HALL, Allen Sanders, 1934

THE EFFECTIVENESS OF VIDEOTAPE RECORDINGS AS AN ADJUNCT TO SUPERVISION OF CLINICAL PRACTICUM BY SPEECH PATHOLOGISTS.

- The Ohio State University, Ph.D., 1970

Speech Pathology

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THE EFFECTIVENESS OF VIDEOTAPE RECORDINGS AS AN
ADJUNCT TO SUPERVISION OF CLINICAL PRACTICUM BY
SPEECH PATHOLOGISTS

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

By

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* * * * * *

The Ohio State University
1970

Approved by

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Advisor
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ACKNOWLEDGMENTS

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It would be an impossible task to single out the faculty member who has provided the most inspiration to me during my tenure at The Ohio State University as I consider the entire faculty to be the most outstanding group of people with whom I have ever been associated. Each person has added to my knowledge in a different area and influenced my thinking in a different way. Dr. Goff is acknowledged as the person who first interested me in supervisory and management problems. Dr. Black ignited a spark in me for investigation through research, and Dr. Irwin planted the seed that led to the topic for this dissertation. I must pay special tribute to Dr. Irwin for her kindness,
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To my daughters, Denise and Beverly, I want to express my deep gratitude for never complaining when told to "keep it quiet," or "no television tonight, I've got to study," which requires a great deal of understanding and maturity for children of such young ages.
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CHAPTER I

INTRODUCTION

For the past several years the American Speech and Hearing Association, the professional organization of those engaged in providing speech and audiological services, has endeavored to improve the professional competence of its members. Effective January 1, 1965, a person seeking membership in the association was required to have a Master's degree or its equivalent in speech pathology or audiology and present evidence of having completed a minimum of 275 clock hours of practical experience in treating disorders of speech (ASHA, 1964). This experience was to be supervised, with no stipulation by the association as to the credentials the supervisor should possess (Halfond, 1964). The need for supervision in preparation of speech clinicians has been elaborated upon by many of the leaders in the field, including Silverman (1960), Perkins (1962), Matthews (1966), and Hanley and Darley (1961). A resolution passed by the executive council of the American Speech and Hearing Association, June 30, 1970, indicated that clinical experience must be supervised by a member.
possessing the Certificate of Clinical Competence (ASHA, 1970).

It has been found by several investigators, Hanley and Darley (1961), Irwin, Van Riper, Breakey, and Fitzsimons (1961), and Brown (1967), that a shortage of supervisors already exists in speech pathology and audiology. With the change in supervisory requirements, it is anticipated that this shortage will become even greater and many institutions could be faced with a real challenge to provide adequate and acceptable supervision for the number of students in the process of being trained. For example, if an institution had sixty students enrolled in courses requiring practical experience and only two or three people employed to provide supervision, a matter of scheduling and live supervisory conferences could become a crucial problem. It seems, therefore, desirable to develop some process which could serve as an adjunct to the supervisor, provide adequate supervision for those persons in training, and still demand the quality of practical experience that the American Speech and Hearing Association had in mind when it made the change in requirements for supervision of practical experience.

A simple solution, on the surface, would be
to involve more faculty members in supervisory capacities since most of them would hold the Certificate of Clinical Competence. These people, however, would usually have a heavy teaching load, be responsible for counseling students, and be engaged in research. To add an additional function of supervision would reduce the amount of time that could be devoted to the above activities and would in reality be "robbing Peter to pay Paul." It does not seem to this investigator that this would be a logical or practical solution. A second possibility is to employ more people whose sole function would be supervision. However, with the salaries of the professional personnel constantly increasing, it would be a major budgetary problem for most universities to increase the number of persons necessary to meet the supervisory needs. A final and practical solution would be to develop some technique which would permit training institutions to provide desirable supervision without requiring additional or as many supervisory personnel, and yet meet the needs of the beginning clinician and satisfy the requirements of the American Speech and Hearing Association. A possible solution to this crucial need could be accomplished with the use of videotape recordings. This study was concerned with this possibility.
MICROTEACHING

The videotape recorder became available to the commercial market in 1963 and has had a great impact in the fields of education, counseling, sports, and industry. Perhaps one of the earliest uses of videotape recorders for training professional personnel dates back to the summer of 1963. The department of Education at Stanford University had been attempting to develop a teacher training technique known as microteaching (Allen and Ryan, 1963). Microteaching has since been defined by several people, Mayhugh (1968), Sedgwick and Misfeldt (1967), Young (1969), and Gardner and Bartholomew (1969), but all of the definitions are essentially the same. Microteaching is actually a miniature teaching experience which is subject to controlled conditions. All of the techniques and problems of teaching are present. The value of the procedure seems to lie in the teacher's immediate feedback from his teaching efforts, and thereby enabling him to correct his errors (McHenry, 1968; Young, 1968, 1969; and Foster, 1967.) Typically, the microteaching session involves the teacher's presenting a short lesson, five minutes usually, to a small group of children dealing with one or more aspects of a principle which he is attempting to convey. The lesson
is taught and videotaped. Following the teaching period, the children leave the room and the teacher is allowed to review an immediate videotape replay of the lesson which was taught. A supervisor is present for the replay of the videotape, which is followed by an analysis of the lesson with the teacher. At the conclusion of the critique, the teacher is allowed a short period of time to digest the critique and plan ways to improve the lesson. The teacher then reteaches the same material, hopefully benefiting from the supervisory conference and correcting the errors made during the initial teaching session (Allen and Gross, 1965). Supervisors of practice teachers at Stanford University have employed videotape in investigating the concept of microteaching and have continued to use it from the beginning of their research. While they report that videotape is not required for microteaching to be successful (Allen and Ryan, 1969), at least one investigator has found that a combination of the supervisory conference and videotape replay is superior to either method by itself (Acheson, 1964).

The process of microteaching is mentioned primarily because its basic format was utilized in conducting the present experiment, although it was not the subject of the investigation.
A search of the literature pertinent to the fields of speech pathology and audiology by this investigator failed to reveal any studies concerned with the use of videotape as a training device in preparing speech clinicians. Two authors, O'Neill (1964) and Prather (1967), have reported that the videotape recorder was being used at their respective universities to provide observational experiences for beginning clinicians, but they fail to report any scientific investigation of the procedure to determine its effectiveness. Irwin and Nickles (1970) have found that audiovisual films are very efficient in providing students in a methods course with supervised observational experience. It seems probable to this investigator that videotape recordings would be just as effective, less expensive to produce, and more practical than films since they can be erased and reused.

The studies reviewed in this section are concerned with the use of videotape in the instruction of (1) teachers, (2) counselors, and (3) physical education teachers.
Use of videotape for instruction of teachers

Identifying abilities which they believe an effective teacher should possess has been one of the major goals of the department of Education at Brigham Young University (McHenry, 1968). They have determined, for example, that it is very important for a teacher to be capable of teaching a concept with little or no talk on the part of the teacher. They also believe that nonverbal reinforcement is extremely important in the teacher-child relationship. As they have identified these abilities, a videotape recording has been made of teachers in action demonstrating them. These videotapes are then used as models for helping other teachers learn these traits. The professors at this university desire to develop a bank of these videotapes for future training purposes. At the time of the appearance of this report (1968), the university had two tapes completed, each containing eight teaching episodes illustrating one or more teaching abilities in each example.

Most training centers require that the student preparing for a teaching career observe live classroom procedures before they are permitted to begin their own student teaching. Bailey (1969) conducted a study to determine if this requirement could be met through the use of videotape and if there were a significant dif-
ference between live and videotaped observation. Two groups of subjects were used in the experiment. One group observed live classroom procedures and a second group observed videotaped recordings of classroom activities. The subjects in both groups were given an essay test following their observations. The results of the test revealed that the group which observed videotaped recordings achieved significantly better than those who observed live activities. The findings of this study, however, are questionable as the students who observed videotapes had more time for discussion than the students who observed directly. In similar experiments conducted at Hunter College (Schueler, Gold, and Stoller, 1964), videotape observations were also found superior to live observations; therefore, more credence may be given to the Bailey study.

The effectiveness of using videotape recordings in the supervision of student teachers compared to live conferences with a supervisor was investigated by Acheson (1964). He was primarily interested in learning if direct or indirect supervisory conferences combined with television feedback were any more effective in changing teacher behavior than the conferences by themselves. He found that combining videotape replays of teacher performance and a confrontation with a supervisor
was better than either method by itself in changing teacher behavior. Fortune, Cooper, and Allen (1965) have found that the use of videotape recording provided a more intense form of supervision than was possible without the use of videotape.

The use of the videotape recorder for self appraisal has been the subject of investigation at Wayne State University (Childs, 1967) for several years. Students who are entering the teaching field are permitted to teach a short lesson which is videotaped. They are then allowed to review the taped session and evaluate their performance. Since the use of videotape recording was instigated in the preparation of teachers, students have been more confident in themselves as teachers when they enter the actual classroom for the first time, according to the author. The students at Wayne State University have been particularly able to change their teaching behavior in a positive direction as a result of viewing themselves in the act of teaching. At this university, plans include videotaping students before student teaching, during the student teaching, and following the student teaching, encompassing a two-year period of time. This will allow the students to review their entire development as a teacher.

These are but a few of the studies in the field of education concerned with the use of videotape
recorders as a tool for training teachers. The consensus of the research seems to indicate that the beginning teachers are better prepared and perform better when they enter the teaching profession as a result of being exposed to videotape recordings of their performance as a part of their training.

The use of videotape in training counselors

The use of videotape recordings in a counseling practicum was investigated by Poling (1964) at the University of South Dakota. The subjects for the study were ten counselors enrolled in a summer practicum. The study was conducted over an eight-week period. Each counselor participated in a counseling session involving the following three conditions: (1) a counseling cubicle equipped with a one-way mirror, (2) a simulated counseling cubicle with cameras partially concealed, and (3) an open studio environment with no attempt to camouflage or conceal the cameras. The actual purpose of this study was to investigate the three counseling conditions. The counseling encounters lasted for twenty minutes and were videotaped. A two-week interval elapsed between each taping. A rating scale was developed for this project and completed by both the counselor and counselee following each of the sessions. The videotapes were then analyzed individually, in small groups
of five persons, and in larger groups of ten participants.

Several important conclusions were drawn from this study which are important to the present investigation: (1) videotape recordings of counseling interviews were valuable in practicum, (2) videotape recordings presented many aspects of the counseling session which were not detectable through audiotapes alone, (3) the counselor had a tendency to differ less with his supervisor in evaluating the counseling session following videotape recording replay than when audiotapes alone were used, and (4) the counselors tended to overrate their sessions based on audiotapes alone; videotape recording critique ratings tended to be more realistic. A study by DeBacy (1969) supported the notion that beginning practitioners are more accurate in their ratings of themselves as a result of viewing videotape recordings of their performance.

Kagan, Krathwohl, and Miller (1963) have studied the effect of videotape replay on what they term "stimulated recall" in counseling settings. The procedure used in this investigation was as follows. A counselor was videotaped during an interview with a client. Following the interview the counselor and client were taken to different rooms to view a videotape replay of
the counseling encounter. They were joined by an experienced counselor, called an "interrogator," to watch the replay of the counseling session. The purpose of the interrogator was to encourage the participants in the counseling interview to explore the feelings, statements, and bodily movements exhibited during the initial interview which had not been pursued by the counselor or client. Either the interrogator or the subject could stop the videotape playback at any time they chose in order to elaborate on the behavior being seen. If one team stopped the replay, it was automatically stopped for the other team. This permitted all participants to examine the same behavior of the client and counselor. The interrogations were recorded on audiotapes. The results of this study showed that with the help of skilled interrogation and videotape recordings, the personnel involved in the counseling interview were able to explore at length and in more depth many of the subtle or unconscious behaviorisms and feelings exhibited during the interview which had not been pursued.

The effect of using videotape replay, with and without supervision, to teach direct mutual communication was studied by Higgins, Ivey, and Uhlmann (1970).
Direct mutual communication was defined by the authors as the sharing of common experiences and feelings by two people who are in close interpersonal contact with each other, such as husband and wife. They felt that many such couples engage in meaningless conversations which do little to improve their interpersonal relationships. Couples, for example, often confine their conversations to such topics as politics, sports, and business because they are not capable of handling more intimate material concerned with an expression of their feelings about each other, mutual concerns, and in general they do not improve their understanding of each other. These investigators felt that couples could be trained to discuss more pertinent topics and thereby improve the communication between each other and add strength to the relationship.

In order to study this topic, thirty pairs of people were selected and randomly divided into three groups. Group One was asked to talk about their relationship for five minutes. This was videotaped. The subjects then completed a program of instruction directed at increasing direct mutual communication ability. Following the course they were shown videotapes containing models of effective communication between two individuals with emphasis on the material contained in the text they had studied. They heard lectures on the subject of direct
mutual communication by two experienced supervisors concurrently with the videotape viewing. They were then shown the videotape of their own five-minute interaction and asked to record incidences of direct and indirect communication. Following this they were asked to engage in a second five-minute talk session similar to the first session. This was also videotaped. This procedure was repeated three times.

The subjects in Group Two of the Higgins, Ivey, and Uhlmann study used the same format except that no supervisor was present for discussion and they were not shown the initial videotapes of their talk session. Group Three received only written material on the topic of interpersonal communication, had no supervision, and did not see videotape models, nor did they receive videotape replays of their interactions. The results showed that Group One improved steadily in direct mutual communicative ability from session to session; Group Two improved in the second talk session, but did not increase beyond that; and Group Three made only slight improvement over the three sessions.

The use of videotape in training physical education teachers

It may be possible for a supervisor to rate a student teacher as well by viewing his performance on
videotape as by actually making a live visit to the classroom. How much difference would occur in the ratings of teacher performance? This was the subject of a study completed by DeGenara (1969) in the field of physical education at The Ohio State University. The subjects for the study were six male student teachers who had similar preparation and experience. The judges were six members of the staff of the Division of Men's Physical Education at The Ohio State University. The judges were divided into two groups, each group containing three members. A rating sheet in the form of a checklist and similar to one which has been used to evaluate teachers in the state of California was devised to evaluate various qualities of student teachers. The checklist contained items concerned with personality and personal characteristics, professional qualities, classroom management, gymnasium environment, student/teacher relationship, future success as a teacher, and nonverbal observation.

DeGenara's study was divided into two parts. Part One consisted of one group of judges visiting the actual teaching environment for live observations of the student teachers. The sessions being observed were also videotaped. The observations lasted from thirty-five to forty-five minutes. There were six observations. At
the end of each period of observation, the group of
judges rated the student teachers using the checklist
described above. The data were tallied and this con-
cluded Part One of the experiment. Part Two consisted
of the second group of judges evaluating the same student
teachers with the same checklist using only the video-
tape replay of each teaching session. According to the
results, there was a sufficient amount of agreement
between the scores of the two groups of judges to in-
corporate the use of videotape in place of live super-
vision. The experimenter concluded, however, that while
this technique could replace live observation, it would
perhaps be more effective if videotape recordings supple-
mented it.

A study was conducted to determine to what
extent videotape recording is used in the state of Ohio
by teachers of physical education and athletics and
to determine the effectiveness of its use (James, 1969).
The results indicated that it was considered to be very
effective by over 90 per cent of those people who were
using it. All of the personnel responding to a question-
aire felt that their students were able to improve
their performance better as a result of viewing them-
selves rather than watching others perform. They also
concluded that while the videotape recorder frees the
supervisor from actually being present at all times, the device should supplement the live supervision, not replace it.

Summary

It seems, then, in review of the literature concerned with the use of videotape recordings in the areas of instruction of teachers, counselors, and physical education teachers, that they are effective in the training of professional personnel, can reduce the amount of actual live observation necessary on the part of the supervisor, and can increase the skills of the beginning professional.

STATEMENT OF THE PROBLEM

The primary purpose of this study was to investigate the use of videotape recordings as an adjunct to the supervision of speech clinicians in clinical practicum. The following questions were of concern to this investigator:

1. Is a combination of videotape replay and a supervisory conference effective in changing clinical behaviors of beginning speech clinicians in: use of verbal and nonverbal behavior; use of methods and materials; demonstration of specific methods for treating misarticulations; utilization of time; presenting a clear objective; and control of session.
2. Is a combination of videotape replay and a supervisory conference more effective in changing clinical behavior than other methods of supervision (videotape replay alone; supervisory conference alone; or no supervision)?

3. Do beginning clinicians vary in their clinical behavior according to different types of supervision?

4. Do beginning clinicians improve in clinical behavior through repetition of the same lesson plan regardless of the type of supervision?

**ORGANIZATION OF THE THESIS**

In Chapter I, the problem has been stated and rationale indicated. Supportive literature from allied fields has been included. Chapter II will include methods and procedures used to solve the problem presented in Chapter I. Chapter III will include a presentation and interpretation of the data gathered. In Chapter IV, a summary of the study, a list of the conclusions, and a statement of the implications will be presented.
The primary purpose of this study was to investigate the use of videotape recordings as an adjunct to the supervision of speech clinicians in clinical practicum.

This chapter will concern itself with the following: (1) production of the films, (2) preparation of the rating scale, (3) selection of the judges, and (4) administering the stimuli for judging.

**PRODUCTION OF THE FILMS**

The production of the films used as stimuli consisted of selecting the subjects, choosing the children who acted as clients, selection of the supervisors, obtaining the facilities, instrumentation, experimental conditions, filming the sessions, and randomizing the samples for judging.

**Selecting the subjects**

The subjects (clinicians) for this study were eight undergraduate students majoring in speech pathology. There were seven females and one male. They had approximately the same academic background with regard
to coursework, were seniors, and were just beginning their clinical practicum. Since the clinicians were not compared to each other, no other variables were controlled. With the exception of the male subject, all the subjects were currently involved in articulation in the speech and hearing clinic of The Ohio State University.

Choosing the children

The children with whom the subjects (clinicians) worked had all been diagnosed as having functional articulatory problems. There were six boys and two girls, ranging in ages from five years-six months to twelve years. Each child had normal hearing, was normal in intelligence, and had no apparent physical defects of the oral mechanism. These children were also selected on the assumption that they could function within the experimental conditions, were no hyperactive or easily distractable. With two exceptions, they had not previously been involved in therapy with the subjects (clinicians) used in this study.

Supervisors

Those who supervised the subjects in this investigation were two advanced graduate students who were completing the requirements for the doctorate degree in
speech pathology. Each had the Certificate of Clinical Competence in Speech Pathology and was experienced in the supervision of beginning clinicians. Four subjects were assigned to each of the supervisors. The following instructions were given to the supervisors:

Each of you will be responsible for the supervision of four clinicians. The clinicians are in their senior year in speech pathology, and this is their first quarter of practical experience. The children who are to be used have all been diagnosed as having functional articulatory problems and are currently receiving therapy. However, they have not had any therapeutic contact with the subjects in this investigation. The therapy for each of the treatments will last three to four minutes. Although these sessions are abbreviated in nature, would you please conduct your supervision as you would in a normal situation. Are there any questions?

Facilities

When this experiment was originally conducted it was anticipated that videotape recordings alone would be used for judging purposes. It was found, however, that when the samples were randomized, which required making a second videotape from the original, the loss in picture quality resulting from the process of transferring the material to the second tape, rendered the samples inadequate for rating purposes. The loss in quality was probably due to inferior equipment and the inexperience of the experimenter. In view of this,
it became necessary to repeat the experiment a second time, with the addition of a filming process to capture the clinical behavior to be judged on film. This did not change the basic design of the experiment except for added instrumentation.

The Ohio State University Telecommunications Center, a professional television studio, was used for the filming and videotaping. This studio is located on the same floor as The Ohio State University Speech and Hearing Clinic, reducing the amount of inconvenience to the subjects, children, and parents to a minimum. It also provided immediate access to materials for use by the subjects (clinicians) in the investigation. In addition to the television studio, a room equipped with a television receiver was available for the videotape replays, and a second room was provided for the supervisory conferences.

The Department of Photography of The Ohio State University provided the film crew, which consisted of a camera operator and sound technician. The Office of Instructional Television of the same university provided a director, camera operator, and sound technician for the videotaping.
Instrumentation

The equipment used in the production of the videotape consisted of a General Electric P 23 vidicon type camera, a Radio Corporation of America 77 D boom mounted microphone, a one-inch Ampex model 700 videotape recorder, a Zenith table model home-type television receiver converted for closed circuit monitoring function, a Radio Corporation of America TS 11 video switcher, and a Universal Gra Laboratories sixty-minute electric timer. Scotch Brand 3M #760-0927-002 one-inch by 12200 feet videotape was used.

An Auricon model 1200 sixteen millimeter, sound on film with variable aero tracking, camera was used for the filming. The camera was equipped with a fifteen millimeter lens which was adjusted to an F setting of 5.6. The audio consisted of a model NR 25-S7 Auricon sound-on-film amplifier. Eastmas 7276 (Plus X) black and white film was used in the production. Two thirty-two minute reels of film were produced.

For lighting purposes, Kliegle Brothers incandescent instruments were positioned in overhead grids to provide optimum lighting for technical requirements for filming and videotaping, while at the same time simulating as closely as possible normal room illumination.

The equipment was maintained in a stationary
position in order to prevent movements from distracting the subjects (clinicians) and children.

The stage setting consisted of a table for the materials used in therapy and a chair for each of the participants in the session. Ceiling-to-floor draperies provided the background. The setting and locations of production personnel and equipment are illustrated in Figure 1.

Experimental conditions

There were four experimental conditions used in this investigation, with two treatments in each condition.

Condition One consisted of a session of therapy followed by a pause of five to ten minutes and then a repetition of the first session using the same plan of therapy. The purpose of this procedure was to determine the effect of reteaching the same material on the performance of the subject.

Condition Two included a session of therapy which was videotaped. Following the session, the subjects (clinicians) viewed a replay of the videotape before they repeated the same lesson, with ample time being allowed before the second session of therapy for the clinician to consider the behavior observed in the videotape recording. The purpose of this condition was to observe any change in behavior as a result of self
Stage setting for the production of the experimental films.

FIGURE 1

Draperies

Client

Clinician

Therapy Table

Sequence ID Number

Boom Mike

Motion Picture Camera

Television Camera

Supervisor

Experimenter

Sound Technician
appraisal.

Condition Three provided for a conference with a qualified supervisor between the two sessions of therapy. This condition provided for the evaluation of the effect of the supervisor's critique of the session on the behavior of the clinician.

Condition Four combined the supervisory conference with a videotape replay between the two sessions of therapy in order to determine if a combination of the two conditions were more valuable than either method by itself in changing clinician behavior.

Filming the sessions

Two days were set aside for the filming process. Each of the eight subjects or clinicians was asked to prepare four five-minute sessions of therapy appropriate, in their opinion, for use in treating articulatory disorders and each of which could be repeated at least once. They were given case-history information concerning the children with whom they were to work and told that they were free to discuss the children with any therapist or supervisor with whom each child had been involved. They were informed that they would be filmed eight times; four sessions of therapy were completed each day. These were the only instructions given to the subjects (clinicians).
The clinicians were filmed in a random sequence to prevent an order effect from occurring (Table 1). No clinician was ever allowed to see another clinician perform, either live or on videotape. Clinicians were permitted to see a videotape replay of their sessions of therapy only when the condition called for it.

Each clinician brought the child with whom she was to work into the television studio and they took their positions at the table. After they had become accustomed to the lighting and equipment, the clinician was told to begin the activity. Approximately fifteen seconds after the session had commenced, and on command from the investigator, the videotaping began in that condition which called for it. At the end of exactly two minutes, as measured by an electric timer controlled by the director, the filming process began and continued for exactly one minute. When this procedure was completed, the session of therapy was halted by the investigator. The clinician and child were then led from the room and a different clinician and client were brought into the studio to be filmed while the previous clinician prepared for the second session of therapy for that particular condition. This routine was followed for each of the clinicians.

At the conclusion of the experiment the clinicians
### TABLE 1

Sequence of subject's participation by condition.

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Condition sequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 and 5</td>
<td>1234*</td>
</tr>
<tr>
<td>2 and 6</td>
<td>2341</td>
</tr>
<tr>
<td>3 and 7</td>
<td>3412</td>
</tr>
<tr>
<td>4 and 8</td>
<td>4123</td>
</tr>
</tbody>
</table>

*1 = Therapy-pause-therapy.  
2 = Therapy-videotape replay only-therapy.  
3 = Therapy-conference with a supervisor-therapy.  
4 = Therapy-supervisory conference combined with videotape replay-therapy.
were asked to complete a rating scale reflecting their attitudes toward the format used in this investigation (Appendix A).

The one-minute filmed samples were used as the stimuli for the judges. The rationale for choosing the third minute in each session for filming was that it gave each clinician an equal amount of time to become adjusted to the situation. With this standardized procedure, it was felt that there would be less chance of the ratings varying from clinician to clinician because some clinicians had been allowed more time to become involved in the therapy activity than others when the sample was captured.

Randomizing the samples for judging

Each of the therapy sessions was identified by a number placed on the corner of the table used for therapy. These numbers corresponded to the sequence into which the filmed segments were placed for rating. The order of presentation for judging was randomized by a method suggested by Lindquist (1956).

After the films were processed they were previewed for picture quality, noise interference, and errors in production. When it was determined that the films were acceptable for judging, a second print was made of the originals. The second copy was cut and spliced
into proper numerical sequence. A three-second leader of blank film was inserted between each sample in order to separate the stimuli from each other.

**PREPARATION OF THE RATING SCALE**

In order to determine clinical proficiency, a rating scale was devised which consisted of ten items of behavior considered important to the therapeutic process and which were felt to be observable. Some of the items used were selected for a list of those contained in the Nickles' (1970) study.

Nickles constructed her rating scale in the following manner. A group of supervisors viewed a series of three-minute sessions of therapy and recorded the incidents which occurred that they considered important to the therapeutic encounter. These items were then grouped according to their similarity. After the items were placed in similar categories, the supervisors rated them on their relevancy to therapy. A three-point rating scale was used. The statements which received the two highest ratings were then considered for the rating scale to be used in determining clinical proficiency. The final scale contained fifteen items and was composed after statements were eliminated which were not felt to be observable.

Eight of the items used by Nickles were also
used in this investigation. They were: (1) use of verbal behavior, (2) use of methods and techniques, (3) use of nonverbal behavior, (4) demonstrates knowledge of principles, methods and techniques for treating misarticulations, (5) use of materials and tools, (6) a good therapist, (7) utilizes time effectively, and (8) has obvious objective. It should be noted that these are not the exact statements used by Nickles as modifications were made to the list which this investigator believed made them more objective in nature. Those statements which did not discriminate among groups were discarded and the following two items were added: (1) therapist control of session, and (2) appropriateness of methods and techniques. The entire rating scale is contained in Appendix B. In addition, statements such as "very effective" were changed to "effective" as suggested by Horrocks (1964). He suggested that terms such as "very" are too general in nature.

The psychophysical method of equal-appearing intervals, described by Guilford (1954), was employed on the rating scale. The scale intervals ranged from one to seven, rather than the one-to-nine scale used in many studies. Nickles suggested a one-to-seven scale may be more practical as many of her judges found the one-to-nine scale difficult to manage.
SELECTION OF THE JUDGES

Fifty judges were used to rate the experimental films. These judges were trained in the field of speech pathology and were required to have completed a minimum of twenty-four quarter hours of academic preparation in content courses in speech pathology. The judges were also required to have completed no less than fifty clock hours of practical experience in the treatment of articulatory disorders in order to qualify as a judge.

Since the judge's personal acquaintance with the clinicians might possibly affect the ratings of clinical behavior, judges were not used from The Ohio State University in this study. Judges were procured from the universities of Michigan, Western Michigan, Illinois, North Carolina at Greensboro, and Alabama. With one exception, all judges were graduate students.

ADMINISTRATION OF THE STIMULI

Special considerations

Guilford (1954), Horrocks (1964), Gage (1963), and others have noted in their research that when one uses a rating scale with equal-appearing intervals as a measuring instrument, there is often a "halo" effect which occurs and makes the validity of the results questionable. The "halo" effect has been defined as
the tendency to rate one characteristic of a person on
the basis of having been influenced by some other
characteristic of that person or by the raters' general
impression of the subject being rated (Gage, 1963).
In order to reduce the "halo" effect as much as possible
in this investigation, each judge was asked to rate only
two of the ten behaviors chosen for study. The two items
were as dissimilar as possible; for example a judge might
rate "verbal behavior" and "use of methods," in an attempt
to avoid carry-over from one item to the next.

There were two films to be judged, each one
containing thirty-two one-minute samples of speech
therapy. The order of film presentation was varied from
university to university as shown in Table 2. Each judge
was allowed as much time as needed (Guilford, 1954) to
rate each sample, although it rarely exceeded fifteen
seconds. The film was stopped at the end of each segment
to allow the rating to take place. There was a fifteen-
minute break between the presentation of the two films.

Instructions to the judges

The following instructions were read to the
judges at the beginning of the judging session and
after the break between the first and second films:

You will be viewing sixty-four one-minute
samples of speech therapy with articula-
tory disorders. It is very important that
you remember that these are articulatory
<table>
<thead>
<tr>
<th>University</th>
<th>Items rated</th>
<th>Film order</th>
</tr>
</thead>
<tbody>
<tr>
<td>Michigan</td>
<td>Utilizes verbal behavior. Use of methods and techniques.</td>
<td>2-1</td>
</tr>
<tr>
<td>Western Michigan</td>
<td>Utilizes time effectively. Has obvious objective.</td>
<td>1-2</td>
</tr>
<tr>
<td>Illinois</td>
<td>Use of materials and tools. A good therapist.</td>
<td>1-2</td>
</tr>
<tr>
<td>Alabama</td>
<td>Therapist control of session. Appropriateness of methods and techniques.</td>
<td>2-1</td>
</tr>
<tr>
<td>North Carolina</td>
<td>Use of nonverbal behavior. Demonstrates knowledge of principles, methods and techniques for treating mis-articulations.</td>
<td>1-2</td>
</tr>
</tbody>
</table>
disorders. You will rate two aspects of the clinician's behavior on a one-to-seven scale, one being the most favorable rating and seven the least favorable rating. Neither one or seven represents the extreme rating possible. Please rate each item separately and according to its own merits. A clinician may be very proficient in one area and not proficient in the second area. Therefore, it is possible that you may give a clinician one high rating and one low rating. Rate the clinician only on the sample you have just observed and not on previous samples. Do not compare any clinician with another clinician as this is not the purpose of this investigation. You will be given as much time as you need to rate each sample. Are there any questions?

**SUMMARY**

In Chapter II, the production of the films, preparation of the rating scale, selection of the judges, and administration of the stimuli were described. Chapter III will deal with the statistical analysis of the ratings.
CHAPTER III

RESULTS AND DISCUSSION

The purpose of this study was to investigate the use of videotape recording as an adjunct to the supervisor in the preparation of speech clinicians in obtaining clinical experience. The null hypotheses, statistical treatment, results and discussion are contained in this chapter.

THE NULL HYPOTHESES

The following null hypotheses were formulated for testing:

1. There is no significant difference in change of clinical behavior among the four conditions of supervision: (a) no evaluation of clinical performance, (b) videotape replay of clinical performance, (c) a personal conference with a supervisor to evaluate clinical behavior, or (d) a combination of supervisory conference with a videotape replay of clinical performance.

2. There is no significant difference in the rating of clinical behavior among the four conditions of supervision for the following items: (a) use of verbal behavior, (b) use of methods and techniques,
(c) use of nonverbal behavior, (d) demonstrates knowledge of principles, methods, and techniques for treating misarticulations, (e) use of materials and tools, (f) rating as a good therapist, (g) utilizes time effectively, (h) has obvious objective, (i) therapist control of session, and (j) appropriateness of methods and techniques.

3. There is no significant difference in clinical behavior as a result of interaction between the clinician and condition among the four experimental conditions.

**STATISTICAL TREATMENT**

The mean ratings for each group of clinicians were computed. Difference scores between the means of the first and second sessions of therapy within each condition were used in the analysis of data. A three-way analysis of variance was computed to investigate (1) difference between conditions in improving clinical behavior, (2) difference between items, and (3) interaction between conditions and subjects.

The three-way analysis of variance model appropriate for these three variables of subjects, conditions, and items is the AB Fixed, C Random model (Winer, 1962) with A being condition, B representing items, and C accounting for subjects. However, this analysis of
variance does not provide an error term for testing the condition by subject interaction. Therefore, each item was considered a measure of change in performance and these measures were pooled within each cell of a two-way analysis of variance to enable the investigator to compute a within-cell error term for calculation of an $F$ ratio for the condition by subject interaction as suggested by Hays (1963).

**RESULTS**

**Hypothesis One.** There is no significant difference in change of clinical behavior among the four conditions of supervision: (a) no evaluation of clinical performance, (c) a personal conference with a supervisor to evaluate clinical behavior, or (d) a combination of supervisory conference with a videotape replay of clinical performance. The analysis of variance yielded an $F$ score of 0.27 with 3.10 required for significance at the .05 level. There is no statistical evidence which would justify the rejection of this hypothesis. Therefore, it is assumed that the conditions tested alone do not significantly increase the performance of beginning clinicians for all subjects (Table 3).

Although the statistical treatment failed to reject this hypothesis, the clinicians' subjective opinions were that the combination of videotape replay
TABLE 3

Summary of an analysis of variance of all items and all conditions.

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition</td>
<td>1.10</td>
<td>3</td>
<td>0.47</td>
<td>0.27</td>
<td>N.S.*</td>
</tr>
<tr>
<td>Item</td>
<td>4.55</td>
<td>9</td>
<td>0.51</td>
<td>1.36</td>
<td>N.S.**</td>
</tr>
<tr>
<td>Subject</td>
<td>18.42</td>
<td>7</td>
<td>2.63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condition x Item</td>
<td>12.13</td>
<td>27</td>
<td>0.45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condition x Subject</td>
<td>28.93</td>
<td>21</td>
<td>1.38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item x Subject</td>
<td>23.41</td>
<td>63</td>
<td>0.37</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condition x Item x Subject</td>
<td>85.54</td>
<td>189</td>
<td>0.45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>174.07</td>
<td>319</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*\( F_{.05} \geq 3.10 \) needed for significance (df,3,21).

**\( F_{.05} \geq 2.04 \) needed for significance (df,9,63).

AB Fixed, C Random Analysis of Variance Model with A=Condition, B=Item, and C=Subjects.
and a live conference with a supervisor was a more valuable experience than either procedure alone (Appendix A).

**Hypothesis Two.** There is no significant difference in the rating of clinical behavior among the four conditions of supervision for the following items: (a) use of verbal behavior, (b) use of methods and techniques, (c) use of nonverbal behavior, (d) demonstrates knowledge of principles, methods, and techniques for treating misarticulations, (e) use of materials and tools, (f) rating as a good therapist, (g) utilizes time effectively, (h) has obvious objective, (i) therapist control of session, and (j) appropriateness of methods and techniques. The analysis of variance for significance among the items resulted in an $F$ score of 1.36 with 2.04 required for significance at the .05 level. There is no statistical evidence which would justify the rejection of this hypothesis. It may, therefore, be concluded that performance on these particular aspects of behavior among beginning clinicians were not significantly different (Table 3). It was observed, however, when the mean ratings for all judges were tabulated (Table 4) there was a positive improvement in the use of verbal behavior among the clinicians from the first to second session of therapy within each condition, although not significantly so.
### TABLE 4

Mean ratings and their differences for all conditions, all treatments, and all items.

<table>
<thead>
<tr>
<th>Items</th>
<th>Condition A&lt;sub&gt;1&lt;/sub&gt;</th>
<th>Condition A&lt;sub&gt;2&lt;/sub&gt;</th>
<th>Condition A&lt;sub&gt;3&lt;/sub&gt;</th>
<th>Condition A&lt;sub&gt;4&lt;/sub&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B&lt;sub&gt;1&lt;/sub&gt;</td>
<td>B&lt;sub&gt;2&lt;/sub&gt;</td>
<td>d</td>
<td>B&lt;sub&gt;1&lt;/sub&gt;</td>
</tr>
<tr>
<td>1</td>
<td>3.28</td>
<td>3.15</td>
<td>+.13</td>
<td>3.59</td>
</tr>
<tr>
<td>2</td>
<td>3.24</td>
<td>3.65</td>
<td>-.41</td>
<td>3.83</td>
</tr>
<tr>
<td>3</td>
<td>3.66</td>
<td>3.61</td>
<td>+.05</td>
<td>3.26</td>
</tr>
<tr>
<td>4</td>
<td>3.83</td>
<td>3.65</td>
<td>+.18</td>
<td>3.21</td>
</tr>
<tr>
<td>5</td>
<td>2.88</td>
<td>2.89</td>
<td>-.01</td>
<td>3.00</td>
</tr>
<tr>
<td>6</td>
<td>2.61</td>
<td>3.00</td>
<td>-.39</td>
<td>2.94</td>
</tr>
<tr>
<td>7</td>
<td>3.81</td>
<td>3.83</td>
<td>-0.2</td>
<td>3.86</td>
</tr>
<tr>
<td>8</td>
<td>3.24</td>
<td>3.19</td>
<td>+.05</td>
<td>3.35</td>
</tr>
<tr>
<td>9</td>
<td>3.01</td>
<td>2.95</td>
<td>+.06</td>
<td>2.78</td>
</tr>
<tr>
<td>10</td>
<td>3.70</td>
<td>3.35</td>
<td>+.35</td>
<td>3.69</td>
</tr>
</tbody>
</table>

Total 33.26 33.27 -.01 33.51 34.62 1.11 34.94 34.43 +.51 32.23 32.20 +.03

**Condition A<sub>1</sub>** = Therapy-pause-therapy.
**Condition A<sub>2</sub>** = Therapy-videotape replay only-therapy.
**Condition A<sub>3</sub>** = Therapy-conference with a supervisor-therapy.
**Condition A<sub>4</sub>** = Therapy-conference with a supervisor and videotape replay-therapy.

B<sub>1</sub> = Pre-supervision therapy session.
B<sub>2</sub> = Post-supervision therapy session.

+d scores indicate improvement in the second session of therapy within a condition.
-d scores indicate failure to improve in the second session of therapy within a condition.
Hypothesis Three. There is no significant difference in clinical behavior as a result of interaction between the clinician and condition among the four experimental conditions. The analysis of variance to determine the effect of interaction between subjects and conditions produced an $F$ ratio of 3.16 with 1.97 required for significance at the 0.1 level (Table 5). This finding provides statistical evidence sufficient for the rejection of the null hypothesis, therefore, it is assumed that there is a significant interaction between conditions and subjects. In other words, certain clinicians performance significantly improves with certain conditions. Mean ratings of judges and their differences are shown in Table 6.

Following the analyses of variance to test the three hypotheses, an attempt was made to determine if there seemed to be a consistent order of improvement in clinicians performance from condition to condition and item by item (Table 7). Visual inspection failed to show any consistent relationship.

The scores of the judges were examined to determine which of the conditions resulted in the most positive and least positive change in clinical behaviors from the first to second session of therapy within each condition. The results are shown in Tables 8 and 9. For four of
### TABLE 5

Summary of an analysis of variance to determine subject variance and subject by condition interaction.

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition</td>
<td>1.11</td>
<td>3</td>
<td>0.37</td>
<td>0.84</td>
</tr>
<tr>
<td>Subject</td>
<td>18.42</td>
<td>7</td>
<td>2.63</td>
<td>6.03*</td>
</tr>
<tr>
<td>Condition by subject</td>
<td>28.93</td>
<td>21</td>
<td>1.38</td>
<td>3.16**</td>
</tr>
<tr>
<td>Within cell</td>
<td>125.63</td>
<td>288</td>
<td>0.43</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>174.07</td>
<td>319</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* F_{0.01} \geq 2.73 needed for significance (df 7, 288).

** F_{0.01} \geq 1.97 needed for significance (df 21, 288).
# TABLE 6

Mean ratings and their differences for all subjects in all conditions.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Condition A₁</th>
<th>Condition A₂</th>
<th>Condition A₃</th>
<th>Condition A₄</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B₁</td>
<td>B₂</td>
<td>d</td>
<td>B₁</td>
</tr>
<tr>
<td>1</td>
<td>3.62</td>
<td>3.84</td>
<td>-.22</td>
<td>3.94</td>
</tr>
<tr>
<td>2</td>
<td>3.61</td>
<td>2.89</td>
<td>+.72</td>
<td>3.23</td>
</tr>
<tr>
<td>3</td>
<td>2.41</td>
<td>2.05</td>
<td>+.36</td>
<td>2.57</td>
</tr>
<tr>
<td>4</td>
<td>3.12</td>
<td>3.36</td>
<td>-.24</td>
<td>3.78</td>
</tr>
<tr>
<td>5</td>
<td>2.88</td>
<td>2.30</td>
<td>+.58</td>
<td>3.05</td>
</tr>
<tr>
<td>6</td>
<td>3.65</td>
<td>3.74</td>
<td>-.09</td>
<td>4.18</td>
</tr>
<tr>
<td>7</td>
<td>4.22</td>
<td>4.68</td>
<td>-.46</td>
<td>3.77</td>
</tr>
<tr>
<td>8</td>
<td>3.10</td>
<td>3.74</td>
<td>-.64</td>
<td>2.19</td>
</tr>
<tr>
<td>Total</td>
<td>26.61</td>
<td>26.60</td>
<td>+.01</td>
<td>26.71</td>
</tr>
</tbody>
</table>

Condition A₁ = Therapy-pause-therapy.
Condition A₂ = Therapy-videotape replay only-therapy.
Condition A₃ = Therapy-conference with a supervisor-therapy.
Condition A₄ = Therapy-conference with a supervisor and videotape replay-therapy.

B₁ = Pre-supervision session of therapy.
B₂ = Post-supervision session of therapy.

+d scores indicate improvement in the second session of therapy within a condition.
-d scores indicate failure to improve in the second session of therapy within a condition.
TABLE 7

Decreasing positive effect of conditions, subjects by items.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Item 1</th>
<th>Item 2</th>
<th>Item 3</th>
<th>Item 4</th>
<th>Item 5</th>
<th>Item 6</th>
<th>Item 7</th>
<th>Item 8</th>
<th>Item 9</th>
<th>Item 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2431*</td>
<td>2341</td>
<td>2413</td>
<td>4321</td>
<td>2134</td>
<td>3124</td>
<td>1234</td>
<td>1243</td>
<td>2314</td>
<td>1234</td>
</tr>
<tr>
<td>2</td>
<td>3124</td>
<td>1234</td>
<td>3124</td>
<td>3142</td>
<td>4321</td>
<td>4321</td>
<td>1243</td>
<td>1423</td>
<td>1423</td>
<td>1342</td>
</tr>
<tr>
<td>3</td>
<td>3124</td>
<td>2413</td>
<td>3421</td>
<td>3421</td>
<td>3214</td>
<td>3412</td>
<td>1423</td>
<td>4132</td>
<td>1324</td>
<td>4132</td>
</tr>
<tr>
<td>4</td>
<td>3421</td>
<td>2314</td>
<td>1342</td>
<td>3142</td>
<td>4321</td>
<td>3421</td>
<td>4231</td>
<td>2134</td>
<td>3124</td>
<td>4213</td>
</tr>
<tr>
<td>5</td>
<td>1243</td>
<td>2143</td>
<td>4231</td>
<td>1243</td>
<td>1423</td>
<td>2143</td>
<td>4123</td>
<td>4231</td>
<td>2134</td>
<td>1423</td>
</tr>
<tr>
<td>6</td>
<td>1342</td>
<td>3412</td>
<td>4132</td>
<td>1423</td>
<td>4321</td>
<td>2143</td>
<td>2341</td>
<td>2314</td>
<td>4132</td>
<td>3142</td>
</tr>
<tr>
<td>7</td>
<td>4231</td>
<td>2431</td>
<td>2413</td>
<td>4132</td>
<td>3214</td>
<td>4321</td>
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<td>3421</td>
<td>4132</td>
</tr>
<tr>
<td>8</td>
<td>3412</td>
<td>3421</td>
<td>1342</td>
<td>3412</td>
<td>4132</td>
<td>3412</td>
<td>3421</td>
<td>1432</td>
<td>1432</td>
<td>1432</td>
</tr>
</tbody>
</table>

*These numbers refer to the conditions. The first number, 2, is the condition which resulted in the highest positive rating, while number 1 is the condition which received the lowest positive rating for this item.

2. Session of therapy-videotape replay only-session of therapy.
3. Session of therapy-conference with a supervisor-session of therapy.
4. Session of therapy-conference with a supervisor and videotape replay-session of therapy.

Items: (1) use of verbal behavior, (2) use of methods and techniques, (3) use of nonverbal behavior, (4) demonstrates knowledge of principles, methods, and techniques for treating misarticulations, (5) use of materials and tools, (6) a good therapist, (7) utilizes time effectively, (8) has obvious objective, (9) therapist control of session, and (10) appropriateness of methods and techniques.


**TABLE 8**

Greatest positive change and least positive change in clinical performance by condition when all rated items were combined.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Greatest positive change by condition</th>
<th>Least positive change by condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2 (1.2)*</td>
<td>4 (-7.4)*</td>
</tr>
<tr>
<td>2</td>
<td>3 (4.5)</td>
<td>2 (-0.7)</td>
</tr>
<tr>
<td>3</td>
<td>3 (4.7)</td>
<td>2 (0.8)</td>
</tr>
<tr>
<td>4</td>
<td>3 (3.7)</td>
<td>4 (-2.0)</td>
</tr>
<tr>
<td>5</td>
<td>2 (4.0)</td>
<td>3 (-3.7)</td>
</tr>
<tr>
<td>6</td>
<td>3 (1.2)</td>
<td>2 (-3.6)</td>
</tr>
<tr>
<td>7</td>
<td>4 (2.7)</td>
<td>3 (-4.6)</td>
</tr>
<tr>
<td>8</td>
<td>3 (4.0)</td>
<td>2 (-6.2)</td>
</tr>
</tbody>
</table>

*Numbers in parentheses refer to the numerical degree of change for all items.

2. Session of therapy-videotape replay only-session of therapy.
3. Session of therapy-conference with a supervisor-session of therapy.
4. Session of therapy-conference with a supervisor and videotape replay-session of therapy.

The majority of clinicians showed the most positive change following the live conference with a supervisor.
TABLE 9

Conditions resulting in the most and least positive change in clinical behavior from the first to second session of therapy within each condition with all items combined.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Most Positive Change (No. of People)</th>
<th>Least Positive Change (No. of People)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No supervision</td>
<td>Not tested</td>
<td>Not tested</td>
</tr>
<tr>
<td>Videotape replay only</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Conference with a supervisor</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Conference with a supervisor combined with videotape replay</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
the clinicians, viewing a replay of the videotape of their performance without the supervisor present accounted for the least positive change; but for two clinicians, this procedure accounted for the most positive change. For five clinicians the most positive change occurred after the live supervisory conference, but two clinicians made their least improvement following the live conference. The processes of viewing a videotape recording of performance without live supervision and a personal encounter with a supervisor without a videotape replay of the therapy sessions provided the most positive change in clinical behavior from the first to second sessions of therapy for the majority of clinicians. There was no advantage of combining a supervisory conference with a videotape replay.

**DISCUSSION**

The results of this investigation indicated that the subjects were significantly different and performed significantly different under various types of supervision. While five of the eight clinicians in this study performed better following the personal encounter with those who supervised, two of the clinicians did just as well by viewing a videotape replay of their performance as they did with a live conference with a
supervisor. Only one of the eight clinicians performed better as a result of combining the videotape replay with a supervisory conference.

While the American Speech and Hearing Association has stressed the need for quality in the training of speech pathologists and required supervised practicum experience, it has taken the position of demanding the same amount and kind of supervision of all its prospective members. This investigation suggests that there are individual differences among the students in training and that these differences require various kinds of supervision and perhaps some beginning clinicians require very little personal contact with a supervisor. Videotape recordings in the training of beginning clinicians would perhaps provide a partial solution to the problem of shortage of supervisory personnel. Those students who require the personal contact with a supervisor in order to detect their inadequacies should have a predominance of this type of supervision, while those who function just as well, and perhaps better, by appraising their own clinical behavior by viewing a videotape could spend less time with the supervisor, more time with the videotape recorder, and free the supervisor for those who need personal contact.
The results of this experiment may be due to the fact that some beginning clinicians need to experiment on their own with the various techniques of treating misarticulations. They may not be receptive to a supervisor's suggestions, nor knowledgeable enough to digest and incorporate the changes suggested during the supervisory conference. This type of student might function best using the videotape recorder as the primary method of evaluation, supplemented perhaps by infrequent conferences with a supervisor.

The findings of this investigation might have been different if the supervisors involved had concentrated on altering one or two aspects of the clinician's behavior, rather than concerning themselves with the total behavioral pattern exhibited by the clinicians. The format used in microteaching might be a useful procedure in the training of speech clinicians if one trait of teaching is emphasized until it is mastered by the beginning professional. The supervisors used in this study might have tried to change too many behaviors in too short a period of time; they were not given specific instructions regarding what behaviors were to be judged. If they had exerted most of their efforts at changing those characteristics to be rated, the results would have reflected
their instructions more positively. While the items that were rated were felt by the investigator to be observable, different items might have produced different results.

The attitude of the clinicians involved in the study might have affected the results. The clinicians who were confident of their clinical behavior before viewing the videotape or supervisory conference might have been able to change their behavior because they felt positive about their efforts in the pre-supervisory session of therapy. The clinicians who were less sure of their ability might have been overwhelmed by learning of their mistakes.

Finally, the methodology used in this investigation might have affected the results. If different clinicians had been used for each of the four conditions, more significant findings might have occurred. The results could have also been affected by the limited amount of time between the two sessions of therapy within each condition. A one-minute sample of speech therapy might not be adequate for judging purposes. If an entire quarter had been devoted to this study, different results might have been obtained.
RELIABILITY OF THE JUDGES

An analysis of variance was used to determine the reliability of the judges (Bruning and Kintz, 1968), who participated in this experiment. The mean rating of one item for each clinician made by each set of judges was used to compute five tests of reliability. The results of the analysis of variance were used in the Spearman-Brown formula (Ferguson, 1966) to test one random judge and expanded to test the reliability of each panel of judges. The obtained values ranged from .83 to .90, which indicates that the judges were reliable at the .01 level of significance (Table 10). These results indicate that personnel in the speech and hearing profession tend to rate the beginning clinician the same regardless of the training to which they have been exposed.

SUMMARY

The hypotheses were stated in this chapter. The statistical treatments used to test the hypotheses were described. The results of these analyses were discussed in relation to the purpose of this study.
TABLE 10

The estimate of reliability of a random judge and panels of judges from five different universities in rating selected items of clinical behavior of beginning speech pathologists.

<table>
<thead>
<tr>
<th>University</th>
<th>N</th>
<th>Random Judge</th>
<th>Panel of Judges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Michigan</td>
<td>10</td>
<td>.41</td>
<td>.87*</td>
</tr>
<tr>
<td>North Carolina</td>
<td>10</td>
<td>.40</td>
<td>.87*</td>
</tr>
<tr>
<td>Illinois</td>
<td>10</td>
<td>.33</td>
<td>.83*</td>
</tr>
<tr>
<td>Alabama</td>
<td>10</td>
<td>.39</td>
<td>.87*</td>
</tr>
<tr>
<td>Western Michigan</td>
<td>10</td>
<td>.47</td>
<td>.90*</td>
</tr>
</tbody>
</table>

*\(p < .01\) \(\geq .77\) (df, 8)
CHAPTER IV

SUMMARY AND CONCLUSIONS

SUMMARY

The purpose of this study was to investigate the use of videotape recording as an adjunct to the supervisor in the preparation of speech clinicians in obtaining clinical experience as required by the American Speech and Hearing Association. Eight majors in speech pathology acted as subjects. They were in their senior year and first quarter of clinical practice. Children diagnosed as having functional articulatory problems with no apparent organic involvement and who were normal in intelligence and hearing served as clients for the subjects. They ranged in ages from five and a half to twelve. Four experimental conditions, each condition consisting of two treatments, were tested. They were: (1) session of therapy-pause-session of therapy, (2) session of therapy-videotape replay of the therapy-session of therapy, (3) session of therapy-conference with a supervisor-session of therapy, and (4) session of therapy-conference with a supervisor and replay of videotape-session of therapy. Each treatment within each condition consisted of a three-minute session.
of therapy. The final minute of each session was captured on film, resulting in sixty-four one-minute samples of therapy for judging purposes. Ten items considered important to the therapeutic process and felt to be observable were chosen for rating purposes. The items were: (a) use of verbal behavior, (2) use of methods and techniques, (c) use of nonverbal behavior, (d) demonstrates knowledge of principles, methods and techniques for treating misarticulations, (e) use of materials and tools, (f) a good therapist, (g) utilizes time effectively, (h) has obvious objective, (i) therapist control of session, and (j) appropriateness of methods and techniques. Fifty judges, representing five different universities, were used to rate the one-minute samples. Each judge, with one exception, was a graduate student in speech pathology. They had completed a minimum of twenty-four quarter hours in academic coursework in speech pathology and had at least fifty hours of clinical experience in the treatment of articulatory disorders.

THE NULL HYPOTHESES

In order to answer the questions posed by the investigator, the following null hypotheses were formulated for testing:
1. There is no significant difference in change of clinical behavior among the four conditions of supervision: (a) no evaluation of clinical performance, (b) videotape replay of clinical performance, (c) a personal conference with a supervisor to evaluate clinical behavior, or (d) a combination of supervisory conference with a videotape replay of clinical performance.

2. There is no significant difference in the rating of clinical behavior among the four conditions of supervision for the following items: (a) use of verbal behavior, (b) use of methods and techniques, (c) use of nonverbal behavior, (d) demonstrates knowledge of principles, methods, and techniques for treating misarticulations, (e) use of materials and tools, (f) rating as a good therapist, (g) utilizes time effectively, (h) has obvious objective, (i) therapist control of session, and (j) appropriateness of methods and techniques.

3. There is no significant difference in clinical behavior as a result of interaction between the clinician and condition among the four experimental conditions.

RESULTS

A three-way analysis of variance was used to test the first two hypotheses, while a two-way analysis of
variance was used to test the third hypothesis. The results indicated that there was no significant difference between the conditions or the ten characteristics of clinical behavior among the four conditions. There was a significant difference, however, among the clinicians and the interaction of the clinicians with the conditions. This finding implies that certain clinicians' performance significantly improved with certain conditions, and that all clinicians were not affected the same way with each particular type of supervision. The clinicians were apparently different in their supervisory needs.

CONCLUSIONS

There seems to be a significant difference among beginning clinicians with regard to their supervisory needs; different clinicians respond significantly better to some forms of supervision than others. Some beginning clinicians perform significantly better when they are in direct personal contact with a supervisor. Others, however, perform best when they are allowed to appraise their own behavior by viewing a videotape replay of their therapy. Combining a videotape replay of performance with a live supervisory conference does not appear to be superior to either method by itself.

The results of this investigation indicate that there is more to supervision than knowing subject matter;
a human element is involved. These human elements must be considered for beginning clinicians when their experience in supervised clinical practice is planned. A blanket requirement for the manner in which beginning clinicians will be supervised in their clinical experience without consideration of the individual needs of the person does not seem feasible to this investigator. The beginning clinician may progress in clinical proficiency as well without any supervision than with supervision which does not coincide with his requirements.

**IMPLICATIONS FOR FURTHER STUDY**

Further studies are needed to evaluate the use of videotape and the effectiveness of supervision on the beginning clinician. The present study may be repeated with the following changes in design:

1. Different clinicians should be used for each experimental condition.

2. More time should elapse between each treatment within each condition.

3. The study should be conducted over a longer period of time, perhaps an entire quarter.

4. The clinicians might perform differently if videotaped without their knowledge.

5. An attempt should be made to assess the personal characteristics of the beginning clinician to
determine which type of personality functions best in each of the conditions used in this experiment.

6. The microteaching format should be further investigated to determine if it is appropriate in the training of speech clinicians.

7. More clinicians should be used in studies of this nature in the future.

8. Clinicians self ratings should be compared to the ratings of judges.

9. Audio recordings should be made of the supervisory conference for analysis.

10. An investigation should be conducted to determine the length of therapy session necessary for judging clinical proficiency.
APPENDIX A

SUBJECTS ATTITUINAL RESPONSES TOWARDS THE USE OF VIDEOTAPE IN CLINICAL TRAINING
Questions asked subjects (clinicians) in order to determine attitudinal responses towards the use of videotape in clinical training.

1. While participating in this experiment I felt challenged to do my best.
2. The format of the experiment made me feel quite tense.
3. I could have done better if I had had longer periods.
4. I could have done better if I had known more about my client.
5. Seeing a replay of my therapy, followed by a conference, was a most valuable experience.
6. I prefer conferences with a supervisor to videotape replay only.
7. I could have done better if I had concentrated on only one type of behavior.
8. I could have done better if more time had elapsed between therapy sessions.
9. I improved progressively from session to session, regardless of conditions.
10. I believe I could learn how to apply clinical principles and techniques more effectively and in a shorter time through videotaping and counseling than by traditional methods used in clinical practice.
Mean ratings of subjects to questions contained in page 1 of Appendix A to determine attitudinal responses towards the use of videotape in clinical training.

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Uncertain</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.3*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>3.6</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>2.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td>2.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>1.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td>2.8</td>
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<tr>
<td>7</td>
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<td>3.3</td>
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<td>8</td>
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<tr>
<td>9</td>
<td></td>
<td></td>
<td>3.3</td>
<td></td>
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</tr>
<tr>
<td>10</td>
<td>1.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Refers to mean ratings of all subjects combined.
APPENDIX B

RATING SCALE OF CLINICIAN BEHAVIOR
RATING SCALE

1. Utilizes verbal behavior
   
   1 2 3 4 5 6 7
   Effective Noneffective

2. Use of methods and techniques
   
   1 2 3 4 5 6 7
   Effective Noneffective

3. Use of nonverbal behavior
   
   1 2 3 4 5 6 7
   Effective Noneffective

4. Demonstrates knowledge of principles, methods, and techniques for treating misarticulations
   
   1 2 3 4 5 6 7
   Knowledgeable Uninformed

5. Use of materials and tools
   
   1 2 3 4 5 6 7
   Effective Noneffective

6. A good therapist
   
   1 2 3 4 5 6 7
   Good Poor

7. Utilizes time effectively
   
   1 2 3 4 5 6 7
   Usually Seldom

8. Has obvious objective
   
   1 2 3 4 5 6 7
   Usually Seldom
9. Therapist control of session

1 2 3 4 5 6 7
Good control Little control

10. Appropriateness of methods and techniques

1 2 3 4 5 6 7
Appropriate Inappropriate


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