparent: in four days most individuals could not be completely trained to use behavioral programming as an intrinsic part of their daily work. There was an aura
of experimentation and finality surrounding the presentations completed the participants active sharing in the development of a behaviorally-oriented treatment program.

The primary problem here was the lack of time. The participants at these workshops demonstrated that they could learn the basic principles and how to apply them to specific problems. Thus they had obtained some information and basic skills.

The development of a completely behaviorally-oriented program, however, requires more information than we were able to present in four days. Furthermore, a paraprofessional or even a professional should not be expected to be able to develop such a system without assistance from a professional in the field. Obviously, such consultative assistance was not available to the workshop participants.

A viable, albeit expensive, alternative to the training method described here would be a training system which accounts for the basic deficiencies found in this short-term approach; those being the amount of time allotted to training and consultative assistance after training.

A training system of this type would include a workshop to serve only as an introduction to the system, followed by programmed instructional materials to be used as a part of an institution's in-service training program. Consultative assistance preferably on-site, would be offered both during and after the training was accomplished.
This paper described a workshop approach to teaching large numbers of paraprofessionals the basic principles of behavior management. The results show that this approach was reasonably successful in achieving the training objectives. The benefits of this or any short-term training approach over a period of time, however, are questionable.
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