

THE INFLUENCE OF BEHAVIOR REHEARSAL TECHNIQUES ON
CHILDREN'S COMMUNICATIVE BEHAVIORS

by
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ABSTRACT

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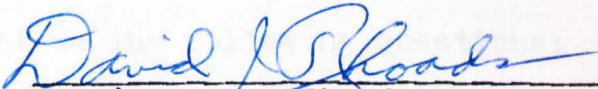
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ABSTRACT

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Techniques on Children's Communicative
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Edward W. Cassidy, Doctor of Philosophy, 1973

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The purpose of this study was to investigate the influence of behavior rehearsal techniques on the behavior of shy children as determined by a measure of verbal behavior. Answers were sought to the following questions:

1. Does participation in a behavior rehearsal program affect the verbal behavior of shy children?
2. Is there a difference between standard and personal hierarchies used in behavior rehearsal?
3. Is there a difference between group and individual behavior rehearsal approaches?

The sample included one hundred seventy-seven elementary school children from nineteen fourth, fifth, and sixth grade classrooms. The subjects were pupils who had a history of low frequency of verbal participation in group and individual settings.

Subjects were randomly assigned to one of two principal treatments or a control group. The first treatment was identified as Behavior Rehearsal-Personal. In this treatment subjects developed their own personal anxiety hierarchy. The second principal treatment was identified as Behavior Rehearsal-Standard. In this treatment the subjects were assigned to rehearse items from a hierarchy developed by the experimenter. The two treatments were applied in both one-to-one and group counseling settings. Besides treatment and setting, sex of subject and counselor were used as classification variables and included in a 2^4 factorial analysis of variance design.

At the conclusion of a four week treatment period the subjects were observed on the criterion behavior, unsolicited communicative response, during a thirty minute controlled discussion session.

Analysis of the data demonstrated that there was no change in verbal behavior as a result of participating in a behavior rehearsal program. It appears that in this study the behavior rehearsal procedures had no differential effect on the verbal behavior of the shy children.

No significant difference was found on any of the other factors which were measured. Neither the treatment setting, nor the sex of the subject, nor the counselor appeared to have a significant effect on the final results of the study.

Although research studies indicate that the behavior rehearsal technique should be an effective technique for shaping assertive behaviors, no such evidence was found in this study. Nor was support found for the traditional view that personalized hierarchies are more effective than standard hierarchies.

The lack of research on the behavior rehearsal technique suggests that more intensive and systematic research is needed to assess the specific effects behavior rehearsal has on the behavior of shy children.

Special thanks are due to Mrs. Kathleen Johnson and Mrs. Annette Ferguson of the Prince George's County Public Schools for their constant interest and willingness to help. I wish to thank Mrs. Alice Brown, Mrs. Esther McCoy, and Mrs. Mary Campbell who served as the counselors in this study. Their level of involvement and cooperation cannot be adequately described. I will always be indebted to them.

To all my friends, especially Phil and Shirley Crosby, I extend my appreciation for the innumerable acts of kindness and assistance.

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TABLE OF CONTENTS

Chapter	Page
ACKNOWLEDGMENTS	ii
TABLE OF CONTENTS	iv
LIST OF TABLES	vi
LIST OF FIGURES	vii
I. INTRODUCTION	1
The Problem	6
Need for the Study	7
Definition of Terms	7
Organization of the Dissertation	9
II. RELATED LITERATURE	11
Unsolicited Communicative Response	12
Behavior Rehearsal	21
Procedural Variations	26
Summary	32
III. PROCEDURES	35
Participants	36
Treatments	38
Experimental Technique	43
Method of Analysis	47
Null Hypotheses	47

Chapter	Page
IV. RESULTS	49
Analysis of the Data	52
Summary	60
V. DISCUSSION, CONCLUSIONS, AND SUMMARY	62
Discussion	62
Limitations of the Study	66
Conclusions	68
Recommendations for Further Study	69
Summary	69
APPENDIX A. Treatment Sequence	73
APPENDIX B. Instructions for Teacher Ranking of Children	75
APPENDIX C. Results from Bartlett's Test on Raw and Transformed Data	77
APPENDIX D. Raw Data: Subject Classification and Performance in Observation Sessions	79
APPENDIX E. Analysis of Variance Summary Table for the Effects of Treatment, Sex, Coun- selor and Setting on a Measure of Unsolicited Communicative Response- Transformed Scores	87
APPENDIX F. Counselor by Sex by Treatment Interaction for the Effects of Treatment, Setting, Sex, and Counselor on a Measure of Unsolicited Communicative Response (N=140)	89
APPENDIX G. Cell Summary of the Raw Means and Stan- dard Deviations for the 2 ⁴ Factorial Design	91
APPENDIX H. Cell Summary of the Transformed Means and Standard Deviations for the 2 ⁴ Factorial Design	93
REFERENCES	95

LIST OF TABLES

Table	Page
I. Treatment Sequence	41
II. Schedule for the Experiment	46
III. Inter-Rater Correlations on Scores Obtained During the Controlled Discussion Sessions . . .	51
IV. Analysis of Variance Summary Table for the Effects of Treatment, Setting, Sex and Counselor on a Measure of Unsolicited Communicative Response	53
V. Means, Standard Deviations, and F Ratio for the Effects of Treatment on a Measure of Unsolicited Communicative Response	54
VI. Means, Standard Deviations, and F Ratio for the Effects of Treatment Setting on a Measure of Unsolicited Communicative Response	55
VII. Means, Standard Deviations, and F Ratio for the Effects of Counselor on a Measure of Unsolicited Communicative Response	56
VIII. Means, Standard Deviations, and F Ratio for the Effects of Sex on a Measure of Unsolicited Communicative Response	57
IX. Means, Standard Deviations, and F Ratio for the Effects of Treatment Vs. No Treatment on a Measure of Unsolicited Communicative Response .	58

LIST OF FIGURES

	Page
Figure 1 - Counselor by Sex by Treatment Interaction .	59

CHAPTER I

INTRODUCTION

The history of the counseling profession can be traced, to a certain extent, by examining its research. The topics of research studies tend to give some perspective to the concerns and activities of counselors in past years. Two representative topics from early counseling research are: the study of the most appropriate measures for use in advising students; and the study of traits and factors that influence academic aptitude. Development of the profession could be noted when stress was placed on research that examined social and occupational factors involved in personal adjustment. Further advancement in the profession was indicated as the counselor himself became the focus of study. At this point, researchers examined the counselor's training and the activities he performed after he was employed. During this period, the verbal behavior of the counselor, his cognitive complexity, and his role and goals were all emphasized.

More recently, there seems to be a mounting concern for the recipients of counseling and the effects counseling has upon them. Therefore, much of the present research is focused on the efficacy of counseling.

An historical review of counseling research seems to reveal that research in counseling can be classified into two main categories: research in the process of counseling, and research in the effects of counseling. Until recently, counseling research has focused mainly on the former.

The current emphasis on the effects of counseling represents a major shift in research emphasis. The shift is from the general to the specific and from the deductive to the inductive. Major developments in society have necessitated this new emphasis on the effects of counseling. The counseling profession is operating in a society that is complex, competitive, and extremely empirical. In order to survive in such a society, the profession has not only become concerned about the outcomes of counseling, but also with the rapidity and simplicity with which services can be rendered.

The question of the effectiveness of a counseling technique is no longer considered in isolation. When a technique is chosen, it is used with a certain type client and under certain treatment conditions. The technique, client and setting must be specified and considered together when making determinations about the effectiveness of a particular technique.

The profession has recently made some successful attempts to develop effective and efficient procedures for remediating personal problems. Verbal reinforcement

and modeling are two examples of the more commonly practiced new techniques. Very recently, there has also been some acceptance of a number of less frequently used techniques. Some of these are: aversive conditioning, counter-conditioning, relaxation techniques, behavioral contracting and behavior rehearsal. As this list of new techniques grows, it becomes more important to know which techniques work most effectively.

The present study focuses on the behavior rehearsal technique. More specifically, the study attempts to determine if behavior rehearsal is an appropriate technique to use with shy children. A further refinement is the attempt to determine if behavior rehearsal is more effective in an individual or group setting when used with shy children.

The shy child was chosen for consideration in this investigation because of the lack of professional literature pertaining to the problems of shy children. Many of the studies that have been reported on shy children are case studies and quite often refer to children whose symptoms are severe. The applicability of techniques employed under such circumstances is limited.

Recent studies attempting to modify the behavior of shy children have employed modeling and operant conditioning techniques. To a lesser extent, role playing type activities have been used to overcome fear of speaking out before a group. Behavior rehearsal is a technique that is related to role playing and as yet does not seem to have

been systematically studied with shy children. The behavior rehearsal technique appears suitable for use with shy children because the procedure calls for the therapist or other clients to model the desired behavior for the client. The shy client is not required to initiate an unfamiliar behavior on his own. After the behavior has been modeled, the client is given an opportunity to rehearse the behavior in the safety of the counseling situation. After adequate rehearsal, the client actually attempts to perform the required behavior in the outside environment. Thus, the behavior rehearsal technique seems to have some applicability to the shy child, but this has not been demonstrated empirically.

It was stated earlier that an empirical examination of a technique must consider the therapeutic setting in which the technique is administered. Behavior rehearsal is probably most often practiced in one-to-one counseling situations. The group behavior rehearsal setting appears to have some specific advantages not available in a one-to-one setting. One of these advantages is that a client in a group can be fairly sure he will get a prompt from someone in the group if he forgets what he is to say or do. It appears that such prompting by group members is more effective than prompting by the therapist (Rose, 1972). In such a group a client can get many suggestions on how to alter the behavior he has just demonstrated. A second advantage of the group when using behavior rehearsal is that

the group can usually generate many realistic consequences of a fellow client's actions. The above examples allude to a social interaction among clients which may be crucial in terms of a more efficient approach to developing appropriate social behaviors. The present study attempted to determine if the group interaction mentioned above has any differential effect on the behavior rehearsal technique.

In addition to examining the behavior rehearsal technique and the setting in which it is presented, the current study also investigated the manner in which the behavior rehearsal procedure is used. Behavior rehearsals are usually set up using a client's personal hierarchy of anxiety producing situations. Another approach that is currently being suggested is a standard sequence of behavior rehearsal topics which could be developed to deal with certain maladaptive behaviors. This approach seems to have some of the efficacious qualities which were previously mentioned as being so important in counseling today. The present study attempts to compare the personal and standard approaches when they are used in behavior rehearsals with shy children.

In summary, the current thrust in counseling research is to identify effective and efficient counseling techniques. The present study attempted to respond to this thrust in counseling research. The technique chosen for investigation is the behavior rehearsal technique. Specificity is added to the study by comparing one-to-one and group behavior

rehearsal settings. Additional information about the technique is sought through an examination of the use of personal and standard behavior rehearsal hierarchies.

The Problem

The assumption is made that as a result of employing a behavior rehearsal technique the shy child modifies his behavior in the direction of being more spontaneously verbal. It is also assumed that behavior rehearsal practiced in a group is more effective than if practiced in a one-to-one setting. It is further assumed that a standard approach to dealing with shy children will be as effective as personally tailored programs. Boys and girls are assumed to respond similarly to the approaches and settings. A study of the literature revealed no empirical research to support these assumptions. Therefore the current study was initiated.

The purpose of this study was to investigate the influence of behavior rehearsal techniques on the behavior of shy children as determined by a measure of verbal behavior. Answers were sought to the following questions:

1. Does participation in a behavior rehearsal program affect the verbal behavior of shy children?
2. Is there a difference between standardized and personalized hierarchies used in behavior rehearsal?
3. Is there a difference between group and individual behavior rehearsal approaches?

Need for the Study

In addition to the research questions presented above there exist two overriding problems worthy of consideration. The first problem to be considered is the fact that until recently there has been little research done in the area of elementary school counseling where a behavioral model has been employed. This scarcity is particularly true concerning group counseling. There is even a greater paucity of behavioral studies that utilize a group approach to deal with the problems of non-verbalizing children.

The second area of consideration is the shortage of mental health workers, the increasing demand for service, as well as society's increasing sensitivity toward personal-social problems. This calls for the development of a diverse repertoire of therapeutic techniques. It would seem that there is little rationale or organization employed in the present use of many therapeutic techniques. Among these techniques is the behavior rehearsal procedure. The findings of this study could lend structure to the present choice of behavior rehearsal techniques, as well as adding to the general fund of applicable techniques.

Definition of Terms

Most of the terms referred to in the current study are used commonly in the literature pertaining to counseling and behavior rehearsal. However, some of the terms frequently used in the present study have been listed and defined below in order to insure uniform use of the terms.

Criterion Behavior consists of the frequency of unsolicited communicative responses emitted by a child during an observation period.

Unsolicited Communicative Response consists of any of a variety of communications initiated in a social situation. Thus, an unsolicited communicative response would be considered as either a verbal or non-verbal attempt to volunteer a response. For this study, verbal responses were considered as any speech from a child heard by the observers except random noises such as humming or laughing. Speech which was too low for an observer to understand was counted if there was certainty that the verbalization was not a random noise. Non-verbal responses included movements made by a child such as head nodding, hand raising and other commonly accepted communicative gestures.

Any continuous response was counted as a frequency of one without regard to the content, quality or length of the response. A pause of more than five seconds during a child's response was considered as the termination of that particular response.

Responses directly elicited by the leader or the child's peers were not considered unsolicited verbal responses.

Behavior Rehearsal is a technical procedure which aims to replace deficient or inadequate social or interpersonal responses by efficient and effective behavior patterns. With this technique, the desired form of behavior is demonstrated to the client. The client then practices

that behavior in the counseling session. Finally, the client attempts to perform the new behavior in his broader environment outside the counseling setting.

Personal Anxiety Hierarchy is a graded list of stimuli to which a client reacts with anxiety. The list is developed by the client with the assistance of the counselor. The list is prepared by requesting the client to determine relevant anxiety-provoking situations and rank them from least to most anxiety producing. In this study the procedure using a personal anxiety hierarchy will be called Behavior Rehearsal-Personal (BRP).

Standard Anxiety Hierarchy is a graded list of stimuli to which many clients appear to react with anxiety. The list is developed on the basis of experience with the personalized hierarchies of many clients. The standard hierarchy is then a compilation of many anxiety producing situations into one set of procedures. In this study the procedure using a standard anxiety hierarchy will be called Behavior Rehearsal-Standard (BRS). The standard anxiety hierarchy used in this study appears in Appendix A.

Organization of the Dissertation

The following chapter presents a review of the literature on behavior rehearsal techniques along with a consideration of some of the published research comparing group and individual treatment settings. This review provides further background for the understanding of the rationale of the study, and the nature of the variables under examination.

Chapter Three describes the basic research design of the study, the sample selected, the criterion variable employed and the statistical methods used to analyze the data. In Chapter Four, the results of the statistical analysis are stated and interpreted. Additional findings which were not stated as explicit hypotheses are also reported. Chapter Five summarizes the study, draws conclusions, and indicates implications for future research.

CHAPTER II

RELATED LITERATURE

This chapter presents a review of research reports which were selected from the professional literature because of their relevance to the three major variables under consideration in the present study. The three major variables are: the criterion behavior, the technique, and the various procedures used in the delivery of the technique. In the present study the criterion behavior has been called unsolicited communicative response. The technique investigated is the behavior rehearsal technique. The procedures for delivering the technique encompass two main factors: the counseling setting and the approaches used with the behavior rehearsal technique. The counseling settings employed in the present study were the individual and the small group settings. The behavior rehearsal approaches used were the standard and the personalized approaches. The settings and approaches were used in various combinations in an attempt to isolate effective procedures. Thus, the literature is reviewed under three headings: unsolicited communicative response, behavior rehearsal, and procedural variations.

Unsolicited Communicative Response

In the present study unsolicited communicative response was defined as voluntarily emitted verbal or non-verbal attempts to communicate socially.

Responses, such as those that would come under the category of unsolicited communicative response, have been systematically studied since Greenspoon (1951) made his first controlled study of verbal behavior. Since Greenspoon's verbal reinforcement study, literally hundreds of research studies have followed in this area. Other researchers have reviewed the bulk of the studies pertaining to human verbal behavior, and the evidence on the conditionability of a variety of verbal response classes appears conclusive (Greenspoon, 1962; Hersen, 1970; Holz and Azrin, 1966; Johnson, 1963; Kanfer, 1968; Krasner, 1958, 1962; Salzinger, 1959; Williams, 1964).

Most studies concerning the modification of verbal behavior have been conducted with subjects in a variety of therapeutic or institutional settings. There is, however, a dearth of literature demonstrating the use of systematic procedures for increasing the verbal behavior of children in the elementary school setting.

Perhaps the lack of research on the verbal behavior of elementary school children can be explained. It is only recently that educators have come to be as concerned about the problems of the shy children as psychologists have been for over half a century. In 1928, E. K. Wickman studied the

attitudes of teachers concerning the severity of certain types of behavioral problems. At that time, withdrawal ranked 40.5 in severity on the teachers' lists. This apparent denial of withdrawal as a major problem may have been a reflection of the times--"Children should be seen and not heard." More recently however, Rajpal (1972) did a replication of Wickman's study and found that a similarly composed group of teachers now placed withdrawal as a problem that ranks number 9 in severity. The studies of Wickman and Rajpal appear to show a change in the perception of educators as to what problems cause children the most difficulty.

Perhaps teachers are now becoming more aware that, as Johnson (1963) points out, a child's verbal participation can be linked to certain specifiable variables operating in the child's environment. Among the variables that bear on the child's development of verbal participation skills are: his teacher's attitude toward him; his academic progress; his social success and, as might be expected, his self-concept. Johnson's study also emphasized the fact that non-participants pose a problem for the conscientious educator as well as for the child himself.

The new interest in the problems of the shy child has generated a few controlled studies which at least tend to suggest approaches which might be effective in increasing elementary school children's verbal participation.

One of the earliest controlled studies dealing with

increasing elementary school children's verbal behavior used social reinforcement as the treatment technique. The crucial dependent variable in Johnson's (1963) study of children rated as "low verbal participators" was the amount of a subject's participation in each of two experimental situations and the frequency of his classroom participation after treatment. The treatment called for the experimenter to give social and verbal reinforcement to the verbal responses or comments of low participators.

The experimental and control groups were compared and it was shown that the low participators made significant increases in verbal participation both in the counseling sessions and in their classrooms.

A more recent study, also using social reinforcement, supports the findings reported by Johnson. Tosi, Swanson and McLean (1970) studied the rate of verbal responding of ten sixth grade students. The students were selected from a larger group of students who were all designated by their teachers as being "non-verbalizing." The students were equally divided into two groups--experimental and control. In the experimental social reinforcement group, any verbal response emitted by the student was verbally reinforced by the counselor. Verbal reinforcements were responses such as: "good," "that's fine," and "tell me more." Positive non-verbal body movements such as smiles and friendly gestures were also utilized as reinforcers for verbalizations. The other group--the control group--"met on two or three occasions for routine guidance activities."

There were three observation periods: one week before treatment, one week after treatment and then nine weeks after the end of the treatment phase. The data consisted of all the unsolicited verbal responses made by each subject in the classroom during the observation phases. Nine weeks after treatment, all of the experimental subjects had increased their frequency over the pre-treatment rate. No such trend was evident in the control group. The authors noted the necessary precautions for interpreting the findings. Their findings indicated that the social reinforcement technique was effective in increasing non-verbalizing students' rate of verbal responding. The authors also felt that the "social reinforcement approach allows more economical use of the counselor's time, at least in terms of ease of adoption and apparent success in a relatively short period of time."

Tosi improved on his first study by comparing the social reinforcement technique with two other procedures which have been used to modify the behavior of elementary school children. In this follow-up study Tosi, Upshaw, Lande and Waldron (1971) treated twenty-four "reticent" sixth and seventh graders in small groups. The treatment groups were named: social reinforcement, Premack, teacher expectation and control.

The social reinforcement group received the same basic technique described in the previous study; that is, any verbal response emitted by a student was verbally reinforced

by the counselor. In the Premack group the reinforcers followed the Premack Principle which states that a high-probability behavior can be used as a reinforcer for a low probability behavior. In this study, game playing was used as the high probability behavior which followed the low probability behavior of talking in a conversation. In the Premack group, the counselors attempted to avoid direct social reinforcement of student verbalizations. The teacher expectation group was similar to a "Hawthorne Control" group. The subjects were observed pre and post treatment. The criterion measure was "unsolicited classroom response." The two behavioral treatments appeared more effective than either of the control groups. Of the two reinforcement procedures the social reinforcement technique was significantly different from the two controls and appeared more effective than the Premack procedure although not significantly so.

A more specific approach to the social reinforcement paradigm was taken by Hinds (1970). Hinds not only used the social reinforcement technique but also specified the schedule of reinforcement for each subject in his study. Hinds used what he called a "learning theory approach to group counseling" with a group of third, fourth and fifth grade children. The subjects were referred by their teachers because they exhibited behaviors which the teachers felt interfered with learning. The study measured eight categories of behavior which were deemed as interfering and the eight

corresponding categories which were adaptive. The behaviors were observed and counted during the entire study through the use of video tape equipment. The behavior category of relevance to this review of selected literature was called "restricted class participation." The category concerned itself with such behavioral descriptions as: being quiet and passive; seldom initiating a conversation; and "socially apprehensive or timid, afraid of social contacts, avoids them, chronically shy." The corresponding adaptive category looked at such behaviors as: appropriate interaction with teachers and peers; initiation of conversation; and support and verbal help to peers.

Due to the scope of the study the behaviors to be extinguished as well as those to be reinforced were different for each child. Systematic reinforcement was used to shape each child's behavior toward the adaptive responses selected for that child. The data analysis showed a significant difference between the experimental and control groups in the post-counseling phase. The particular behavior of concern, "restricted classroom participation," was modified in a positive direction. The authors also hypothesized that those gains made in a counseling setting would be transferred to the classroom setting. This hypothesis was also supported.

Moving away from the counselor's use of social reinforcement, Hosford (1969) suggested another approach to use in dealing with classroom verbal participation. He worked directly with four seventh grade teachers. These

teachers were concerned about students who never entered into classroom discussions. Some of the students had not participated voluntarily in over two and one-half months. Each teacher was taught to count verbal responses and then to reinforce systematically a student's question, answer or verbal comment. For three weeks the reinforcement procedures were employed on one experimental subject randomly chosen for each teacher from a pool of seldom participating students. Each of these students also met twice with the counselor who reinforced them for their "greater interest . . . shown in class lately."

At the end of five weeks the experimental students had increased the frequency with which they entered into class discussions significantly more than the control students.

A second unique technique attempted by Hosford called for giving elementary school children examples and suggestions of how they could increase their participation in class discussions (Hosford and Sorenson, 1969). The approach used was to develop a film which had as its main subjects both a fifth grade boy who had difficulty speaking up and a counselor model. In the film the counselor gave suggestions to the boy as well as reinforcing any ideas which the boy initiated concerning speaking up.

A questionnaire was given to students who had identified themselves as needing help with classroom participation. Over ninety percent of the boys and girls responded

that they would use some of the suggestions made. A further finding was that students remembered more suggestions after watching the film twice.

Of course, a serious difficulty with this study is that it surveyed students' reports of what they intended to do rather than studying their actual past performance. The study is cited however to give an example of another type of technique which is under consideration for use with elementary school students who do not verbally participate in class.

At this point in the selected review of the literature, it has been reported that both social reinforcement and modeling seem to be successful techniques to modify the behavior of shy children. In order to determine the relative effectiveness of modeling and social reinforcement, Hansen, Niland and Zani (1968) conducted a study which treated fifty-four children who held low sociometric status in their class. Each of the children was classified as a "non-participating child." Hansen hypothesized that low sociometric students in groups with high sociometric models would increase in social acceptance more than low sociometric students in reinforcement groups with no models. He further hypothesized that both of these groups would improve more than a control group.

The students met twice a week for four weeks. During this time, their groups discussed specific topics related to social success and acceptance. At the end of the four weeks

a sociometric technique was administered to the students as had been done before the study was begun. An analysis of covariance revealed that the low sociometric students in the modeling groups made significant gains in social acceptance. There was no difference in gains made between those students in reinforcement groups and those in the control group.

The interest in Hansen's work is in its conclusion that modeling is a more effective technique than social reinforcement when used with non-participating children.

The research studies cited to this point have all dealt with an increase in verbal response. The treatment analysis in each of these studies had focused on groups of children. In addition to the few group studies there is a wealth of case studies done with individual children who have manifested inadequate verbal skills. Authors such as Thoresen (1966), Hosford (1969), and Varenhorst (1969) have worked with children who have a reluctance to speak in class. Their reports substantiate the findings of formal research studies. They indicate that social reinforcement, role-playing, and modeling are useful tools in working with shy children.

In this section of the review of selected literature, it has been reported that researchers have found that social and verbal reinforcement, the Premack Principle and modeling have all been successful techniques to use in modifying the verbal behavior of shy children.

The next section of the review of selected literature will deal with the behavior rehearsal technique. The behavior rehearsal technique involves the use of all of the techniques which have been reported to be effective.

Behavior Rehearsal

Behavior rehearsal, as a specific technique, stems most directly from two apparently contrasting therapeutic techniques--the practice of psychodrama (Moreno, 1958) and the systematic approach described by Wolpe (1958) to establish assertive responses.

The contrasts between the two techniques is evident in the different ways each proponent states his view of the nature of man. Moreno's work describes a "self" that is creative, spontaneous and purposive, whereas, Wolpe's orientation is empirical and operational, viewing the self as a system of responses to stimuli. An examination of the practices suggested by both Moreno and Wolpe seems to diminish some of the apparent incongruencies. Such an examination was made by Sturm (1965, p. 57). In the "Behavioristic Aspects of Psychodrama," Sturm attempted a rapprochement between the psychodrama psychotherapy system and the behavior therapy system by redefining the classical psychodrama technique in learning theory terms. Sturm pointed out the advantages of behavior rehearsal over more traditional approaches by suggesting that behavior rehearsal has

. . . a far greater potential to: 1) generate vivid, life-like behavior and cues, thereby maximizing the utility of response and stimulus generalization; 2) condition

a total behavioral response--physiological, motoric and ideational--rather than one [that is] merely verbal; and 3) dispense the powerful reinforcements of enacted models and other characters who in real life or in fantasy have already dispensed reinforcements.

Since then numerous authors have suggested the use of behavior rehearsal in situations as varied as the treatment of homosexuals and the training of therapists (Cantela and Wisocki, 1969; Lazarus, 1969).

While there have been many suggested uses for behavior rehearsal, there have been very few controlled studies of the technique. McFall and Marston (1970) pointed out a few possible reasons for this paucity of systematic research on behavior rehearsal. They stated that the technique appears complex, that it is often applied to behavior classes that lack specificity, and that it is difficult to obtain "reliable and objective laboratory and/or real-life measures of the behaviors typically treated with behavior rehearsal."

Despite these difficulties, there are a few studies which have systematically examined the efficacy of the behavior rehearsal technique.

In what he calls the first controlled study of the behavior rehearsal technique, Lazarus (1966) treated seventy-five subjects for specific social and interpersonal problems. Each subject was exposed to one of three treatment conditions--behavior rehearsal, non-directive therapy or advice-giving treatment. Treatment consisted of four thirty-minute sessions. The criterion of change was "objective evidence" that the

subject was behaving adaptively in the one specific problem area that was selected for treatment.

Results of the study showed benefits to 92% of the subjects treated with behavior rehearsal as compared with significantly less progress for the other two treatments. Lazarus also treated twenty-seven of the subjects who had not initially benefited from advice or insight. After being exposed to the behavior rehearsal treatment, twenty-two of these subjects met the criterion of success. Lazarus stated that these results suggested that behavior rehearsal is significantly more effective in resolving social and interpersonal problems than direct advice or non-directive therapy.

Lazarus' findings on the efficacy of the behavior rehearsal technique were supported by Wagner (1968). Wagner treated twenty-nine mildly-inhibited hospitalized psychiatric patients to determine if "the ability to express anger will be affected by having successful or unsuccessful experience in anger-provoking situations." The subjects were equally divided into three groups and role played situations in which expressions of anger were either submitted to, retaliated against, or neither reinforced nor punished. The results showed that if the patients experienced a successful result to the expression of their anger in the behavior rehearsal situation, then their anger expressiveness increased significantly. The other two groups showed no such movement. Wagner pointed out that in these findings the social response aspect

which is implicit in Lazarus' approach was made explicit by his study. In essence, Wagner's study demonstrated the importance of the responses made by the other person(s) involved in the behavior rehearsal.

A further refinement of the behavior rehearsal technique was attempted by McFall and Marston (1970). They, like Lazarus and Wagner, attempted to evaluate the efficacy of the technique in assertive training. In addition, they sought to determine if tape recorded feedback of a rehearsed response had any differential effect. Thus the effectiveness of behavior rehearsal, with and without feedback, was compared with two control conditions--placebo and no therapy. Behavioral, self report, psychophysiological and "in vivo" criterion measures were used to assess treatment effects. The results revealed that the two behavior rehearsal procedures brought about significantly greater assertiveness than did the control conditions. However, behavior rehearsal with feedback was not significantly different from behavior rehearsal without feedback.

All of the research cited thus far has dealt with the use of behavior rehearsal with adults. One published study of the use of the behavior rehearsal technique with children, a case study, involved the use of behavior rehearsal with a group of seven aggressive boys. In the study, Gittleman (1965) focused his illustration of the technique on one aggressive, "acting out" child. A hierarchy of instigatory situations was constructed and then rehearsed

by the child and the other group members. In this case, a boy who was frequently subject to violent outbursts learned to handle provocative situations so that four months after the termination of therapy there was still a consistent absence of major "flare-ups." Thus Gittleman feels that for children who exhibit impulsive and aggressive behavior, the behavior rehearsal technique "may serve a useful therapeutic role."

From this review of the available literature concerning the behavior rehearsal technique, it would appear that there are some next logical steps in assessing its effectiveness. The technique should be attempted in a controlled study with children. The technique should be attempted with variations of the procedure and it should be used with various problem behaviors. McFall and Marston used one variation of the behavior rehearsal technique-- feedback. Lazarus used the technique with various problems but he did not specify them. Gittleman's study was certainly not a controlled one. Obviously, this does not present a large body of research in the area.

The present study attempts to deal with those next steps. The study is with children; it deals with a specific problem--verbal non-participation in class; and it presents two variations of the behavior rehearsal technique-- comparison of standardized and personalized procedures, and comparison of group and individual procedures. The next section of this review of other literature deals more

specifically with those variations in procedure.

Procedural Variations

This section of the review of selected literature examines two of the variables under consideration in the present study. First considered are studies relating to the comparative efficacy of group and individual approaches to counseling. Second, a review is made of studies related to the efficacy of standard or programmed approaches to counseling.

Gazda (1971) reviewed one hundred forty-five group counseling studies conducted between 1938 and 1970. His findings seem to confirm the reports of other authors who have attempted similar type reviews. Gazda found that, after discounting descriptive studies, fewer than half of the studies of group counseling showed positive change. In the "comparison" studies, where the efficacy of individual and group counseling was compared, Gazda found that there was no real trend favoring either approach. About half the studies favored individual counseling and about half group counseling.

These findings were substantiated in Howard and Zimpfler's (1972) review of group counseling studies done with elementary school children. They found a tendency toward more positive than negative outcomes but the overall results were inconclusive.

This lack of overwhelming evidence to support group approaches is repeated in the reviews of Eysenck (1965),

Bergin (1967), and Strupp and Bergin (1969), which are concerned with the efficacy of therapy itself.

Perhaps the reason for this lack of direction is a simple one. The wrong questions might have been asked. Perhaps the question should not be stated as "Is therapy effective?" or "Are group approaches effective?" Perhaps the question should be stated as "What specific therapeutic interventions produce specific changes in specific patients under specific conditions?" (Strupp and Bergin, 1969) Krumboltz (1965, p. 226) has made the question even more specific. He asks:

For clients desiring help on each type of problem of concern to the counselor
 What techniques and procedures, When used by what kind of counselors,
 With which type of clients, For how long, And in what sequence
 Will produce which types of behavior change?

It is in the context of Krumboltz's question that an answer is sought as to whether anxiety hierarchies must be constructed for each individual or whether a more generalized standard hierarchy might be used in certain circumstances. Similarly the question is raised as to whether these hierarchies should be presented in a group or one-to-one setting.

Hierarchy construction is usually considered in the context of systematic desensitization. Since behavior rehearsal is a variation of systematic desensitization, and since behavior rehearsal studies have not yet pursued this issue, the problem of hierarchy construction will be studied in the context of systematic desensitization studies.

The traditional view has been that the construction of the hierarchy of items is crucial to the success of the desensitization technique (Wolpe, 1958). Wolpe and Lazarus (1966) point out that the hierarchy is also the most difficult aspect of the desensitization technique. They emphasize that there must be "painstaking itemization and careful grading of items" in the hierarchy.

There appears to be a small body of research that challenges Wolpe's stress on the importance of a personalized hierarchy for each of his patients. Donner (1969) tested the effectiveness of a standard hierarchy. He presented a preprogrammed tape recorded group desensitization treatment to test-anxious college women. The treatment was effective in improving grades and reducing anxiety.

The question of hierarchy construction is made even more diverse by the findings of Cohen (1969). Cohen treated thirteen test-anxious college students with standard hierarchies. One group was given a progressive hierarchy of twelve items, the other group was given a non-progressive hierarchy of four high anxiety items. There was no significant difference between the favorable changes made by the progressive and non-progressive hierarchy groups. This finding again brings into question the necessity of using a carefully scrutinized progressive hierarchy when treating anxiety problems.

Emery and Krumboltz (1967) seem to be the first to have specifically compared a standard hierarchy and personal

hierarchies. They used the desensitization technique to reduce test anxiety in college freshmen. The findings of their study revealed no difference in the relative effectiveness of personalized versus standard hierarchies. Emery and Krumboltz's research seemed to indicate that the emphasis on careful serial ordering and presentation of items in the hierarchy may not be as important as felt by Wolpe (1958). It is unfortunate that this study appears to be the only one that actually compared standard and personal hierarchies, as administered to clients in a one-to-one setting.

The question of group versus one-to-one settings for the application of systematic desensitization techniques was first taken up by Lazarus (1961). Before his study, the accepted position was that systematic desensitization had to be administered in a one-to-one setting. Lazarus treated thirty-five adults who suffered from various phobias. Each client was treated in a small group setting. Lazarus constructed group hierarchies from "common elements" listed by all the individual patients. The findings of his study indicated that systematic desensitization "can be effectively administered in groups."

A next step in testing the effectiveness of group procedures was taken by Paul and Shannon (1960), who carried out a now famous study with fifty highly anxious male college students. The students were divided into five groups: three individual groups for either systematic desensitization, insight-oriented therapy or attention-placebo; a combined

group desensitization procedure; and a no treatment group. The results of the study demonstrated that there were no significant differences between group and one-to-one desensitization but both were better than insight-oriented therapy and the attention-placebo and control groups. The importance of Paul and Shannon's study for the present research is twofold. First it continued Lazarus' study to the next logical step. Lazarus was concerned with the efficacy of group desensitization versus a traditional group method of treating phobias. Paul and Shannon then compared group and individual desensitization and found one to be as effective as the other. The second finding of importance was their contention that "group desensitization need not be limited to treatment of specific phobias, but that it is also effective in treating more generalized social-evaluative anxiety."

Kondas (1967) conducted a study which is relevant for two reasons. Kondas' study confirmed the findings of Paul and Shannon (1966) with a different group--test-anxious students. The second reason Kondas' study is important is that it also lends some important data to the question of comparing standard and personal hierarchies. Kondas studied the comparative effects of: relaxation training; a standard systematic desensitization procedure with and without relaxation; and no treatment; on a group of 23 children aged 11-15 years. Interviews, a fear survey, and a test of palmar perspiration were the dependent variables. After five

months the only group which maintained improvement was the group given relaxation followed by systematic desensitization. Similar results were found with a group of thirteen college students who were administered the same treatments with one exception. The exception arose because Kondas had difficulty "achieving uniformity in the hierarchy item sequence with the college students." He indicated that the children might be better subjects for a group standard approach. Kondas' college students had difficulty in accepting a standard hierarchy. There are obvious implications for the present study which also uses children as experimental subjects.

A recent test-anxiety study seems to tie together all of the questions concerning comparisons of group and one-to-one settings and standard and personal hierarchies. Ihli (1969) treated fourteen test-anxious college females in three groups. The first group received a composite standard hierarchy in a group setting. The second group received the same composite hierarchy. By contrast, the second group was permitted to arrange the order of the hierarchy as their needs required. This second group was also treated in a group setting. The third group was also permitted to arrange the order of their hierarchy, but they were treated in a one-to-one setting. Analysis of the data revealed a significant decrease in test anxiety for each group of subjects. These important findings indicated that the group method and the standard hierarchy were as effective

as the one-to-one method of treatment and the personalized hierarchies. Ihli's study with test-anxious students seems to represent the present state of counseling research, at least as it pertains to the treatment of test anxiety. Groups seem as effective as one-to-one treatment but neither is more effective than the other. Results in the use of standard and personalized hierarchies are mixed.

The present study attempts to test certain assumptions, derived from the literature, that apply to the use of behavior rehearsal techniques with shy children. The assumptions under examination are the following:

1. Behavior rehearsal affects the verbal behavior of shy children.
2. Standard hierarchies are as effective as personalized hierarchies when used in behavior rehearsal.
3. There may be a difference between group and one-to-one approaches to behavior rehearsal.

Summary

This report of related findings in the literature began with a discussion of studies which had as their focus techniques that increase the verbal behavior of "normal" elementary school children. The trend of the research seemed to indicate that the verbal behavior of children in elementary school could be increased. The most successful and popular technique for increasing verbal behavior seemed

to be social reinforcement, although social modeling and the Premack Principle have been used with success. The review revealed no use of the behavior rehearsal technique to increase the verbal participation of children.

The review of the literature then progressed to study the areas in which the behavior rehearsal technique had been adopted. The small amount of literature available revealed that the technique had been found effective in treating subjects who needed to either increase or decrease their expressions of anger; subjects who needed to be more assertive; and a group of subjects who suffered from a wide range of social and interpersonal problems. The studies cited presented little in the way of charting a direction for determining the most appropriate setting or manner of structuring the behavior rehearsal technique with children.

Due to the lack of research regarding variations used with the behavior rehearsal technique, an examination was then made of studies which dealt with variations on a related technique--the systematic desensitization technique. This approach seemed logical since behavior rehearsal is a generalized approach to the systematic desensitization technique. It was found that systematic desensitization could be used with a wide range of problems. It was further indicated that group approaches were as effective as individual approaches. There was also considerable evidence to question Wolpe's assumption that anxiety hierarchies must be carefully scaled for each particular subject.

The present study then attempts to synthesize the findings of previous research in order to take what might be the next step in determining a more specific approach to use with shy children. The current study attempts to determine if the relatively seldom used behavior rehearsal technique can be used with shy children in group and individual settings, using both standard and individually-developed hierarchies, to change the frequency of certain communicative responses of the children.

CHAPTER III

PROCEDURES

This study was designed to investigate the relationships between behavior rehearsal treatment and the change of verbal behavior of shy children. The theoretical literature on the effects of behavioral counseling in general, and behavioral rehearsal in particular, generated a number of specific questions. These questions were studied through data collected in observation sessions conducted for this experimental research. Answers were sought to the following questions:

1. Does participation in a behavior rehearsal program affect the verbal behavior of shy children?
2. Is there a difference between standard and personal hierarchies used in behavior rehearsal?
3. Is there a difference between group and individual behavior rehearsal approaches?

The participants, treatments, procedures, statistics and null hypotheses used in the study are described in this chapter.

Participants

Subjects

One hundred ninety elementary school children, from nineteen classrooms (fourth, fifth and sixth grades) were selected for participation in this study. The subjects were students enrolled in three elementary schools located in Prince George's County, Maryland.

Subjects were selected on the basis of a teacher rating procedure. The ten boys and girls rated lowest in verbal participation in each class constituted the groups that were placed in the original pool of subjects.

All subjects were informed of their participation in the study. They were told that the objective of the study was to foster change in their frequency of verbal output in the classroom.

Of the one hundred ninety subjects selected for participation in this study, one hundred seventy-seven were included in the data analysis. None of the subjects were lost to attrition, but thirteen subjects were absent when the criterion behavior was measured.

Teachers

Teachers who participated in this study were the regular classroom instructors assigned to fourth, fifth and sixth grades in the schools to which the participating counselors were also assigned. Teachers were made aware of the general nature of the study (See Appendix B) but were

not told about the content or composition of the different treatment groups.

Counselors

Two counselors employed by the Prince George's County Public Schools conducted the counseling sessions. The counselors hold the Advanced Graduate Specialist diploma in elementary school counseling from the University of Maryland. Each counselor is female. Both formerly were experienced teachers and had participated in the same two-year counselor training program and have been counseling for more than four years.

Both counselors had received extensive in-service training and practice in the use of behavioral techniques. In addition, for purposes of this investigation, the counselors participated in two, one hour, training sessions in which behavior rehearsal techniques and hierarchy construction were discussed. Role plays of counseling session situations were also undertaken with the counselors by the supervisor of the current research project.

Judges of Verbal Behavior

Six neutral observers were involved in the study and acted as the judges of verbal behavior. The judges were all college graduates and each of them had formerly been employed as an elementary school teacher. The range of teaching experience for the judges was from two to five years. The judges all participated in a one hour practice session

before observing the subjects in the study. The practice session consisted of a description of the study and a detailed explanation of the duties of the judges. In the practice session, the judges were given examples of unsolicited communicative responses and how to record them. During this practice session the judges also rehearsed their roles by counting the number of unsolicited communicative responses emitted by each of the other five judges.

Each judge was assigned five pupils and was instructed to observe, count, and record the number of unsolicited communicative responses (UCR) made by the five pupils. These observations were made during a controlled discussion period. Reliability was assessed by having pairs of judges make simultaneous records of the verbal behavior of the same five pupils.

Treatments

Each of the four experimental groups was involved in biweekly meetings with the counselors for 4 weeks--a total of 8 sessions for each group. These counseling sessions were approximately 20-30 minutes long. Counseling with the experimental groups involved the use of four basic approaches.

Individual Behavior Rehearsal-Standard (IBRS)

For the Individual Behavior Rehearsal-Standard (IBRS) treatment, the counselor introduced herself, indicated that the student had been referred by his teacher to receive special counseling and said in effect, "The purpose of our getting together is to discuss ways which may help you increase your (verbal participation) with your friends in class. A very important part of verbal participation is feeling comfortable when you are conversing with someone."

The counselor then discussed, demonstrated and rehearsed with the student appropriate and comfortable ways of saying "good morning" to the teacher. A tape recorder was used to practice saying the greeting including accent and tone.

In the second session the student reported on his success (or failure) in saying "good morning" to the teacher. This monitoring procedure and criteria for success (student self report) was the same throughout the study. If the child had not been able to greet the teacher, a discussion of the problem was pursued and phase one was repeated. If successful, the student was then prepared to "ask a question in class." The student and counselor discussed possible responses by the teacher and what to do if the teacher ignored the client, got angry, or became talkative and friendly.

The third and fourth assignments were to answer a question asked by the teacher when the child knew the answer and when he was not sure of the answer. Again, possible alternatives and ramifications were discussed. After these assignments were made the counselors enlisted the cooperation of the students' teachers to insure success. The teachers were simply told to try to respond positively to any of the children in the experiment who might be volunteering answers.

The fifth assignment was for the client to discuss in some detail a problem in class. Selection of possible problems and means of presenting these problems ensued. The student chose at least two topics of interest to him and rehearsed presenting them. Again, possible responses by

other people were discussed and what to do if some of these responses did occur. This assignment was repeated once for each subject.

The sixth assignment was to greet a child whom the client liked and to talk briefly to him. In preparation for this assignment possible topics of conversation were discussed and rehearsed. Again, the student and counselor discussed possible responses by the other person and what to do if certain possibilities occurred. Some pointers on how to get away were given by the counselor. The monitoring procedures and criteria for success were the same for the other assignments.

At the end of the eighth session the subject's progress was reviewed. Each subject was asked which next steps he would now take on his own to increase his verbal participation both in and out of class.

Table I illustrates the treatment schedule used during the four week treatment period.

Group Behavior Rehearsal-Standard (GBRS)

The groups which used a standard procedure (GBRS) were identical to the one-to-one sessions described above (IBRS) except that the counselors worked with a group of boys and girls. In the counselor's introduction to the process she indicated to the students that those in the group all had a similar concern with speaking up and that they might be able to help each other with suggestions and encouragement. From that point on the procedure was the

same as for the preceding group. (See Table I) The process was different in that there was more interaction and greater opportunity for support of appropriate assertive responses.

TABLE I
TREATMENT SEQUENCE

Session	Assignment
1.	Introduction Assignment #1--"good morning"
2.	Report on assignment #1 Assignment #2--"ask a question"
3.	Report on assignment #2 Assignment #3--"answer a question, when the answer is known and when the answer is uncertain"
4.	Report on assignment #3 Assignment #4--(same as above)
5.	Report on assignment #4 Assignment #5--"discuss some problems in class"
6.	Report on assignment #5 Repeat assignment #5--(same as above)
7.	Report on assignment #5 Assignment #6--"greet a friend and engage in brief conversation"
8.	Report on assignment #6 Review learnings and implication for future

Individual Behavior Rehearsal-Personal (IBRP)

For the Individual Behavior Rehearsal-Personal procedure group the counselor's introduction was the same as with the other groups except that instead of moving

directly to the standard procedure the subject was assisted by the counselor in listing social situations which were "anxiety producing." The personalized hierarchy was constructed during the first counseling session with each subject. This personalized hierarchy, which could be modified at any time during the process, was thus specifically tailored to the individual subject. The least anxiety provoking situation named by the subject was the first topic attempted in the behavior rehearsal procedure. The format was similar to the standard procedure, in that a situation was rehearsed in the counseling situation, attempted in the child's everyday environment and the outcome reported back to the counselor. This format was followed through eight sessions utilizing the list developed by the subject and the counselor in the first session. At the end of the eight sessions the subject's progress was reviewed and plans were made as to next steps which the subject might take to improve his verbal participation both in and outside of the classroom.

Group Behavior Rehearsal-Personal (GBRP)

The Group Behavior Rehearsal-Personalized procedure was similar to the Group Behavior Rehearsal-Standard (GBRS) procedure except that the same personalized approach described above was used for each member of the group. That is, each member of the group developed his own hierarchy and was encouraged to assist other members in establishing their lists. All other sorts of helpful interaction related

to the topic at hand were also reinforced by the counselor.

Control Group

The control group was formed from the subject supply at the same time the treatment groups were formed. These subjects were not exposed to any experimental treatment and simply remained in the regular school program.

Experimental Technique

The experiment was conducted in February and March of 1973. The counselors were invited to participate in the experiment. Both counselors elected to participate and their training began in the first week of February. Since the counselors were familiar with the technique the training took only two sessions. The first session was devoted to a discussion of the experiment in general and the behavior rehearsal technique in particular. The second session with the counselors focused on their manner of presenting the experiment to the teachers who would be involved.

Following the orientation of counselors each fourth, fifth and sixth grade teacher in each of the four schools was invited to participate in the study. Nineteen of the teachers elected to become involved. Each of the teachers was asked to rank the children in his class on the variable "classroom verbal participation." The variable was defined and instruction in the ranking procedure was provided prior to the ranking. Appendix B presents the instructions provided the teachers. Each teacher was provided with a deck

of 3x5 cards. The decks were labeled "classroom verbal participation." The deck contained a card with a name of each pupil in the class. The teacher was asked to sort the deck and remove the cards of the five boys and girls who ranked lowest on the variable. The experimental population was obtained by drawing these ten cards from each teacher's deck. One hundred eighty-eight subjects from nineteen different classes and teachers were thusly named.

Subjects were then randomly assigned to one of five groups: the first group was identified as Individual Behavior Rehearsal-Standard (IBRS); the second group was identified as Group Behavior Rehearsal-Standard (GBRS); the third group was identified as Individual Behavior Rehearsal-Personal (IBRP); the fourth group was identified as Group Behavior Rehearsal-Personal (GBRP); the fifth group was a control group. The previous section titled "Treatments" described the treatment procedure in detail.

At the conclusion of the four-week period the subjects were observed in the criterion behavior, unsolicited communicative response, during a thirty minute discussion led by a third counselor. The discussion was held two days after the completion of the treatment groups in each school. The counselor leading the discussion had similar training and background to the counselors involved in the treatment phases. The topic for discussion was general in nature so that each of the pupils had some information about the topic. The discussion leader told the group that she was a stranger

in the area and she wanted them to tell her "all about this area and school." Before she began the discussion the leader gave the judges, who were seated behind the discussion circle, an opportunity to introduce themselves. The leader then began the discussion and would ask at least these four questions of the group:

"What do people do around here after school?"

"What do you think about this area (neighborhood)?"

"What do people do around here in the summertime?"

"Is there anything about this area or school that you would like changed?"

The above questions were evenly distributed throughout the discussion so that after an interval of approximately six minutes the leader had an opportunity to redirect the flow of conversation.

In order to provide for "unsolicited responses" the leader attempted to avoid direct verbal and social reinforcement of student verbalizations.

During the controlled discussion session each judge tallied the number of unsolicited communicative responses made by each of the five children.

The information from the judges' tallies was compiled and findings were then derived from a statistical examination of the data obtained during the controlled discussion session.

Table II illustrates the schedule used during the eleven week study.

TABLE II
SCHEDULE FOR THE EXPERIMENT

Week	Activity
February 5 - 9	Counselors invited to participate in the study Principals' permissions secured Counselors trained in the Behavioral Rehearsal Techniques
February 12 - 16	Teachers invited to participate in the study Teachers rank children on the variable "Classroom Verbal Participation" Students randomly assigned to groups
February 19 - 23 February 26 - March 2 March 5 - 9 March 12 - 16	First half of the sample "treated" twice a week
March 19 - 23	First half of the sample observed in controlled discussion groups Second half of the sample began treatment phase
March 19 - 23 March 26 - 30 April 2 - 6 April 9 - 13	Second half of the sample "treated" twice a week
April 16 - 20	Second half of the sample observed in controlled discussion groups
April 16 - 20	Data prepared and analyzed
April 23 - 27	Preliminary results of data analysis interpreted to counselors, teachers and principals

Method of Analysis

The data were analyzed by means of a 2^4 factorial analysis of variance using the following independent variables: treatment, sex of subject, counselor, and treatment setting. Both of the counselors operated under all of the treatment conditions and settings. Some of the variability due to differences in counselors could thus be controlled. The treatment conditions were behavior rehearsal-standard (BRS), behavior rehearsal-personal (BRP) and inactive control. The two settings were group and individual counseling. F ratios for both main effects and interaction were computed utilizing the Multivariate Analysis of Variance program of the Biometric Laboratory, University of Miami.

Cell entries were frequency of criterion responses made by the subjects during the controlled discussion periods.

Null Hypotheses

This experiment was designed to determine the effect of two behavior rehearsal techniques, administered in group and individual settings, on the verbal participation of the subjects. Subjects for the treatment were those pupils who had a history of low frequency of verbal participation in group and individual settings. Change in verbal behavior was the dependent variable. Frequencies were determined for each group by tallying the number of unsolicited communicative responses (UCR) made by each subject during the controlled discussion sessions.

The general questions stated in Chapter I as well

as two specific questions relating to counselor and sex differences, were translated into testable null hypotheses. In this study all hypotheses were tested at the .05 level of significance. The null hypotheses are as follows:

1. There is no difference between the mean frequencies of the BRS group and the BRP group.
2. There is no difference between the mean frequencies of the groups treated in the individual and in the group settings.
3. There is no difference between the mean frequencies of the counselor #1 and the counselor #2 groups.
4. There is no difference between the mean frequencies of the male and the female subjects.
5. There is no difference between the mean frequencies of the combined behavior rehearsal groups and the control group.

CHAPTER IV

RESULTS

The purpose of this study was to investigate the influence of behavior rehearsal techniques on the behavior of shy children as determined by a measure of verbal behavior. Answers were sought to the following questions:

1. Does participation in a behavior rehearsal program affect the verbal behavior of shy children?
2. Is there a difference between standardized and personalized hierarchies used in behavior rehearsal?
3. Is there a difference between group and individual behavior rehearsal approaches?

The sample included one hundred seventy-seven elementary school children from nineteen fourth, fifth and sixth grade classrooms.

Subjects were randomly assigned to one of five groups: the first group was identified as Individual Behavior Rehearsal-Standard (IBRS); the second group was identified as Group Behavior Rehearsal-Standard (GBRS); the third group was identified as Individual Behavior Rehearsal-Personal (IBRP); the fourth group was identified

as Group Behavior Rehearsal-Personal (GBRP); the fifth group was an inactive control group.

Subjects were treated by two female counselors for a period of four weeks. At the conclusion of the four week treatment period the subjects were observed on the criterion behavior, unsolicited communicative response, during a thirty minute controlled discussion session.

Unsolicited communicative responses were counted by neutral judges. The number of unsolicited communicative responses recorded by the judges ranged from zero to ninety-nine. The reliability of the judges was assessed by having pairs of judges make simultaneous records of the verbal behavior of the subjects assigned to them. At any given session each judge observed five subjects. The number of subjects observed by each judge ranged from 29 to 94. Two of the judges observed 94 and 83 subjects respectively, one judge observed 65 subjects, two judges observed 43 and 40 subjects, and one judge observed 29 subjects.

The Pearson Product-Moment correlation coefficient was computed to test the reliability of scores obtained during the controlled discussion sessions. The high inter-rater correlations (.98-.99) obtained using the Pearson r suggest that in this study a simple tally was a reliable technique for measuring unsolicited communicative responses. The inter-rater correlations are presented in Table III.

Homogeneity of variance was tested next using Bartlett's statistic for unequal cell sizes. Bartlett's test yielded a χ^2 of 42.66, which was significant at the

.01 level. The critical value of chi-square at the .01 level with 15 degrees of freedom is 30.58. The hypothesis of homogeneity of variance was rejected. Because the hypothesis of homogeneity of variance was rejected, the data was transformed using the formula $[Y' = \log (Y+1)]$ suggested by Dayton (1970) for proportional means and variances. Using the transformed data, Bartlett's test yielded a non-significant χ^2 of 18.31. Thus, under the transformed conditions the hypothesis of homogeneity of variance was not rejected. The results from Bartlett's test are presented in Appendix C. In addition, the original and transformed scores for all subjects are presented in Appendix D.

TABLE III

INTER-RATER CORRELATIONS ON SCORES OBTAINED
DURING THE CONTROLLED DISCUSSION SESSIONS
(N=177)

Between Raters	N	Pearson r
A and B	40	.98
C and D	65	.99
A and E	43	.99
C and F	29	.98

Since the data yielded similar F ratios under both the original and the transformed conditions, the findings are reported in this chapter in terms of the original raw data. Furthermore, the frequency of subject response is more meaningfully conveyed through the presentation of the original data rather than the transformed data.

After accepting the assumption of homogeneity of variance and assessing the level of inter-judge reliability, the data was analyzed in several ways using the following independent variables: treatment, sex of subject, counselor, and treatment setting. The results of the data analysis of the original scores are presented below. The results from the analysis of variance on the transformed data are reported in Appendix E.

Analysis of the Data

The results of the analysis of variance for the effects of treatment, setting, sex of subject, and counselor are presented in Table IV. The critical value for $F_{1,124}$ at the .05 level of significance is 3.841. These results indicate no significant main effects at the .05 level of significance. The results did indicate one significant second-order interaction at the .05 level of significance. The second-order interaction was the treatment by sex by counselor interaction.

The five null hypotheses were tested at the .05 level and their results appear below.

Null Hypothesis 1 - There is no significant difference between the mean of the group receiving the standard procedure (BRS) and the mean of the group receiving the personalized procedure (BRP) on the measure of unsolicited communicative response.

$H_0: m_1 = m_2$, where m_1 is defined as the mean of the standard procedure group (BRS) and m_2 is defined as the mean of the personalized procedure group (BRP).

TABLE IV

ANALYSIS OF VARIANCE SUMMARY TABLE FOR THE EFFECTS
OF TREATMENT, SETTING, SEX AND COUNSELOR ON A
MEASURE OF UNSOLICITED COMMUNICATIVE RESPONSE
(N=140)

Source	DF	Sum of Squares	Mean Square	F Ratio	Level of Probability
A Treatment	1	97.130	97.130	.314	.579
B Setting	1	760.178	760.178	2.455	.120
C Sex of Subject	1	656.294	656.294	2.120	.148
D Counselor	1	1137.150	1137.150	3.673	.058
AB	1	432.056	432.056	1.396	.240
AC	1	78.395	78.395	.253	.616
AD	1	169.826	169.826	.549	.460
BC	1	1.745	1.745	.006	.940
BD	1	54.429	54.429	.176	.676
CD	1	183.581	183.581	.593	.443
ABC	1	78.424	78.424	.253	.616
ABD	1	459.182	459.182	1.483	.226
ACD	1	1222.581	1222.581	3.949	.049*
BCD	1	.652	.652	.002	.963
ABCD	1	15.308	15.308	.049	.824
WITHIN CELLS	124	38389.009	309.589		

*Critical Value of $F_{1,124} = 3.841$

The means, standard deviations, and F ratio for both groups on the measure of unsolicited communicative response are reported in Table V.

TABLE V
 MEANS, STANDARD DEVIATIONS, AND F RATIO FOR
 THE EFFECTS OF TREATMENT ON A MEASURE OF
 UNSOLICITED COMMUNICATIVE RESPONSE

Level	N	Mean	Standard Deviation	F Ratio
Behavior Rehearsal Standard Procedure	70	16.723	15.693	.314
Behavior Rehearsal Personal Procedure	70	18.686	16.318	

Critical value of $F_{1,124} = 3.841$

The results of the analysis of variance of the means produced an F ratio of .314 for $F_{1,124}$. The critical value for $F_{1,124}$ at the .05 level is 3.841. These results indicate no significant difference between treatment groups at the .05 level of significance. Therefore, the null hypothesis was not rejected. It can be concluded that there is no difference between the mean of the group exposed to the standard procedure (BRS) and the mean of the group exposed to the personalized procedure (BRP).

Null Hypothesis 2 - There is no significant difference between the mean of the group receiving treatment in a group setting and the mean of the group receiving

treatment in an individual setting on the measure of unsolicited communicative response.

$H_0: m_1 = m_2$, where m_1 is defined as the mean of the group treatment group and m_2 is defined as the mean of the individual treatment group.

Means, standard deviations, and the F ratio for both groups on the measure of unsolicited communicative response are shown in Table VI. The F ratio of 2.455 is less than the critical value of 3.841 for $F_{1,124}$ at the .05 level of significance. Since the F ratio did not reach the level of significance the null hypothesis was not rejected. There was no evidence of a significant difference between subjects receiving treatment in a group setting and subjects receiving treatment in a one-to-one setting on the measure of unsolicited communicative response.

TABLE VI

MEANS, STANDARD DEVIATIONS, AND F RATIO FOR THE EFFECTS OF TREATMENT SETTING ON A MEASURE OF UNSOLICITED COMMUNICATIVE RESPONSE

Factor	Level	N	Mean	Standard Deviation	F Ratio
Setting	Group	67	13.021	12.804	2.455
	Individual	73	19.988	19.208	

*Critical value of $F_{1,124} = 3.841$

Null Hypothesis 3 - There is no significant difference between the mean of the group receiving treatment from counselor #1 and the mean of the group receiving treatment from counselor #2 on the measure of unsolicited communicative response.

$H_0: m_1 = m_2$, where m_1 is defined as the mean of the group treated by counselor #1 and m_2 is defined as the mean of the group treated by counselor #2.

Table VII shows the means, standard deviations, and F ratio for both groups on the measure of unsolicited communicative response. The F ratio of 3.673 for $F_{1,124}$ degrees of freedom falls below the critical value of 3.841 at the .05 level of significance, and so the null hypothesis was not rejected. There was no evidence of a significant difference between subjects treated by counselor #1 and subjects treated by counselor #2 on the measure of unsolicited communicative response.

TABLE VII

MEANS, STANDARD DEVIATIONS, AND F RATIO FOR THE EFFECTS OF COUNSELOR ON A MEASURE OF UNSOLICITED COMMUNICATIVE RESPONSE

Factor	Level	N	Mean	Standard Deviation	F Ratio
Counselor	Counselor #1	70	14.956	13.592	3.673
	Counselor #2	70	20.453	18.418	

*Critical value of $F_{1,124} = 3.841$

Null Hypothesis 4 - There is no significant difference between the means acquired by male subjects and the female subjects on the measure of unsolicited communicative response.

$H_0: m_1 = m_2$, where m_1 is defined as the mean of the male subjects and m_2 is defined as the mean of the female subjects.

The means, standard deviations, and F ratio for both groups are shown in Table VIII. The F ratio of 2.120 for $F_{1,124}$ degrees of freedom fell below the critical value of 3.841 at the .05 level of significance, and so the null hypothesis was not rejected. There was no evidence of a significant difference between the male and female subjects on the measure of unsolicited communicative response.

TABLE VIII

MEANS, STANDARD DEVIATIONS, AND F RATIO FOR THE EFFECTS OF SEX ON A MEASURE OF UNSOLICITED COMMUNICATIVE RESPONSE

Factor	Level	N	Mean	Standard Deviation	F Ratio
Sex	Male	69	19.748	16.323	2.120
	Female	71	15.661	15.688	

*Critical value of $F_{1,124} = 3.841$

Null Hypothesis 5 - There is no significant difference between the mean of the group exposed to treatment and the mean of the group not exposed to treatment on the measure of unsolicited communicative response.

$H_0: m_1 = m_2$, where m_1 is defined as the mean of the group receiving behavior rehearsal treatment and m_2 is defined as the mean of the control group.

Means, standard deviations, and the F ratio for the different groups are shown in Table IX. The F ratio of 3.433 for $F_{1,175}$ degrees of freedom does not reach the critical value of 3.841 at the .05 level of significance, and therefore the null hypothesis was not rejected. There was no evidence of a significant difference between subjects treated with behavior rehearsal procedures and subjects who received no treatment on the measure of unsolicited communicative response.

TABLE IX

MEANS, STANDARD DEVIATIONS, AND F RATIO FOR THE EFFECTS OF TREATMENT VS. NO TREATMENT ON A MEASURE OF UNSOLICITED COMMUNICATIVE RESPONSE

Factor	Level	N	Mean	Standard Deviation	F Ratio
Treatment	Behavior Rehearsal Procedure	140	17.910	17.665	.066
	Control	37	24.322	22.302	

Critical value of $F_{1,175} = 3.841$

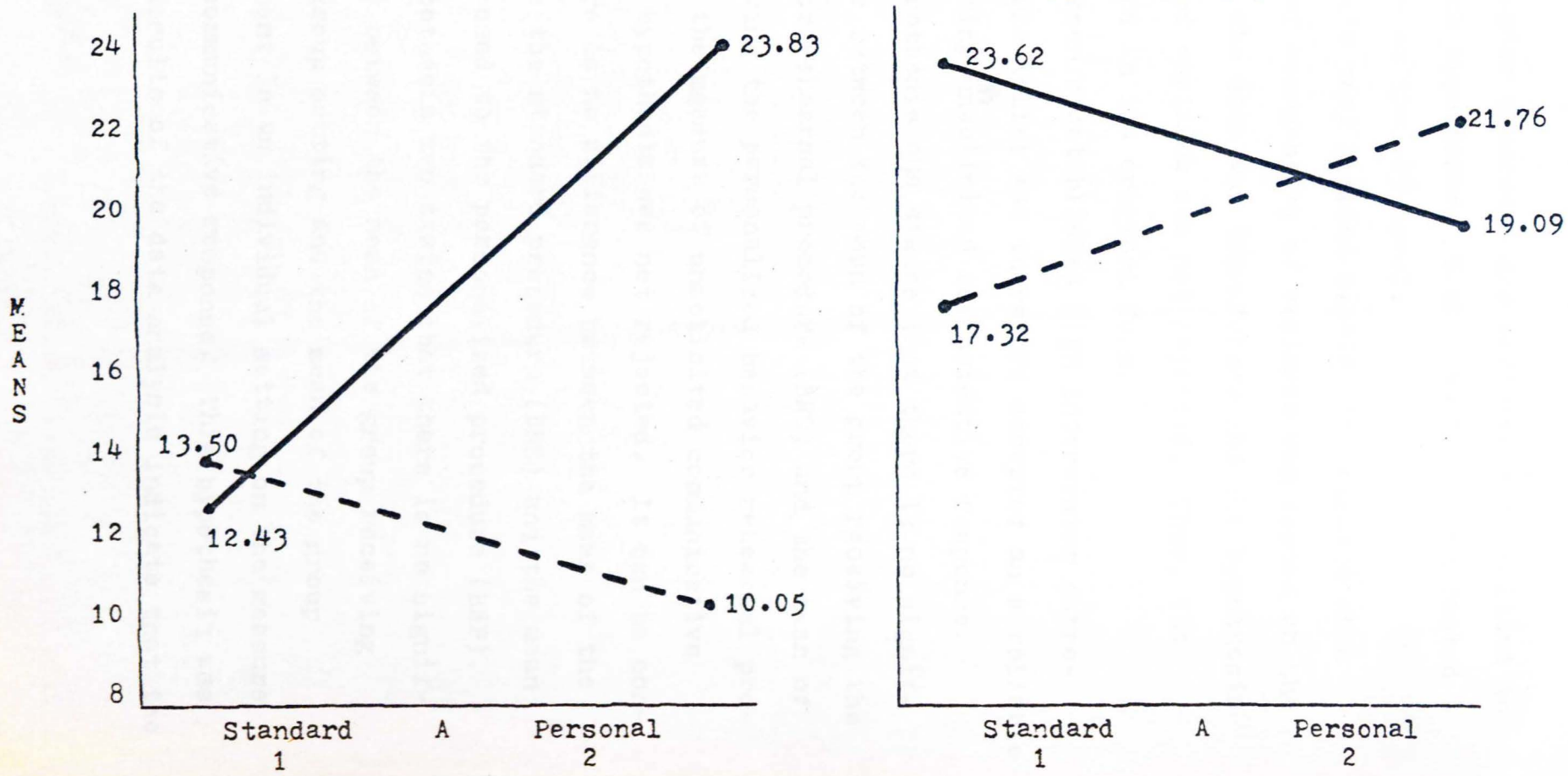
While no significant main effects were found for the entire sample, a significant second-order interaction was found. The counselor by sex by treatment interaction was significant at beyond the .05 level of significance. This interaction is illustrated in Figure 1 and documented in Appendix F.

FIGURE 1

COUNSELOR BY SEX BY TREATMENT INTERACTION

Level 1 of Treatment D
(Counselor #1)

Level 2 of Treatment D
(Counselor #2)



Male —————
Female - - - - -

Summary

This chapter presented and analyzed data related to the five research hypotheses. Each hypothesis was tested for significance at the .05 level.

Bartlett's test yielded significant results when the hypothesis of homogeneity of variance was tested on the original data. The data was transformed and the hypothesis of homogeneity of variance was not rejected. Thus, the data was reported in its original form.

The Pearson r established high inter-rater correlations. A simple tally was therefore accepted as a reliable method of measuring unsolicited communicative response.

Null hypothesis one states that there is no significant difference between the mean of the group receiving the standard behavior rehearsal procedure (BRS) and the mean of the group receiving the personalized behavior rehearsal procedure (BRP) on the measure of unsolicited communicative response. This hypothesis was not rejected. It can be concluded that there is no difference between the mean of the group exposed to the standard procedure (BRS) and the mean of the group exposed to the personalized procedure (BRP).

Null hypothesis two states that there is no significant difference between the mean of the group receiving treatment in a group setting and the mean of the group receiving treatment in an individual setting on the measure of unsolicited communicative response. This hypothesis was not rejected. Results of the data analysis indicate that the

mean of the group treated in an individual setting did not differ from the mean of the group treated in a group setting.

Null hypothesis three states that there is no significant difference between the mean of the group receiving treatment from counselor #1 and the mean of the group receiving treatment from counselor #2 on the measure of unsolicited communicative response. This hypothesis was not rejected. It can be concluded that there was no difference between the means of the groups treated by the two counselors.

Null hypothesis four states that there is no significant difference between the means acquired by the male subjects and the female subjects on the measure of unsolicited communicative response. This hypothesis was not rejected. It can be concluded that males and females did not respond at a significantly different level.

Null hypothesis five states that there is no significant difference between the mean of the group exposed to treatment and the mean of the group not exposed to treatment on a measure of unsolicited communicative response. This hypothesis was not rejected. It can be concluded that there was no significant difference between the mean of the group treated with behavior rehearsal procedures and the mean of the group which received no treatment.

CHAPTER V

DISCUSSION, CONCLUSIONS, AND SUMMARY

This study was designed to assess the relative effects of certain behavior rehearsal procedures. Procedures were evaluated through observation of subjects who had been treated with various combinations of the behavior rehearsal technique. The data consisted of the frequency of subjects' emission of unsolicited communicative responses. The discussion of the results of this study center around the questions presented in Chapter I. The questions raised in Chapter I are the following:

1. Does participation in a behavior rehearsal program affect the verbal behavior of shy children?
2. Is there a difference between standard and personal hierarchies used in behavior rehearsal?
3. Is there a difference between group and individual behavior rehearsal approaches?

Discussion

1. Does participation in a behavior rehearsal program affect the verbal behavior of shy children?

Underlying this question was the assumption that there would be different rates of response for the group receiving the various behavior rehearsal procedures and the control group. No such difference occurred. Research reports concerning behavior rehearsal approaches have generally been not only favorable but often significantly more impressive when compared with reports of traditional counseling approaches (Lazarus, 1966) or no counseling treatment (McFall, 1970). While other experimenters have found the behavior rehearsal technique a useful tool for modifying social behaviors, similar results were not found in the present study.

Perhaps an explanation for the lack of difference might be found in the observational technique rather than the treatment procedure. The observational technique used in the present study was a controlled discussion session. While the observational technique was quite effective in controlling contaminating variables such as teacher influence, classroom setting and climate, knowledge of subject matter, etc., it did not present a truly "in vivo" observation of the subjects. Although the results of any observational technique will be governed by a multiplicity of psychological and environmental factors, more representative data might be gathered from the shy child in an atmosphere more closely approximating his "everyday" life.

The experimental setting was a large conference room. A discussion session held in the subjects' classrooms would

provide a more familiar setting in which the subjects might respond more typically. Perhaps such an observation would have yielded different results. In essence, the research setting may not have provided the appropriate environment for measuring unsolicited communicative response. More specifically, the selection of subjects was made in one stimulus setting while the criterion behavior was measured in another stimulus setting.

2. Is there a difference between standardized and personalized hierarchies used in behavior rehearsal?

No significant differences were found between the standardized and the personalized hierarchies which were used in the treatment phase of the experiment. The analysis of variance of the means yielded no results within the prescribed .05 level of acceptance.

In the standard approach subjects were provided with a hierarchy of specific tasks to be accomplished. The personalized approach called for clients to develop their own hierarchy of tasks. The lack of significant difference between the two treatment approaches may indicate that the standard approach might still be as effective as the personalized approach. The results do not support the contention of Wolpe (1958) that personalized hierarchies must be constructed for each client. The lack of difference between the approaches might also be interpreted as an indication that the development of standard approaches to shaping certain behaviors and classes of behavior should not

be abandoned.

Standard hierarchies are developed on the basis of experience with the personalized hierarchies of many clients. Thus, it might happen that a standard hierarchy would contain behaviors necessary for producing an increase in a subject's verbal participation even though that subject would have chosen different items for his own personal hierarchy. Therefore, researchers finding no significant differences between these approaches might suggest that a standard approach is as effective as an individual approach. Such a claim would be meaningless in the present study since no differences were found between the treatment and control groups.

In summary, the fact that the personalized hierarchies were not found significantly more effective than the standard hierarchies raises questions about the preference of one type of hierarchy over another. Systematic investigation may still reveal that one hierarchy is more effective, or by contrast, that the different hierarchies produce different effects.

3. Is there a difference between group and individual behavior rehearsal approaches?

The assumption underlying the selection of this question for the study was that a group counseling setting has been reported to provide for a type of social interaction among subjects which may be crucial in terms of developing assertive social behaviors. The results of the present study

do not show any significant differences between group and individual behavior rehearsal approaches.

All the subjects were given an opportunity to rehearse each assignment in the counseling setting. However, the subjects who were treated in a group setting were exposed to opportunities to interact with and gain support from their peers. These opportunities did not appear to make a difference in the performance of the subjects.

These results might be interpreted as supporting the findings of Hansen, Niland and Zani (1969) who found that in order to achieve success with counseling groups of "low participating" children the groups had to contain at least one "high participating" model.

Those subjects treated in an individual setting might have used the counselor as their "high participating" model.

In general, it might be stated that in the case of shaping this class of participating behaviors, the group approach was no more effective than the individual approach.

Limitations of the Study

There were a number of factors which might tend to limit the results of the present research.

1. The controlled discussion session may not have been the most appropriate means of assessing the unsolicited communicative responses of the subjects. The subjects were selected for the

study by their teachers on the basis of the subjects' performance in traditional classroom settings. As the subjects rehearsed their tasks, the emphasis was on success in the environment outside the counseling setting. Perhaps the experimental setting was less appropriate than a classroom setting would have been. A classroom might have provided a setting more closely approximating the environment in which the subjects had finally carried out their assignments. In essence, the selection of subjects was made in one setting while their criterion performance was measured in another setting.

2. The timing of the observation might also be a limitation of the study. Perhaps shy children require longer than four weeks to acquire the behavior which would demonstrate a noticeable change in their verbal behavior.
3. The sample size might be an additional limitation of the present research. A total of one hundred seventy-seven subjects were involved in the study in order to guarantee a cell size large enough to adequately test the research hypotheses. Therefore, in order to remain within this and other boundaries of the study, the ten lowest verbally participating students in each class were chosen for the study. In many of the classes

this selection revealed a very wide range of verbal and social ability. A smaller number of students from each class might have reduced the variability between subjects.

4. The subjects were selected for participation in the present study by their teachers. While teacher selection has proven to be a valid technique for identifying subjects in other studies (Glueck, 1959), it may not have been the most appropriate technique in the present study. A more valid technique for identifying subjects may be a pre-treatment classroom observation in which the baseline of criterion behaviors is established. The data from this observation could be used in selecting subjects as well as for use in post-treatment comparisons.

Conclusions

In a view of the limitations outlined above, the findings of this study suggest the following conclusions:

1. It may be concluded that the verbal behavior of the subjects, the shy children, was not affected as a result of participating in a behavior rehearsal program.
2. It may be concluded that the individual setting was not more effective than the group setting for both the standard and personalized procedures.
3. It may be concluded that the standard hierarchy

was as effective as the personalized hierarchy when used in behavior rehearsal with shy children.

4. It may be concluded that boys and girls responded similarly to the behavior rehearsal procedures.

Recommendations for Further Study

It is suggested that further research consider replication of the study with the following modifications:

1. Using a pilot tested "in vivo" observational technique.
2. Lengthening the duration of the treatment phase.
3. Using an extended standard hierarchy.
4. Controlling the sex factor as a variable in order to reduce the required sample size from each classroom.
5. Using pre-treatment baseline data for the selection of subjects and not depending on the procedure of having teachers recommend subjects for inclusion in the study.

Summary

Counseling literature currently contains many studies demonstrating the value of verbal reinforcement and modeling techniques. Very recently, there has been some acceptance of a number of less frequently used techniques. Some of these are: aversive conditioning, counter-conditioning, relaxation techniques, behavioral contracting and behavior

rehearsal. As this list grows it becomes more important to know which techniques work most effectively on certain specific behaviors. The technique chosen for this study was called behavior rehearsal. The type client chosen was the child who has a low frequency of verbal participation, i.e. the shy child.

The assumption was made that as a result of employing behavior rehearsal techniques the shy child would modify his behavior in the direction of being more spontaneously verbal. A study of the literature revealed no empirical research to support such an assumption.

The purpose of this study was to investigate the influence of behavior rehearsal techniques on the behavior of shy children as determined by a measure of verbal behavior. Answers were sought to the following questions:

1. Does participation in a behavior rehearsal program affect the verbal behavior of shy children?
2. Is there a difference between standardized and personalized hierarchies used in behavior rehearsal?
3. Is there a difference between group and individual behavior rehearsal approaches?

The sample included one hundred seventy-seven elementary school children from nineteen fourth, fifth, and sixth grade classrooms.

Subjects were randomly assigned to one of five

treatment groups: the first group was identified as Individual Behavior Rehearsal-Standard (IBRS); the second group was identified as Group Behavior Rehearsal-Standard (GBRS); the third group was identified as Individual Behavior Rehearsal-Personal (IBRP); the fourth group was identified as Group Behavior Rehearsal-Personal (GBRP); the fifth group was an inactive control group. At the conclusion of a four-week treatment period the subjects were observed on the criterion behavior, unsolicited communicative response, during a thirty minute controlled discussion session.

The results demonstrated that there was no change in verbal behavior as a result of participating in a behavior rehearsal program. It appears that in this study the behavior rehearsal procedures had no differential effect on the verbal behavior of the shy children.

No significant difference was found on any of the other factors which were measured. Neither the treatment setting, nor the sex of the subject, nor the counselor appeared to have a significant effect on the final results of the study.

Although research studies indicate that the behavior rehearsal technique is an effective technique for shaping assertive behaviors, no such evidence was found in this study. Moreover, support was not found for the traditional view that individualized hierarchies are more effective than standard hierarchies. The results of the present study, therefore, may add to the growing body of research that

suggests developing standard procedures for establishing assertive behaviors in clients.

The lack of research on the behavior rehearsal technique suggests that more refined and systematic research is needed to assess the specific effects behavior rehearsal has on the behavior of shy children.

APPENDIX A

TREATMENT SEQUENCE

TREATMENT SEQUENCE

Session	Assignment
1.	Introduction Assignment #1 - "good morning"
2.	Report on assignment #1 Assignment #2 "ask a question"
3.	Report on assignment #2 Assignment #3 "answer a question, when the answer is known and when the answer is uncertain"
4.	Report on assignment #3 Assignment #4 (same as above)
5.	Report on assignment #4 Assignment #5 "discuss some problems in class"
6.	Report on assignment #5 Repeat assignment #5 (same as above)
7.	Report on assignment #5 Assignment #6 "greet a friend and engage in brief conversation"
8.	Report on assignment #6 Review learnings and implication for future

APPENDIX B

INSTRUCTIONS FOR TEACHER
RANKING OF CHILDREN

Instructions for Teacher Ranking of Children

Please rank the children in your class on the following variable:

Classroom Verbal Participation

The ranking procedure is as follows:

1. You have been provided with a deck of 3x5 cards. The deck is labeled "Classroom Verbal Participation." Each deck contains a card with the name of each pupil in your class.
2. Please sort the deck, and remove the cards of the five boys and five girls who rank lowest on the variable Classroom Verbal Participation.
3. When you complete the ranking you will have two decks of cards. One of the decks will be the ten boys and girls in your class who rank lowest in classroom verbal participation. The other deck will represent the remainder of the class--those who rank higher in classroom verbal participation.

I will collect the decks when you are finished.

4. The variable is defined as follows:

Classroom Verbal Participation - This refers to the frequency (as compared to other class members) with which the child makes verbal contributions in your class, either initiating verbal behavior or in response to you or other students.

RESULTS FROM BARTLETT'S TEST ON
RAW AND TRANSFORMED DATA

APPENDIX C

RESULTS FROM BARTLETT'S TEST ON
RAW AND TRANSFORMED DATA

RESULTS FROM BARTLETT'S TEST ON
RAW AND TRANSFORMED DATA

RAW DATA RESULTS:

$$\chi^2 = \frac{2.303}{C} [124 (2.4908) - 289.482] = \frac{2.303}{C} (19.3754)$$

$$C = 1 + \frac{1}{45} (2.085 - \frac{1}{124}) = 1.046$$

$$\chi^2 = \frac{2.303}{1.046} (19.3754) = 42.66 \quad \text{critical value for 15} \\ \text{df at .05 level} = 25.00$$

Reject null hypothesis of homogeneity of variance.

TRANSFORMED DATA RESULTS:

$$\chi^2 = \frac{2.303}{C} [124 (-0.578396) - (-80.646530)] = \frac{2.303}{C} (8.9254)$$

$$C = 1 + \frac{1}{45} (2.085 - \frac{1}{124}) = 1.046$$

$$\chi^2 = \frac{2.303}{1.046} (8.9254) = 19.65 \quad \text{critical value for 15} \\ \text{df at .05 level} = 25.00$$

Accept null hypothesis of homogeneity of variance.

APPENDIX D

RAW DATA: SUBJECT CLASSIFICATION AND
PERFORMANCE IN OBSERVATION SESSIONS

APPENDIX D

RAW DATA: SUBJECT CLASSIFICATION AND PERFORMANCE IN OBSERVATION SESSIONS

SUBJECT	RATERS		TREATMENT			SETTING			SEX	COUNSELOR				RATER I SCORE			RATER II SCORE			MEAN RATER SCORE				TRANSFORMED SCORE $Y' = \log(Y+1)$															
	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
001	C	D			S							I		M			1		0	2		0	1		0	1		.5					0		.3	9	7	9	4
002	C	D			S							I		M			1		3	4		3	6		3	5		.0				1		.5	5	6	3	0	
003	A	B			S							I		M			1		0	7		0	7		0	7		.0				0		.9	0	3	0	9	
004	C	D			S							I		M			1		1	0		1	4		1	2		.0				1		.1	1	3	9	4	
005	C	D			S							G		M			1		1	2		1	2		1	2		.0				1		.1	1	3	9	4	
006	A	B			S							G		M			1		1	8		1	9		1	8		.5				1		.2	9	0	0	3	
007	A	B			S							G		M			1		1	8		1	9		1	8		.5				1		.2	9	0	0	3	
008	A	B			S							G		M			1		1	0		1	3		1	1		.5				1		.0	9	6	9	1	
009	C	D			P							I		M			1		3	2		3	1		3	1		.5				1		.5	1	1	8	8	
010	C	D			P							I		M			1		2	3		2	5		2	4		.0				1		.3	9	7	9	4	
011	C	D			P							I		M			1		3	6		3	7		3	6		.5				1		.5	7	4	0	3	
012	C	D			P							I		M			1		0	7		0	6		0	6		.5				0		.8	7	5	0	6	
013	C	D			P							G		M			1		0	0		0	0		0	0		.0				0		.0	0	0	0	0	
014	C	D			P							G		M			1		3	4		3	3		3	3		.5				1		.5	3	7	8	2	
015	C	D			P							G		M			1		0	0		0	0		0	0		.0				0		.0	0	0	0	0	
016	C	D			P							G		M			1		0	4		0	6		0	5		.0				0		.7	7	8	1	5	
017	A	B			S							I		F			1		1	7		1	7		1	7		.0				1		.2	5	5	2	7	
018	A	B			S							I		F			1		1	9		1	9		1	9		.0				1		.3	0	1	0	3	
019	C	D			S							I		F			1		8	0		8	8		8	4		.0				1		.9	2	9	4	2	
020	A	B			S							I		F			1		0	0		0	0		0	0		.0				0		.0	0	0	0	0	

- * 1-180 = Subject Code Number
- A-E = Rater Code
- S-P-C = Treatment Code = Standard, Personal, Control
- G-I = Setting Code = Group, Individual
- M-F = Sex Code
- 1-2 = Counselor Code

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
0	2	1		A	B			S				G		F			1		0	4		0	4		0	4		0				0		6	9	8	9	7	
0	2	2		A	B			S				G		F			1		0	5		0	8		0	6		5				0		8	7	5	0	6	
0	2	3		C	D			S				G		F			1		1	6		1	7		1	6		5				1		2	4	3	0	4	
0	2	4		A	B			S				G		F			1		1	6		1	8		1	7		0				1		2	5	5	2	7	
0	2	5		A	B			P				I		F			1		2	1		2	2		2	1		5				1		3	5	2	1	8	
0	2	6		A	B			P				I		F			1		2	8		2	8		2	8		0				1		4	6	2	4	0	
0	2	7		A	B			P				I		F			1		0	3		0	1		0	2		0				0		4	7	7	1	2	
0	2	8		A	B			P				I		F			1		0	0		0	4		0	2		0				0		4	7	7	1	2	
0	2	9		A	B			P				G		F			1		0	2		0	2		0	2		0				0		4	7	7	1	2	
0	3	0		C	D			P				G		F			1		0	2		0	2		0	2		0				0		4	7	7	1	2	
0	3	1		A	B			P				G		F			1		0	3		0	4		0	3		5				0		6	5	3	2	1	
0	3	2		A	B			P				G		F			1		0	9		0	8		0	8		5				0		9	7	7	7	2	
0	3	3		C	D			S				I		M			2		3	1		3	4		3	2		5				1		5	2	5	0	4	
0	3	4		C	D			S				I		M			2		8	0		8	2		8	1		0				1		9	1	3	8	1	
0	3	5		A	E			S				I		M			2		1	4		1	3		1	3		5				1		1	6	1	3	7	
0	3	6		C	D			S				I		M			2		0	0		0	0		0	0		0				0		0	0	0	0	0	
0	3	7		C	D			S				G		M			2		1	4		1	5		1	4		5				0		1	9	0	3	3	
0	3	8		C	D			S				G		M			2		1	3		1	1		1	2		0				1		1	1	3	9	4	
0	3	9		A	E			S				G		M			2		1	1		1	3		1	2		0				1		1	1	3	9	4	
0	4	0		A	E			S				G		M			2		1	2		1	1		1	1		5				1		0	9	6	9	1	
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1	7	4	A	E			C					-		F			2		2	6		3	0		2	8	.	0					1	.	4	6	2	4	0
1	7	5	A	E			C					-		F			2		0	7		0	5		0	6	.	0					0	.	8	4	5	1	0
1	7	6	C	F			C					-		F			2		5	7		5	3		5	5	.	0					1	.	7	4	8	1	9
1	7	7	A	E			C					-		F			2		5	5		5	9		5	7	.	0					1	.	7	6	3	4	3

APPENDIX E

ANALYSIS OF VARIANCE SUMMARY TABLE FOR THE EFFECTS
OF TREATMENT, SEX, COUNSELOR AND SETTING ON A
MEASURE OF UNSOLICITED COMMUNICATIVE
RESPONSE - TRANSFORMED SCORES

ANALYSIS OF VARIANCE SUMMARY TABLE FOR THE EFFECTS
OF TREATMENT, SEX, COUNSELOR AND SETTING ON A
MEASURE OF UNSOLICITED COMMUNICATIVE
RESPONSE - TRANSFORMED SCORES

Source	DF	Sum of Squares	Mean Square	F Ratio	Level of Probability
A Treatment	1	.005	.005	.018	.894
B Setting	1	.112	.112	.423	.517
C Sex of Subject	1	.492	.492	1.852	.175
D Counselor	1	.476	.476	1.799	.182
AB	1	.020	.020	.076	.784
AC	1	.014	.014	.052	.320
AD	1	.001	.001	.005	.946
BC	1	.368	.368	1.394	.240
BD	1	.039	.039	.146	.703
CD	1	.571	.571	2.161	.144
ABC	1	.373	.373	1.411	.237
ABD	1	.255	.255	.964	.329
ACD	1	.599	.599	2.265	.135
BCD	1	.073	.073	.277	.600
ABCD	1	.037	.037	.141	.708
WITHIN CELLS	124	32.780	.264		

Effects of Sex by Counselor on the Effects of Treatment, Setting, Sex, and Counselor on a Measure of Unsolicited Communicative Response

Level 1 of Treatment (Standard)

Level 2 of Treatment (Personal)



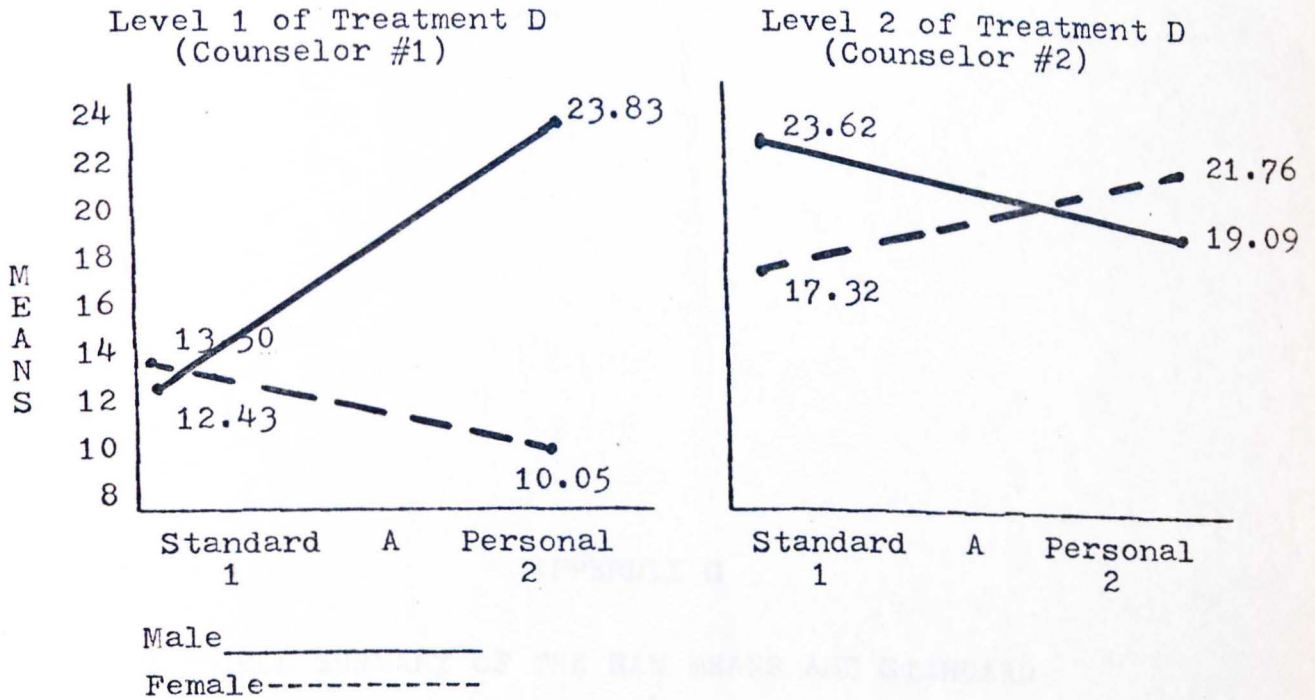
APPENDIX F

COUNSELOR BY SEX BY TREATMENT INTERACTION FOR THE EFFECTS OF TREATMENT, SETTING, SEX, AND COUNSELOR ON A MEASURE OF UNSOLICITED COMMUNICATIVE RESPONSE (N=140)

MEANS FOR COUNSELOR, SEX, AND TREATMENT ON A MEASURE OF UNSOLICITED COMMUNICATIVE RESPONSE (N=140)

Counselor	Sex	Treatment	Mean
M	Male	Standard	22.43
F	Male	Personal	23.83
M	Female	Standard	13.30
F	Female	Personal	18.85
M	Male	Standard	21.68
F	Male	Personal	19.29
M	Female	Standard	17.32
F	Female	Personal	21.75

COUNSELOR BY SEX BY TREATMENT INTERACTION FOR THE EFFECTS OF TREATMENT, SETTING, SEX, AND COUNSELOR ON A MEASURE OF UNSOLICITED COMMUNICATIVE RESPONSE (N=140)



MEANS FOR COUNSELOR, SEX, AND TREATMENT ON A MEASURE OF UNSOLICITED COMMUNICATIVE RESPONSE (N=140)

FACTOR:	Counselor	Sex	Treatment	Mean
	#1	Male	Standard	12.43
	#1	Male	Personal	23.83
	#1	Female	Standard	13.50
	#1	Female	Personal	10.05
LEVEL				
	#2	Male	Standard	23.62
	#2	Male	Personal	19.09
	#2	Female	Standard	17.32
	#2	Female	Personal	21.76

Cell	Mean	Standard Deviation
1	13.950	12.041
2	11.021	6.734
3	21.781	15.102
4	10.304	10.003
5	15.111	10.451
6	10.104	8.001
7	10.104	17.001
8	10.104	10.001

APPENDIX G

CELL SUMMARY OF THE RAW MEANS AND STANDARD
DEVIATIONS FOR THE 2⁴ FACTORIAL DESIGN

1	12.307	23.501
2	24.212	24.712
3	10.407	10.011
4	20.017	20.000
5	12.017	13.171

CELL SUMMARY OF THE RAW MEANS AND STANDARD
DEVIATIONS FOR THE 2^4 FACTORIAL DESIGN

Cell	N	Mean	Standard Deviation
1111	8	13.000	10.640
1121	8	11.875	6.854
1112	9	26.722	15.149
1122	9	20.944	20.013
1211	9	16.111	26.451
1221	9	10.889	6.066
1212	9	10.667	13.897
1222	9	9.444	9.671
2111	10	29.700	28.357
2121	9	17.556	12.022
2112	9	18.833	13.942
2122	7	19.357	23.609
2211	9	24.222	24.543
2221	8	10.437	10.611
2212	10	20.650	20.690
2222	8	22.875	13.575

CELL SUMMARY OF THE TRANSFORMED MEANS AND STANDARD DEVIATIONS FOR THE 2⁴ FACTORIAL DESIGN

Cell	n	Mean	Standard Deviation
1	5	1.515	.380
2	5	1.832	.309
3	5	1.229	.419
4	5	1.809	.490
5	5	1.254	.379
6	5	1.514	.481
7	5	1.985	.574
8	5	1.771	.469
9	5	1.172	.677

APPENDIX H

CELL SUMMARY OF THE TRANSFORMED MEANS AND STANDARD DEVIATIONS FOR THE 2⁴ FACTORIAL DESIGN

10	5	1.182	.773
11	5	1.120	.677
12	5	1.914	.380
13	5	1.048	.481
14	5	1.870	.379

CELL SUMMARY OF THE TRANSFORMED MEANS AND STANDARD
DEVIATIONS FOR THE 2^4 FACTORIAL DESIGN

Cell	N	Mean	Standard Deviation
1111	8	1.018	.386
1121	8	1.032	.305
1112	9	1.354	.333
1122	9	1.007	.695
1211	9	.854	.630
1221	9	1.014	.255
1212	9	.746	.574
1222	9	.829	.467
2111	10	1.175	.677
2121	9	1.092	.420
2112	9	1.142	.449
2122	7	.912	.733
2211	9	1.150	.577
2221	8	.914	.363
2212	10	1.088	.574
2222	8	1.253	.437

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