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ABSTRACT

A study was conducted on the use of audiotape and videotape self-confrontation techniques in training speech and hearing therapy clinicians. The dissemination phase of the study consisted of a conference held in October, 1970 at the University of Denver entitled "Videotape and Audiotape Confrontation in Clinical Training." The findings and methodologies of the study were presented and a applied to various professional groups throughout the country. The application phase of the project involved training, cataloging, and utilizing all confrontation methodologies. The research phase determined that undergraduate grade point average appeared to be a good predictor of change resulting from each of three self-confrontation procedures: audio-confrontation, audio-video confrontation 10 category system, and audio-video confrontation 19 category system. (JY)

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U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Division of Research
Bureau of Education for the Handicapped
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SUMMARY

The current study was subdivided into three phases: Dissemination, Application and Research. The dissemination phase consisted of: (1) a conference held in October, 1970, at the University of Denver entitled "Videotape and Audiotape Confrontation In Clinical Training." The papers presented at that conference are currently being considered for publication by Spartan Books, 432 Park Avenue South, New York, New York 10016. In addition, the findings and methodologies of the past three years have been presented and applied to various professional groups throughout the country. Doctors Boone and Prescott of the project staff have submitted an article for publication in the periodical Asha and approval has been obtained from Interstate Printers and Publishers for publication of a supervision manual entitled "Speech and Hearing Therapy Scoring Manual" by the same authors.

The application phase of the project involved training, cataloging, and utilization in all confrontation methodologies.

The aim of the research phase was to determine predictor variables that could be utilized for predicting change resulting from the three confrontation procedures employed: audio-confrontation, audio-video confrontation 10 category system, and audio-video confrontation 19 category system. The undergraduate grade point average appeared to be a good predictor of change resulting from each of the three confrontation procedures.

RELATED RESEARCH

Very little quantitative research on training programs or supervisory practices has been done in the field of speech and hearing. There are articles in the journals on therapeutic procedures (Jacobovits, 1966), therapy processes (Cooper, 1968), and therapy programs (Rubin, Bar, and Dwyer, 1967). There are articles and notes on specific clinical cases in almost every issue of the Journal of Speech and Hearing Disorders. Discussions of supervisory techniques and philosophies have appeared in Asha. For example, the December, 1967 issue of Asha was devoted primarily to the problem of supervision. Other articles have appeared which deal with specialized training methods (Holland and Matthews, 1963). There have been research studies on speech therapist characteristics (Ventry, Newman, and Johnson, 1964), on career satisfaction (Sheehan, Hadley, and Lechleider, 1964), and on changes in trainee therapists' attitudes (Ingram and Studen, 1967). The latter study, which utilized a cross sectional rather than a longitudinal approach, is one of the few studies to deal directly with the effects of training in a quantitative manner.

In summary, the literature on speech pathology demonstrate only few attempts at formal evaluation of training effect. Instead, most of the published material deals with goals, ideals, and philosophies.

A great deal of research on the effectiveness of audiotape and videotape self-confrontation has been conducted. One of the earliest published accounts of audiotape recording was that by Korner and Brown (1952) with the main emphasis on recording trainee counselor sessions as a supervisory aid. Very little was said about the trainee's response to the use of the methodology. A later article (Anderson and Brown, 1955) suggested that tape recordings be used in a three-step learning procedure. The counselor trainee would first describe the case to the supervisor before the tape is played, then the recorded interview would be evaluated in terms of factors which inhibit or facilitate communications, and then the trainee would attempt to understand the meaning of the interview behavior. No quantitative data were presented to indicate the effectiveness of such an approach.

Walz and Johnston (1963) reported one of the first studies in which subject variables were related to responses to videotape self-confrontation by counseling trainees. The authors gave counseling trainees the Bill's Index of Values and Adjustment and an anxiety index. The Bills' Index was completed for both "ideal" and "self". Due to a very small sample, Walz and Johnston performed no statistical tests. However, they did report trend in the data. A large discrepancy in a subject's self-ideal rating was related to a shift toward more negative self-description and to a tendency toward being more critical of his own counseling sessions. Subjects with a small self-ideal discrepancy showed very little shift in self-description. High anxiety scores were related to relatively negative self evaluation of counseling sessions. However, the self-evaluation tended to become more similar to evaluations by the supervisor and the client after self-confrontation. Walz and Johnston concluded that watching a tape playback resulted in a more accurate and more sensitive self-evaluation. As a result of their study, Walz and Johnston suggested that supervisory intervention may take place more effectively after videotape self-confrontation.

The published reports subsequent to Walz and Johnston revert, for the most part, to nonquantitative descriptions of videotape self-confrontation programs. Buchheimer, Goodman, and Sircus (1965) used videotape in an effort to improve the empathic responsiveness of counselors. Poling (1965) described an overall program of videotape used in counseling practicum. Poling (1968a) published additional information on the technical considerations in videotape usage. He also published a study (1968b)comparing various usages of videotape interviews finding no significant differences. Poling concluded that videotape self-confrontation was useful, but he provided no statistical comparison with a control group. He also reported that self-perception in the counselor role tended to converge with the perception of the trainee by the supervisor.

One of the most recent and apparently successful research programs on self-confrontation was reported by Ivey, Normington, Miller, Morrill, and Haase (1968). Videotaping was used in conjunction with a training procedure termed microcounseling which consisted of a five minute counseling process.

The brief session was virtually a simulation since the "client" was a paid undergraduate who was interviewed by the trainee counselor. Three kinds of counselor behaviors were the focus of the microcounseling training sessions: attending behavior, reflection of feeling, and summarization of feeling. The report by Ivey et al (1968) actually consisted of the results of three relatively separate studies on the three kinds of behaviors noted above. In each case, the self-confrontation procedure resulted in a statistically significant shift in behavior base rates.

The preceding review covers articles on self-confrontation in counselor training, which has been one of the most active areas for such research. Some use of the technique in speech therapy training has also been reported. Diedrich (1966) discussed the possible use of videotape and pointed out that it could provide immediate feedback of the student, be evaluated by staff and peers as well as the student, and be analyzed in several different ways. Clifford (1968) presented a report on the ways videotape equipment was used as the University of South Dakota with no quantitative data reported.

Research on self-confrontation has also been performed by the military (Eachus, 1965; Haines and Eachus, 1965) and by various psychiatrists and psychotherapists on emotionally disturbed persons (Corelison and Arsenian, 1960; Moore, Chernell, and West, 1965; Miller, 1962; and Boyd and Sisney, 1967). Braucht (1969) performed dissertation research showing that self-confrontation resulted in a more accurate self-concept in psychotic patients.

Research at the University of Denver Speech and Hearing Center with speech pathology students showed that videotape self-confrontation had an effect on self-concept (Boone and Goldberg, 1969). Perception of self was changed as a result of confrontation, and a double self-confrontation, in which the trainee viewed himself viewing himself, was shown to be more effective in this regard than single confrontation. Congruence of the videotape image of self to perceived self also occurred. On self-ideal measures, a control group which did not receive confrontation training tended to show convergence of self towards ideal whereas the experimental subjects maintained the distance between

self and ideal descriptions. These data were obtained using a speech pathology Q-sort. Further analysis of the self-concept data showed that subjects with high self-esteem, as measured by the MMPI K scale, changed less than persons with low self-esteem. This finding confirmed several similar results reported by other investigators.

Behavior recording and classification were included in the previous videotape confrontation research at the University of Denver, (Boone and Goldberg, 1969; Boone and Stech, 1970) both supported by the Bureau of Education for the Handicapped, Office of Education. A ten category system was developed (Stech, 1968) and was modified in the current study by Boone and Prescott (See Appendix C). These systems are used to analyze therapy tapes in order to evaluate the sequence of clinician and client behaviors. Data from the first year of the project showed that there were significant shifts in the use of positive reinforcement and punishment during therapy. Videotape viewing tended to decrease the high rate of use of positive reinforcers and increase the very low rate of punishment. There were tentative findings that the use of punishment was related to the clinician's experience level with more experienced clinicians using more punishment and that the total reinforcer use level was related to certain personality variables.

The speech therapy behavior category system was developed on the model of the interaction analysis systems currently in use in the area of teacher training (Amidon and Hough, 1967). Flanders introduced the first comprehensive system of recording teacher-pupil interaction (Flanders, 1960) although earlier systems had been devised and applied (Withall, 1949; Anderson, 1939; Smith, 1960; Aschner, 1959; and Medley and Mitzel, 1958). Subsequently Amidon and Hunter (1967) extended and refined the system and dubbed it the Verbal Interaction Category System (VICS).

Since the introduction of the Flanders system, numerous studies of teacher training and behavior change have been performed (Amidon, 1966; Amidon and Flanders, 1961; Amidon and Giammatteo, 1965; Hough and Amidon, 1965; Hough and Ober, 1966; Hough and Amidon, 1967; and Lohman, Ober, and Hough, 1967). Almost without exception the research has shown that the feedback of interaction data to a teacher or

clinician, whether a student teacher or clinician or an in-service experienced teacher-clinician, results in behavioral change. Because the category system deals with specific behaviors and because the data matrix shows graphically the actual consequence of various teacher-clinician behaviors, the feedback of observed interaction is easily understood by the teacher and behavior changes can be made rather easily.

To summarize, very little research has been reported of supervisory techniques within the field of speech pathology. Further, almost no research has been reported on videotape self-confrontation as a training technique for speech clinician trainees. Suggestions on the use of new techniques such as videotape recordings and behavior recording have been made in Asha from time to time. Prior and present research at the University of Denver has confirmed in the field of speech pathology that both videotape and audiotape self-confrontation and behavior categorization systems are effective clinical training tools. This research will be reported in journal articles, workshops, and at an ASHA Short Course in the coming year (1971-72).

METHODS

This study was subdivided into three phases, dissemination, application and research. The activities and findings for each phase are described below.

DISSEMINATION PHASE

One of the major aims of this project was to disseminate the findings and methodologies of the past two years of research, An Experimental Study of the Clinical Acquisition of Behavioral Principles of Videotape Self-Confrontation and The Development of Clinical Skills in Speech Pathology By Audiotape and Videotape Self-Confrontation, both supported by the Bureau of Education for the Handicapped, Office of Education. To accomplish this aim four major activities were carried on. (1) In October of 1970 a conference was held at the University of Denver entitled "The Use of Audio-tape and Videotape Recordings for Clinical Training." The proceedings manuscript of this conference is currently being considered for publication by Spartan Books. The list of participants and the subject areas presented are contained in Appendix A. (2) An article entitled "Content and Sequence Analysis in Speech and Hearing Therapy" was prepared by Doctors Boone and Prescott of the project staff and submitted to Asha for consideration for publication. The article is currently being considered for publication by the editorial staff of that periodical. (3) Doctors Boone and Prescott of the project staff are currently working on a clinical supervision manual for speech and hearing therapy that will incorporate the findings of the three years of study utilizing video and audiotape techniques. This manuscript has been accepted by a private publishing firm (Interstate Printers and Publishers) to provide for a greater dissemination of information than could be contained in a final project report. The initial portion of this manuscript is contained in Appendix B. (4) Finally, Doctors Boone and Prescott have participated in several workshops and made oral presentations wherein the methodologies and results of past and current research have been presented. The specific details of the

above listed dissemination activities are discussed below.

October Conference. In October of 1970 a conference was held at the University of Denver entitled "Videotape and Audiotape Confrontation in Clinical Training." Participants for the conference were selected on the basis of demonstration of current work in the area of interest. Each participant at the conference gave an oral presentation to the participants, followed by group reaction and interaction. Following the oral presentation each participant submitted a written copy of his presentation for review and editing by the project staff with the aim of organizing these manuscripts into book form for publication purposes. Below is a list of the names and locations of each participant, the title of his presentation, and a brief synopsis of the presentation. The completed edited manuscript is currently being reviewed for publication by Spartan Books, 432 Park Avenue South, New York, New York 10016.

Daniel R. Boone,
University of Denver

An Introduction to Using Videotape and Audiotape in the Training of Speech and Hearing Clinicians

A brief overview is given to the traditional employment of video and audiotape recording devices in clinical training. The recent development of analyses and confrontation devices using these instruments is specific as the study topic of the institute.

Thomas E. Prescott,
University of Denver

A Historical Overview of Videotape and Audiotape Confrontation

A review of previous research in both videotape and audiotape self-confrontation is given. Previous confrontation work by counselors, trainers, communication methodologists, psychologists, and microteaching specialists is related to the ongoing work of Prescott and his colleagues in speech and hearing.

Ernest L. Stech,
Western Michigan University

A Cybernetic Model of Videotape/Audiotape Training for Clinical Skills

videotape/audiotape confrontation is described as a feedback process. After a basic introduction to feedback systems, the author presents a concept of higher-order feedback loops. Stech suggests ways of incorporating permanently in the clinical situation high level feedback systems both in clinical training and supervision.

Thomas S. Johnson,
Utah State University

Development of a Multidimensional Scoring System for Observing the Clinical Process

A forty category system has been experimentally developed which may be used for content and sequence analysis of speech and hearing therapy sessions. This system has developed a graded scoring system which permits the exact specification of both patient and clinician behaviors in therapy. Intra- and inter-judge reliability data is presented along with specifics of matrix validity, all indicating the forty category system to be a valuable tool in studying speech and hearing therapy.

William M. Diedrich,
University of Kansas-
School of Medicine

Application of the Multidimensional Scoring System in Studying the Clinical Process in Speech Pathology

Procedures using the multidimensional clinical process scoring system are specified for the training of clinical students. Not only can the student study the therapy of someone else in depth, but he can develop an appreciation of the total clinical process. The student clinician by using such a scoring system can make a thorough study of his own therapy, determining the relative effectiveness of his own clinical behaviors.

Thomas E. Prescott,
University of Denver

Two Systems for Describing the Clinical Process

Two category systems used for describing the clinical process in speech pathology are presented. A Ten Category System, as developed by Stech, includes

five behavioral categories acted out by the clinician and five categories which specify client behavior. Prescott expands the basic ten category matrix to include nineteen categories which specify type of stimulus --- response modality, an important specification in speech and hearing therapy.

Daniel R. Boone,
University of Denver

Videotape and Audiotape Confrontation in Clinical Training

Both videotape and audiotape confrontation, when used with some kind of measuring instrument, have vital effects in the clinical training of speech pathologists and audiologists. Using confrontation systems of analysis permit the detailed study of the total clinical process. The positive effects of confrontation on self-concept are presented. Lastly, emphasis is given to using the ten or nineteen category systems in therapy supervision, either by a supervisor or by self.

Alvin A. Goldberg,
University of Denver

Self-Concept and Change Utilizing Videotape Self-Confrontation

Videotape self-confrontation studies generally have found that passive viewing, not knowing what to look for, provides for less powerful confrontation experience. Observations and problems related to positive and negative feedback are presented. "Legitimacy" of feedback (that it be valid and not false) appears to be a more powerful confrontation aspect than whether or not the feedback is positive or negative.

Linda A. Ramsey,
Alachua County Schools,
Florida

Application of Category Systems to the Analysis of Group Therapy

The study of group speech therapy in the schools is facilitated by applying category analysis. A description is given of procedures for videotaping speech clinicians working in the schools with therapy groups. Confrontation methods used by both clinician and supervisor have worked effectively,

illustrating the practicality of videotape confrontation for clinicians and teachers in school settings.

Clyde L. Rousey,
The Menninger Foundation,
Topeka, Kansas

Effects of Audiotape Confrontation

Affective reactions to self-confrontation via audiotape recordings are analyzed and reported. The effects on both clinicians and clients in hearing their own voices are discussed from both theoretical and practical viewpoints. While focus is on audiotape confrontation in speech and hearing therapy, psychological and psychiatric implications of such confrontation are presented.

Susan T. Mulhern,
Northwestern University

The Use of Videotape in Clinical Teaching

Videotape as a classroom teaching aid is used for demonstration of clinical problems, demonstration of test administration and therapy techniques. By using category analysis systems, the university speech clinic has been exposing graduate clinicians to both self-evaluation and supervision evaluation. Practical descriptions are given for employing videotape in many aspects of clinical teaching.

Asha Article. An article entitled "Content and Sequence Analysis for Speech and Hearing Therapy" by Boone and Prescott of the project staff is currently being reviewed for publication in the periodical Asha. This article contains a description of the category system previously developed for scoring audio- and videotape recorded clinical sessions and techniques for utilization of the scoring system. The scoring system categories and the category definitions utilized in the article are contained in Appendix C.

Supervision Manual. A manual incorporating the results of the past three years of research on videotape and audiotape self-confrontation is currently being prepared by Doctors Boone and Prescott. This will be a training manual for use

of videotape and audiotape self-confrontation procedures for external and self-supervision procedures. The manual will be of use to both training programs of speech and hearing clinicians as well as to practictioners in the field. A focus of the manual is for clinicians to learn to self-score their own speech and hearing therapy. Training programs of speech and hearing clinicians will be able to utilize the techniques and information developed and gathered in the previous three years to more adequately train their students. Practitioners in the field will be able to utilize information of this nature to test the effectiveness of their performance and to be able to modify, in a quantifiable and systematic way, their clinical behavior as well as that of their clients. The manual, entitled "Speech and Hearing Therapy Scoring Manual," has been accepted by Interstate Printers and Publishers for Fall, 1971, publication. The manual will be utilized by Boone and Prescott in their ASHA Short Course presentation on audiotape-videotape analysis of speech and hearing therapy at the November, 1971, Convention of the American Speech and Hearing Association.

Workshops and Conferences. The findings and methodologies contained in this and past research projects have been presented to various groups either jointly or individually by Boone and Prescott throughout the past year. A list of presentations made follows:

1. American Speech and Hearing Association Convention: paper presented entitled, "A Methodology for Describing Speech and Hearing Therapy", November, 1970.

2. Lakewood Public School Therapists Inservice Training: Description and training in utilization of project developed methodologies, Lakewood, Colorado, November, 1970.

3. University of Indiana, participated in Public School Supervisory Conference, July, 1970, presenting our category systems for therapy analyses.

4. Florida State Department, Education, Winter Park, Florida, December, 1970, presenting the category systems to 70 public school speech and hearing clinicians.

5. Children's Hospital, Inservice Training to Speech Pathology and Audiology Staff, Denver, Colorado, May, 1971.

6. Mid Town Hospital Association, Videotape and Audiotape Methodologies presented to therapists in occupational therapy, physical therapy, and speech therapy, Denver, Colorado, March, 1971.

7. Spalding Rehabilitation Center; Inservice Training: Description and training in utilization of projects developed methodologies, Denver, Colorado, March, 1971.

8. Colorado State University, presented the therapy analysis system to staff and students, May, 1971.

9. Executive Training Corporation, Application of category system analysis to managerial training, (1) Bureau of Land Management, (2) Lakewood, Colorado Police Department, March and May, 1971 respectively.

In addition, a course has been developed and added to the curriculum in the Department of Speech Pathology and Audiology at the University of Denver, Denver, Colorado, entitled "Seminar: The Clinical Process" that incorporates methodologies, findings, and theoretical formulations based upon the current project and the previous projects carried on at Denver University.

Doctors Boone and Prescott of the project staff submitted a short course proposal, AUDIOTAPE AND VIDEOTAPE CONFRONTATION IN CLINICAL TRAINING, to the American Speech and Hearing Association for the 1971 ASHA convention in Chicago. This proposal was accepted and this short course, which will basically report the three years of OE supported investigation, has been scheduled for November 20, 1971.

APPLICATION PHASE

The initial portion of the application phase was accomplished in the fall of 1970 when all of the graduate students in the speech pathology and audiology program at the University of Denver were trained to utilize and maintain the audiotape and videotape equipment, as well as to learn the scoring, data summarization, and confrontation systems to be employed during the 1970-71 academic year.

A series of evening training sessions were conducted by the project coordinator, with the assistance of the two graduate research assistants, that allowed for training of the graduate students in the following areas:

1. Students were trained to thread, playback, and clean the audio and videotape recorders. Each student was instructed in performing these tasks and supervised practice was carried on.

2. Group practice was carried on that allowed the students to learn to score video- and audiotape utilizing the scoring systems previously developed. The students were asked to memorize the scoring matrix categories and their definitions. A discussion and explanation of the matrix categories and their definitions was carried on by the project coordinator. Three scoring systems were employed. The 10 category system (see Appendix C) was applied to both audio- and videotape recorded systems. A 19 category system (See Appendix D) was applied to videotape recorded sessions only. The data obtained from the scoring of individual audio- and videotaped therapy sessions were reduced by each trainee to a series of ratios and percentage figures. These data were recorded by the clinicians to allow for feedback over time, in a quantifiable fashion, of their clinical performance (see Appendix C).

Other activities carried on in the application phase of the project included the videotaping and cataloging of speech and hearing therapy sessions for classroom demonstration and instruction as well as the videotaping of student and/or clinical

supervision requested clinical sessions for clinical supervision reaction. These application activities were limited to those students not included in the research phase of the project. Demonstration videotapes of the administration of various clinical tests were made and catalogued. Occasional videotapes were made, upon clinical request, to be shown to their clients as an adjunct to the clinical process. Finally, videotapes and audiotapes of clinical sessions were made to be scored and summarized by individual clinicians not included in the record phase of the current project.

One portion of the project related to the application phase of the project was the development of the clinical supervision manual discussed in the dissemination phase section of this report. This manual is aimed toward making all methodologies available in an applicable form to both training programs and practitioners in the speech and hearing field.

RESEARCH PHASE

The goal of the research phase of this project was to attempt to determine those predictors which tell us what kind of individualized practicum-supervision experience (audio confrontation only, audio-video confrontation 10 category system, audio-video confrontation 19 category system) each student requires. To accomplish the above stated aim, student trainees in speech pathology and audiology at the University of Denver were exposed to three methods of self-confrontation. Possible predictor variables were then compared to the performance scores for each of the three confrontation conditions.

Confrontation Conditions. Three conditions of confrontation were employed in this study: (1) audio confrontation, (2) audio-video confrontation 10 category system, and (3) audio-video confrontation 19 category system.

Audio confrontation was utilized in the following manner. Videotape recordings were made of individual clinical sessions. The clinicians in this confrontation group scored and/or quantified the events contained in the recorded sessions by playing back the recorded session with the video monitor turned off so that only the audio portion of the tape was used. The sessions were scored, utilizing the 10 category system developed by Stech (1968) and modified by Boone and Prescott (see Appendix C).

A second type of confrontation, audio-video confrontation 10 category system, was utilized in the following manner. Videotape recordings were made of individual clinical sessions. The clinicians in this confrontation group scored and/or quantified the events contained in the recorded sessions by playing back the audio and video portions of the recorded session tape simultaneously. The sessions were scored utilizing the 10 category system developed by Stech (1968) and modified by Boone and Prescott (see Appendix C).

Finally, a third type of confrontation was employed, audio-video confrontation 19 category system. For this confrontation group, videotape recordings were made of individual clinical sessions. The clinicians in this confrontation group

scored and/or quantified the events contained in the recorded sessions by playing back the audio and video portion of the recorded session simultaneously. The sessions were scored utilizing the 19 category system developed by Prescott, 1970 (see Appendix D).

Equipment. The following items of equipment were available to this project: (1) two Ampex VR 7000 Videotape Recorders; (2) one Vidicon Camera, GE, with an Angenieux zoom lens, mounted on a dolly; (3) two television monitors were used (one was a 23-inch Setchel Carlson monitor which the subjects used to observe their own playback and the second monitor was a 9-inch Magnavox used exclusively as a taping monitor; (4) other clerical pieces of equipment (typewriter rental, storage cabinets, etc.) were available in the project office as required to facilitate total project needs.

Two offices, each approximately 11' x 11', were available for exclusive project use. The experimental room was outfitted with the large television playback monitor, a child's table with two small chairs, and a large table with two adult size chairs. A single microphone was attached to the ceiling. On the wall of the experimenter's office adjacent to the experimental room was a one-way mirror allowing the television camera to "shoot" its pictures without overtly interfering with the subjects or their clients. In the experimenter's office the two videotape recorders were housed on their appropriate platforms. The camera was mounted on its dolly so it could film through the open viewing port, constructed especially for this project. One corner of the room was devoted to the administrative aspects of the project, including a desk and chair. Two other chairs were placed in the office for project personnel.

Subjects. Immediately following the training portion of this project 15 graduate student trainees were randomly selected from the graduate student population in speech and hearing at the University of Denver. These 15 subjects were assigned to progress through each of the previously described confrontation conditions. The order of confrontation conditions were counterbalanced so as to allow for all subjects to have exposure to all three confrontation conditions.

The Videotaping Procedures. Each subject was videotaped five

times for each confrontation condition for a total of 15 confrontation experiences. Taping was accomplished through a wall port in the therapy room. The videotaping procedures were similar to those described by Boone and Goldberg (1969) and Boone and Stech (1970).

Quantification of Sessions. Immediately following the taping of the individual clinical sessions each subject scored the tape of his session utilizing the scoring system appropriate to the confrontation condition group he was in at the time. The data obtained from the scoring of the individual audio- and videotaped therapy sessions were reduced by each trainee to a series of ratios and percentage figures. These data were recorded by the clinicians on a summary sheet to allow for feedback overtime, in a quantifiable fashion of their clinical performance. (see Appendix E). Utilizing this technique each subject was able to obtain feed back relative to his own performance on a session by session basis.

Predictor Variables. A series of test and base rate information was gathered for each subject at the beginning of the project with the aim of finding predictor variables for future type of confrontation assignment. These variables are listed below.

1. Previous clinical experience in clock hours.
2. Undergraduate grade point average.
3. Graduate Record Examination - Verbal score.
4. Graduate Record Examination - Quantitative score.
5. Rank as a clinician by four faculty members in speech pathology and audiology at the University of Denver.
6. Orientation Inventory Scale: S scale,
   I scale,
   t scale.
7. Minnesota Multiphasic Personality Inventory: K scale, F scale, Hs scale, D scale, Hy scale, Pd scale, Mf scale, Pa scale, Pt scale, Sc scale, Ma scale, Si scale, L scale.

Results of the Predictor Variable Analysis. The previously listed predictor variables were subjected to correlation analysis in two ways. Initially, a correlation matrix between all predictor variables was derived on a Burroughs 5500 Computer at the University of Denver Computing Center. Variables which showed little relationship between one another were eliminated. Secondly, all remaining predictor variables were individually correlated, utilizing the Burroughs 5500 Computer at the University of Denver Computer Center, with the combined change scores for the ratios and percentage computed by each subject for each confrontation condition. The combined change scores were derived by totaling the change value for each subject for each of the following nine measures: per cent of the total of a session accounted for by clinician events, per cent of the total of a session accounted for by client events, the good evaluative ratio, the bad evaluative ratio, the correct response ratio, the inappropriate response ratio, the directive control ratio, and the reinforcement control ratio, and the personal social control ratio. Listed below are the results of these analyses.

For the audio confrontation subjects the predictor correlations with the combined change scores are as follows:

Variable	r With Combined Change Scores
Undergraduate Grade Point Average	.924
Pd Scale MMPI	.923
D Scale MMPI	.920
Mf Scale MMPI	.914
K Scale MMPI	.902
Ma Scale MMPI	.901
Hy Scale MMPI	.897
Si Scale MMPI	.889
Orientation Inventory Scale	.883
Orientation Inventory I Scale	.880
Orientation Inventory t Scale	.865
Graduate Record Examination-Verbal	.863
Graduate Record Examination-Quantative	.853
F Scale MMPI	.853
Pa Scale MMPI	.843
Pt Scale MMPI	.841
L Scale MMPI	.775
Sc Scale MMPI	.668
Hs Scale MMPI	.566
Previous Clinical Experience (Clock Hours)	.525

For the audio-video confrontation 10 category system subjects the predictor correlations with the combined change scored are as follows:

Variable	r With Combined Change Scores
Sc Scale MMPI	.880
Si Scale MMPI	.876
D Scale MMPI	.870
Mf Scale MMPI	.865
Orientation Inventory S Scale	.849
Undergraduate Grade Point Average	.847
Pa Scale MMPI	.826
Pd Scale MMPI	.824
Hy Scale MMPI	.822
Pt Scale MMPI	.822
Ma Scale MMPI	.817
Orientation Inventory t Scale	.813
Orientation Inventory I Scale	.766
F Scale MMPI	.761
K Scale MMPI	.756
Hs Scale MMPI	.756
Graduate Record Examination-Verbal	.678
L Scale MMPI	.665
Graduate Record Examination-Quantitative	.652
Previous Clinical Experience (Clock Hours)	.302*

*Not significant $p < .05$

For the audio-video confrontation 19 category system subjects the predictor correlations with the combined change scores are as follows:

Variable	r With Combined Change Scores
Pd Scale MMPI	.936
Ma Scale MMPI	.932
Mf Scale MMPI	.928
Orientation Inventory I Scale	.922
Undergraduate Grade Point Average	.917
D Scale MMPI	.917
Orientation Inventory t Scale	.910
Hy Scale MMPI	.904
K Scale MMPI	.896
Orientation Inventory S Scale	.888

Variable	r With Combined Change Scores
Si Scale MMPI	.883
Pa Scale MMPI	.864
Pt Scale MMPI	.864
L Scale MMPI	.825
F Scale MMPI	.815
Graduate Record Examination-Quantitative	.800
Graduate Record Examination-Verbal	.792
Sc Scale MMPI	.750
Hs Scale MMPI	.623
Previous Clinical Experience (Clock Hours)	.572

The variables that were eliminated based on the initial correlation analysis are as follows: rank as a clinician by four faculty members in speech pathology and audiology at the University of Denver; all three confrontation subgroup pre and post scores for the per cent of the total number of events accounted for by clinician behaviors, the per cent of the total number of events accounted for by client behaviors, the good evaluative ratio, the bad evaluative ratio, the correct response ratio, the inappropriate response ratio, the directive control ratio, the reinforcement control ratio, and the personal social control ratio; and for the individual change score for each of these measures.

Conclusions.

Examination of the results obtained for the research phase of this study suggest that it is possible to predict the amount of change that a student will make for each of the confrontation conditions. The range of the individual r's for the top six predictor variables with the audio confrontation composite change score was .901 to .924. Consequently, if one wished to predict change as a result of audio confrontation any of the following measures would appear to provide for adequate prediction: Undergraduate grade point average and any of the following MMPI scales: Pd, D, Mf, K, and Ma.

The range of the individual r's for the top six predictor variables for the audio-video confrontation 10 category system with the composite change score was .847 to .880. Conse-

quently, if one wished to predict change as a result of a confrontation experience of this nature any of the following measures would appear to provide for adequate prediction: The Sc, Si, D, and Mf scales of the MMPI, the S scale of the Orientation Inventory, and the Undergraduate grade point average.

The range of the individual r's for the top six predictor variables for the audio-video confrontation 19 category system with the composite change score was .917 to .936. Consequently, if one wished to predict change as a result of this type of confrontation experience any of the following measures would appear to provide for adequate prediction: The Pd, Ma, Mf and D scales of the MMPI, the I scale of the orientation inventory and the undergraduate grade point average.

If one wished to predict change for any or all of the types of confrontation experiences described in this study the undergraduate grade point average appears to be a good measure. The undergraduate grade point average can be derived from past records and requires no special testing; consequently, it is easily derived from information already available. Utilizing a method described by Downie and Heath (1959, p. 146) for averaging correlation coefficients the r's associated with grade point average for each of the confrontation conditions studied were averaged. The resulting mean correlation was .900. This value suggests that undergraduate grade point average is a good index of expected change from any of the confrontation conditions herein described.

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APPENDIX A

List of Conference Participants
and the Subject Area Presented

Daniel R. Boone,
University of Denver

An Introduction to Using Videotape and Audiotape in the Training of Speech and Hearing Clinicians

A brief overview is given to the traditional employment of video and audiotape recording devices in clinical training. The recent development of analyses and confrontation devices using these instruments is specific as the study topic of the institute.

Thomas E. Prescott,
University of Denver

A Historical Overview of Videotape and Audiotape Confrontation

A review of previous research in both videotape and audiotape self-confrontation is given. Previous confrontation work by counselors, trainers, communication methodologists, psychologists, and microteaching specialists is related to the ongoing work of Prescott and his colleagues in speech and hearing.

Ernest L. Stech,
Western Michigan University

A Cybernetic Model of Videotape/Audiotape Training for Clinical Skills

Videotape/audiotape confrontation is described as a feedback process. After a basic introduction to feedback systems, the author presents a concept of higher-order feedback loops. Stech suggests ways of incorporating permanently in the clinical situation high level feedback systems both in clinical training and supervision.

Thomas S. Johnson,
Utah State University

Development of a Multidimensional Scoring System for Observing the Clinical Process

A forty category system has been experimentally developed which may be used for content and sequence analysis of speech and hearing therapy sessions. This system has developed a graded scoring system which permits the exact specification of both patient and clinician behaviors in therapy. Intra- and inter-judge reliability data is presented along

with specifics of matrix validity, all indicating the forty category system to be a valuable tool in studying speech and hearing therapy.

William M. Diedrich,
University of Kansas - School of Medicine

Application of the Multidimensional Scoring System in Studying the Clinical Process in Speech Pathology

Procedures using the multidimensional clinical process scoring system are specified for the training of clinical students. Not only can the student study the therapy of someone else in depth, but he can develop an appreciation of the total clinical process. The student clinician by using such a scoring system can make a thorough study of his own therapy, determining the relative effectiveness of his own clinical behaviors.

Thomas E. Prescott,
University of Denver

Two Systems for Describing the Clinical Process

Two category systems used for describing the clinical process in speech pathology are presented. A Ten Category System, as developed by Stech, includes five behavioral categories acted out by the clinician and five categories which specify client behavior. Prescott expands the basic ten category matrix to include nineteen categories which specify type of stimulus --- response modality, an important specification in speech and hearing therapy.

Daniel R. Boone,
University of Denver

Videotape and Audiotape Confrontation in Clinical Training

Both videotape and audiotape confrontation, when used with some kind of measuring instrument, have vital effects in the clinical training of speech pathologists and audiologists. Using confrontation systems of analysis permit the detailed study of the total clinical process. The positive effects of confrontation on self-concept are presented. Lastly, emphasis is given to using the ten or nineteen category systems in therapy supervision, either by

a supervisor or by self.

Alvin A. Goldberg,
University of Denver

Self-Concept and Change Utilizing Videotape Self-Confrontation

Videotape self-confrontation studies generally have found that passive viewing, not knowing what to look for, provides for less powerful confrontation experience. Observations and problems related to positive and negative feedback are presented. "Legitimacy" of feedback (that it be valid and not false) appears to be a more powerful confrontation aspect than whether or not the feedback is positive or negative.

Linda A. Ramsey,
Alachua County Schools,
Florida

Application of Category Systems to the Analysis of Group Therapy

The study of group speech therapy in the schools is facilitated by applying category analysis. A description is given of procedures for videotaping speech clinicians working in the schools with therapy groups. Confrontation methods used by both clinician and supervisor have worked effectively, illustrating the practicality of videotape confrontation for clinicians and teachers in school settings.

Clyde L. Rousey,
The Menninger Foundation,
Topeka, Kansas

Effects of Audiotape Confrontation

Affective reactions to self-confrontation via audiotape recordings are analyzed and reported. The effects on both clinicians and clients in hearing their own voices are discussed from both theoretical and practical viewpoints. While focus is on audiotape confrontation in speech and hearing therapy, psychological and psychiatric implications of such confrontation are presented.

Susan T. Mulhern,
Northwestern University

The Use of Videotape in Clinical Teaching

Appendix A

Videotape as a classroom teaching aid is used for demonstration of clinical problems, demonstration of test administration and therapy techniques. By using category analysis systems, the university speech clinic has been exposing graduate clinicians to both self-evaluation and supervision evaluation. Practical descriptions are given for employing videotape in many aspects of clinical teaching.

APPENDIX B

Table of Contents for
"A Manual for Clinical Supervision"

By: Boone, D. R. and Prescott, T. E.

S P E E C H A N D H E A R I N G T H E R A P Y

S C O R I N G M A N U A L

A manual for learning to self-score the events of therapy.

Daniel R. Boone, Ph. D.
Thomas E. Prescott, Ph. D.

THE INTERSTATE
Printers & Publishers

Danville, Illinois

This workbook, SPEECH AND HEARING THERAPY SCORING MANUAL, has been developed after three years of investigation of videotape-audiotape confrontation in the training of speech and hearing clinicians. Through funding by the Division of Research, Bureau for Education of the Handicapped, U.S. Office of Education, the investigators have developed many of the scoring matrices presented in this manual. We thank our friends in many field and training settings for their trial and error application of the systems.

Appendix B

TABLE OF CONTENTS

Appendix B

APPENDIX C

10 Category Scoring System

Appendix C

Category Number	Title	Brief Description
1	Describe, explain	Therapist elicits client behavior by description, explanation or by direct control
2	Model	Therapist elicits client behavior by direct and conscious modeling
3	Good evaluative	Therapist indicates approval of the client, either verbally or non-verbally
4	Bad evaluative	Therapist indicates disapproval of the client, either verbally or non-verbally
5	Neutral and Social	Therapist engages in activities which do not require client response or which deal with session goals
6	Correct responses	Client makes a response which is correct in terms of the therapy goals
7	Incorrect responses	Client makes a response which is incorrect in terms of the therapy goals
8	Inappropriate and Social	Client makes a response which is not appropriate in terms of the therapist's goals or engages in social conversation not related to the therapy goals.
9	Good self-evaluative	Client indicates approval of himself by verbally or non-verbally indicating that he considers his response correct
10	Bad self-evaluative	Client indicates disapproval of himself by verbally or non-verbally indicating that he considers his response incorrect

APPENDIX D

19 Category System

Category Number	Title	Brief Description
1	Explain/describe	Therapist elicits client behaviors by description, explanation, or by direct control
2	Presented auditory model	Therapist elicits client behavior by direct and conscious presentation of an auditory model of the desired behavior
3	Presented visual model	Therapist elicits client behavior by direct and conscious presentation of a visual model of the desired behavior
4	Presented auditory visual model	Therapist elicits client behavior by direct and conscious presentation of a combined auditory and visual model of the desired behavior
5	Positive reinforcer (Tangible)	Therapist rewards client behavior by awarding a tangible item
6	Positive reinforcer (Social-verbal)	Therapist rewards client behavior by vocalizing approval
7	Positive reinforcer (Social-nonverbal)	Therapist rewards client behavior by nonverbally indicating approval
8	No observable reinforcer	Therapist does not indicate approval or disapproval of client behavior in any manner
9	Negative reinforcer (Tangible)	Therapist negatively rewards client behavior in a tangible fashion
10	Negative reinforcer (Social-verbal)	Therapist verbally rewards client behavior in a negative manner

Category Number	Title	Brief Description
11	Negative reinforcer (Social-nonverbal)	Therapist negatively rewards client behavior by indicating disapproval nonverbally
12	Neutral/Social	Therapist engages in activities which do not require client response or do not deal with the session goals
13	Correct response	Client makes a response which is correct in terms of the stimulus presented
14	Incorrect response (Approximation)	Client makes a response which is an approximation of a correct response in terms of the stimulus presented
15	Incorrect response	Client makes a response which is incorrect in terms of the stimulus presented
16	Inappropriate/ Social response	Client makes a response which is not appropriate in terms of the stimulus presented or engages in social or motor behavior not related to the stimulus presented.
17	Positive self-reinforcer	Client indicates, verbally or nonverbally, that he considers his response to be correct
18	Negative self-reinforcer	Client indicates, verbally or nonverbally, that he considers his response to be incorrect
19	No response	Client does not respond, verbally or nonverbally, to the stimulus presented

APPENDIX E

Data Summary and Record Over Time

Appendix E

Quick Analysis Scoring Form

Clinician_____ Date_____

Client_____ Trainer_____

Category Counts

Category	No. of Occurrences	% of Total
1	_____	1/total = _____
2	_____	2/total = _____
3	_____	3/total = _____
4	_____	4/total = _____
5	_____	5/total = _____
	Sub Total$_1$ _____	
6	_____	6/total = _____
7	_____	7/total = _____
8	_____	8/total = _____
9	_____	9/total = _____
10	_____	10/total = _____
	Sub Total$_2$ _____	
	TOTAL _____	

Sequence Counts

Sequence	No. of Occurrences
6/3	_____
7/4	_____
8/1,2	_____
8/3,4	_____
8/5	_____

% of session accounted for by clinician behaviors: $\frac{\text{Sub Total}_1}{\text{total}}$ = ____%

% of session accounted for by client behaviors: $\frac{\text{Sub Total}_2}{\text{total}}$ = ____%

6/3

Positive Reinforcement Ratio= $\frac{6/3}{6}$ = _____ = 0 _____ _____

Negative Reinforcement Ratio= $\frac{7/4}{7}$ = _____ = 0 _____ _____

Correct Response Ratio= $\frac{6}{6+7}$ = _____ = 0 _____ _____

Inappropriate Response Ratio= $\frac{8}{6+7+8}$ = _____ = 0 _____ _____

Directive Control Ratio = $\frac{8/1,2}{8}$ = _____ = 0 _____ _____

Reinforcement Control Ratio= $\frac{8/3,4}{8}$ = _____ = 0 _____ _____

Personal Social Control Ratio= $\frac{8/5}{8}$ = _____ = 0 _____ _____

THERAPIST BASE RATE TABULATION SHEET

SESSION #

% of Total # of Events in Category #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1																				
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
% of Total # of Events Accounted for by Clinician Behaviors																				
% of Total # of Events Accounted for by Client Behaviors																				
Positive Reinforcement Ratio																				
Negative Reinforcement Ratio																				
Correct Response Ratio																				
Inappropriate Response Ratio																				
Directive Control Ratio																				
Reinforcement Control Ratio																				
Personal Social Control Ratio																				