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An investigation of observer evaluation accuracy of clinical sessions

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AN ABSTRACT OF THE THESIS OF Douglas Scott Peterson for

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Title: An Investigation of Observer Evaluation Accuracy

of Clinical Sessions.

APPROVED BY MEMBERS OF THE THESIS COMMITTEE:

Robert Casteel, Chairperson

Mary Gordon

Joan McMahon

Student speech-language pathologists begin their

academic preparation as observers. Observations of the

clinical management session are for the purpose of

providing student clinicians with insight into the management process by providing clinical models. To make observation experiences meaningful there must be some guiding framework which will demonstrate the significance of behaviors observed.

Interactional analysis systems are behavior labeling devices utilized in the field of speech-language pathology primarily to provide clinicians and their supervisors with performance feedback. Since interactional analysis systems are essentially guides for focusing one's observations, the system's application to beginning observational experiences is expected to make the observational experiences more meaningful. The purpose of this investigation was to determine the effect Boone-Prescott Content and Sequence Analysis System (B-P) instruction had upon the accuracy of beginning student observation evaluations of clinical management sessions.

Sixteen Portland State University students and two clinical supervisors participated in this investigation. The experimental design allowed for a comparison of student evaluative ratings of clinical management sessions with supervisors' ratings both prior to and after students received instruction in the B-P system. This system was intended to provide students with a behavior labeling framework for the purposes of improving observational skills and evaluative abilities.

Data were analysed using descriptive statistics. Group mean values suggested an absence of training effect. Pre-training evaluative ratings by subjects evidenced large deviations from supervisors' ratings. Post-training evaluative ratings were equally inappropriate. Pre- and Post-training phase mean values were essentially the same. Had instruction in the B-P system been influential, one would expect the after-training mean value for both experimental groups to be noteably different relative to the pre-training mean value. Training as presented in the present investigation did not result in more appropriate observation evaluation ratings by beginning speech-language pathology students. From this outcome it was postulated experimental subjects had received instruction which allowed them to identify specific behaviors, but which did not provide them with the skills necessary to gestalt bits of behavior into a professional judgment.

AN INVESTIGATION OF OBSERVER EVALUATION ACCURACY

OF CLINICAL SESSIONS

by

DOUGLAS SCOTT PETERSON
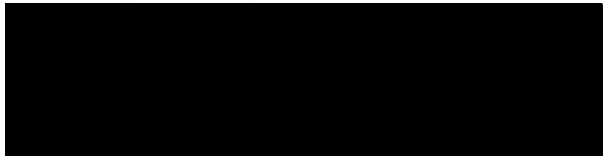
A thesis submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN SPEECH COMMUNICATION:
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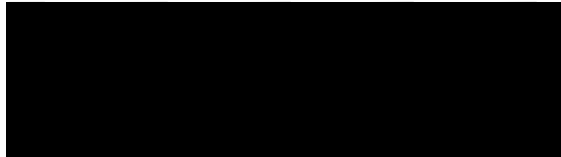
Portland State University
1981

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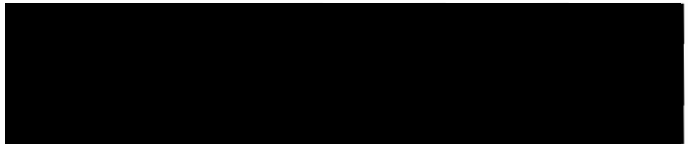
The members of the Committee approve the thesis of Douglas Scott Peterson presented April 30, 1981.

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DEDICATION

I wish to dedicate this thesis to--Dave, Judy, Deanna, Debbie; Danny, Lynn, Dan Jr., Derek; Don, Donna, Kim, Ty, Linsey; Don; Dixie Lee; Bob, Darcy; Del; Dale; Dana; and Mom and Dad--my family.

ACKNOWLEDGEMENTS

The acknowledgements page is perhaps one of the more difficult pages for me to write. I have many feelings of appreciation which I find difficult to express in words. As I look back over the last two years in graduate school I am amazed at how much I have learned academically as well as about myself and others. I have formed friendships which I hape will never end and I have completed a thesis. This thesis marks the beginning of an exciting career and a personal achievement I certainly take pride in. It could not have been done without the assistance of a myriad of "significant others." It is the significant others I wish to thank.

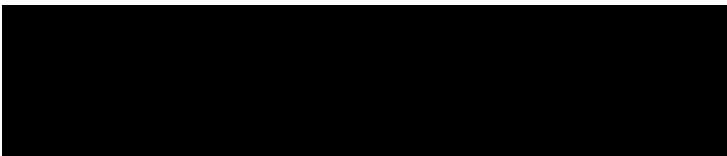I would like to begin by thanking my advisor and friend, Dr. Robert Casteel. It is hard to sum up in a line or two the influence he has had on me and my completion of this thesis. We had what might be termed a "love-hate" relationship at times, but in the end I can now appreciate his method and I have certainly grown from our experiences.

A heartfelt thanks goes to Mary Gordon and Joan Mc Mahon for their contributions to my investigation. Even when they were being pulled in fourteen directions they always seemed to find time to assist me. It is a

pleasure to have had them as professors and to know them as friends. Let it be known I will always be good for a free brownie or sundae where Joan or Mary are concerned.

My next thank yous go to my graduate school support systems. Their names include Mel (Princess Pahuni) Valenciano, Michelle Tremblay, Jean Goodling, Kathy Noonan, Jennie Choong, Laura Gillies, Sue Dickson and Soledad Chavarria. These are the people who made those seemingly unbearable moments tolerable, We have laughed, griped, lamented, cheered, toasted, boasted and grown together. I will never forget our time together. May you each find happiness in whatever you do and wherever you go.

Finally, I want to thank my family. Their support along the way helped immensely. Each in his own way made the long road through school a bit easier and enjoyable. May I some day be able to return to each of you at least part of the kindness and support you have given me.

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CHAPTER I

INTRODUCTION AND PURPOSE

<u>Introduction</u>

In the field of speech-language pathology the appli-
cation of behavioral principles to speech and language
management is widely recognized. Behavior modification
procedures, which employ behavioral principles, allow for
objective assessment of the management process. Speech-
language clinicians trained in the application of be-
havior modification principles recognize the importance
of establishing the baseline occurrence, stimulus control,
and contingency management of verbal behavior. As a pre-
requisite to competency as a speech-language pathologist
it is often assumed one must have knowledge in the theory
of behavior modification. As true as this assumption may
be, it fails to distinguish between one's grasp of the
theoretical paradigm and one's practical working know-
ledge of the paradigm. The ability to establish baseline
level of occurrence, stimulus control, and contingency
management of verbal behavior requires one to apply the
theory. A very fundamental aspect related to the learn-
ing and application of behavior modification principles

is the ability to make careful observations of what is
happening within the clinical dyad. Kunze (1967) notes,

> Without the ability to observe behavior, the
> student clinician or professional clinician
> finds himself incapable of a critical evalua-
> tion of his own professional skill.

Gaining proficiency in managing one's own behaviors
and the behavior of others requires first that one learn
to observe them.

The clinical practicum experience in speech-
language pathology is an integral part of a student speech-
language clinician's educational training. Clinical pract-
icum typically begins with 25 hours of observational ex-
periences (ASHA, 1977). Yet, no specific criteria have
been established for how to make those observations
meaningful. The use of interactional analysis systems
has been shown to be an effective means of training and
supervising student speech-language clinicians (Boone and
Goldberg, 1969; Boone and Prescott, 1971; Boone and Stech,
1970). These systems provide a framework for systematic
observation and recording of events occurring within the
clinician-client management dyad. Furthermore, interac-
tional analysis systems allow for an analysis of the
interaction within the constructs of a behavioral para-
digm. In the field of speech-language pathology, inter-
actional analysis systems have been used as training tools
to provide feedback to supervisors and student clinicians

regarding management sessions. In light of the design of interactional analysis systems as behavior labeling devices it might be expected such systems could be utilized as a framework for guiding observations. Such guided observations might enhance the student's insights into the procedures he observes, thus making the beginning observational experiences more meaningful.

This author's review of the published literature found no investigations into the specific application of interactional analysis systems for the purpose of training beginning observors. The absence of published investigation in this area, combined with a belief that interactional analysis systems can be utilized by beginning speech-language clinicians as a framework for guiding and giving meaning to their observations of management sessions, prompted this investigation. Of particular concern for the purposes of this study is the Boone-Prescott Content and Sequence Analysis System (B-P) (Boone and Prescott, 1972). It was believed because of the frequency with which the B-P system is used nationwide (Schubert and Aitchison, 1975), it would be an appropriate system to utilize.

STATEMENT OF PURPOSE

The purpose of this study was to determine the effect Boone-Prescott Content and Sequence Analysis

System instruction had upon the accuracy of student observation evaluations of clinical management sessions.

This study sought to answer the question:

Does instruction in the <u>Boone-Prescott Content and Sequence Analysis System</u> result in appropriate subjective evaluation ratings by beginning speech-language pathology students observing videotaped clinical management sessions?

CHAPTER II

REVIEW OF THE LITERATURE

Behavior Modification

The premise that the primary concern of the speech-
language pathologist is to modify defective speech and
language has provided an impetus for the development of
many models of management. London's (1977) analysis of
the diversity of "therapy" models yielded two major modes
of management. One mode he describes as "action," or
"behavior therapies;" the other, as "insight therapies."
Behavior therapies are primarily concerned with reducing
anxiety and modifying explicit behavior. It is the "be-
havior therapy" mode into which most speech management
fits (Perkins, 1977). Data indicating the number of
speech-language pathologists utilizing behavioral
principles in their management strategies were not
found in this author's review of the literature. The
application of behavioral principles in the field of
speech-language pathology, though, is widely recognized.

Behavior management strategies are designed for
modifying observable, explicit behaviors. This may mean
helping individuals acquire, strengthen, maintain or

eliminate specifiable behaviors.

Behavior modification strategies which utilize behavioral principles are based on research from the field of psychology and more specifically the work of B. F. Skinner. Skinner observed that behavior is governed primarily by its environmental consequences. Such behavior he called operant. Operant behavior "operates" on the environment, that is, the behavior is emitted voluntarily (Hall, 1975). Skinner found it was possible to increase and decrease the probability of a behavior recurring through the systematic arrangement of consequences. This process he called operant conditioning.

The application of operant conditioning procedures for the purposes of behavior modification is discussed by Bandura (1969), Millenson (1968), Perkins (1977), Schultz (1972), Thomas (1974), Yen and McIntire (1976), and others. Such procedures as noted by Perkins (1977), ". . . may prove to be one of the very few solid rocks on which speech pathology and all other behavioral sciences can be built." He also explains a behavioral or "functional analysis system" approach has "charismatic appeal" to speech-language clinicians because,

> It is an approach designed to study individuals, not groups. It reveals directly, simply, and quickly the functions of an individual's behavior. The system works as well for those who respond differently to the same circumstances as it does for those who respond identically.

Role of Observation

The effective application of operant condition-
ing procedures rests on the ability of a clinician to
measure the frequency of occurrence (baseline), de-
velop a contingency management program, and maintain
stimulus control of a target behavior. Even more basic
than this is the ability to make careful observations.
Kunze (1967) discusses this issue in a symposium on
supervision. In this symposium he described behavioral
observation as the foundation upon which diagnosis and
treatment are developed. Kunze also discusses an issue
which influenced the development of the present investi-
gation. Regarding observation skills he states,

> It has been assumed that the student already
> possesses such skill and that he only needs to
> be instructed to apply it to his practice as a
> clinician. Yet experienced supervisors of
> practicum students are aware that this assump-
> tion is not consistent with the performance of
> many of their students.

This author believes this same assumption is still
being made of beginning speech-language pathology students
and that some means of training in observation needs to be
a part of a student's clinical training. The clinical
experience begins with observations. Presently the
guidelines of the American-Speech-Language-Hearing Assoc-
iation require 25 hours of observational experiences prior
to clinical practicum (ASHA, 1977). No specific criteria

have been established for how to make those observations
meaningful. Observational experiences are for the pur-
pose of providing student clinicians with insight into
the management process by providing models. To make
observation experiences meaningful as models there must
be some guiding framework which will demonstrate the
significance of behaviors observed.

The topic of observational learning has been exten-
sively examined by Albert Bandura in the field of psychol-
ogy. He views verbal mediation as a key factor in obser-
vational learning. In a study conducted by Bandura,
Grusec and Menlove (reported in Bandura, 1965), the
authors attempted to evaluate the effect of verbal label-
ing upon the learning of a modeled task. It was found
that children who observed an activity and supplied verbal
labels for the behaviors learned novel behavior best,
those who simply observed learned better than a third
group who engaged in an interfering activity. Bandura
believed verbally labeling an observed behavior made it
possible to later be able to better describe the behavior.
Thus, it was concluded labeling observations isolates
behaviors and has the potential effect of improving
observation.

Interactional Analysis Systems

Interaction analysis is perhaps the most prevalent
system of labeling clinical behavior. Interactional
analysis systems were developed primarily for recording
social interaction in the fields of education and psy-
chology. As a direct result of a desire on the part of
professionals in speech-language pathology to have a
means of providing more objective evaluative feedback to
clinicians, several interactional analysis systems have
been developed for use in the field of speech-language
pathology. These systems include the Boone-Prescott
Content and Sequence Analysis System (B-P) (Boone and
Prescott, 1972), Conover Analysis System (Conover, 1974),
and the Analysis of Behavior of Clinicians (ABS) System
(Schubert, Miner, and Till, 1976). These systems were
modeled after Flander's (1965) 10-Category System.
Flander's system was developed to categorize teacher-
student classroom interaction. The interactional
analysis system, when applied to the speech-language
management session, provides a means of recording
clinician-client interaction in a quantifiable, rela-
tively objective fashion. Such recordings may then be
analyzed and interpreted for specific information. Each
of the systems mentioned above utilizes either a numerical
or letter coding system for recording sequentially the

interactive behaviors being observed. Of the three systems, both the B-P system and the Conover system utilize an event-based method of recording. The ABC system utilizes a time-based recording method. Each of these systems is a method for labeling observed behaviors which occur during a speech or language management session. By labeling the observed behaviors, it is then possible to discuss and analyze them. The systems are essentially guides for focusing one's observations of a management session. By having a framework which guides observations, it would be expected one's awareness of management behavior is increased. The use of interactional analysis systems has been shown to be helpful in the clinical training and supervision of student speech-language clinicians (Boone and Goldberg, 1969; Boone and Prescott, 1971; Boone and Stech, 1970). Boone and Goldberg (1969) found interaction analysis useful in assisting students with the acquisition of behavioral principles through videotaped self-confrontation.

Each of the systems can be used for the purposes of observation and analysis and provide useful data for helping speech clinicians modify their own, as well as their client's, behavior (Oratio, 1977). Additionally, each of the systems mentioned is based on the operant behavior model discussed earlier.

In light of the design of interactional analysis
systems as behavior labeling devices, it might be ex-
pected such systems could be utilized as a framework for
guiding observations. Such guided observations might
enhance the student's insights into the procedures he
observes, thus making the beginning observational ex-
periences more meaningful. A review of the published
literature failed to yield any investigative research
into the specific application of interactional analysis
systems for the purpose of training beginning students
in observation. An unpublished research project con-
ducted at Portland State University by Golper (1976)
did address this issue and investigated the use of
the Boone and Prescott System (1972) as an aid in
guiding beginning students' observations. She concluded
that beginning students can be trained to apply the B-P
system such that a high degree of observing and rating
accuracy is achieved. It is suggested that the system
is amenable for use as a guided observational training
device. The Golper investigation demonstrated beginning
students' observational skills can be improved if stu-
dents are moderately trained in the application of the
B-P system. Providing beginning students with instruc-
tion in the meaning and use of the behavior labeling
matrix of the B-P system for the purpose of improving

observational skills and evaluative abilities, but without having them achieve proficiency in the actual use of the B-P system, has not been examined. If instructional time could be reduced by simply providing a less complex framework for labeling behaviors, then both students and training personnel would profit. The absence of investigation in this area combined with a belief that the behavior labeling matrix of interactional analysis systems can be utilized by beginning students as a framework for guiding and giving meaning to their observations of management sessions prompted this investigation.

The Boone-Prescott Content and Sequence Analysis System (B-P) (Boone and Prescott, 1972) is of particular concern for the purposes of this study. It was believed because of the frequency with which the B-P system is used nationwide (Schubert and Aitchison, 1975), it would be an appropriate system to investigate. The B-P system is a ten-category, event-based, numerical recording system. It provides five client-centered and five clinician-centered labeling categories. Since the operant behavior model is used in the B-P system, the clinical management session is viewed as consisting of three basic steps (Stech, 1968):

1.   Attempts by the clinician to elicit the desired behavior.

2.   The client producing the behavior.

3.   Reward or punishment of the client, depending on whether the emitted behavior was correct or incorrect.

Observations may either be made of live or video-taped management sessions. The validity of using one method as opposed to the other, that is, live versus video-taped, was examined by Hanlan (1980). He concluded essentially the same results are obtained regardless of which mode of observation is used.

For the purposes of this investigation, it was not the intent to train student subjects in the use of the B-P system per se. Rather, it was the author's intent to provide student subjects with a framework for providing labels for what they observe, then, with this internalized labeling framework, to make evaluations of their observations. The B-P ten-category labeling system was the framework of choice.

CHAPTER III

METHODS AND PROCEDURES

Methods

Subjects

Sixteen Portland State University students enrolled during Fall term, 1980, in an introductory course in speech pathology and/or phonetics and two clinical supervisors were included as participants in this study. Student subjects consisted of undergraduate and postbaccalaureate individuals. Their selection and participation, from a group of approximately 30 students, was on a voluntary basis and contingent upon satisfying the following criteria: 1) be enrolled in either an introductory speech pathology course or phonetics course, Fall term, 1980; 2) have had no previous clinical experience; and 3) be untrained in the Boone-Prescott Content and Sequence Analysis System (B-P) (Boone and Prescott, 1972). Criteria for inclusion of the clinical supervisors were: 1) a proficiency in scoring and interpreting the B-P; 2) possession of the Certificate of Clinical Competence (CCC) with the American-Speech-Language-Hearing Association (ASHA); and 3) employment as clinical supervisor.

Student subjects were divided into two experimental groups of eight subjects each. The clinical supervisors served as the control group and represented the standard to which the experimental groups' ratings were compared. Experimental subjects signed an informed consent form prior to participation in this study (see Appendix A).

Instrumentation

The Boone-Prescott Content and Sequence Analysis System (Boone and Prescott, 1972) was the independent variable for this study. The B-P system was used as a means of providing beginning students with a systematic observational guide. The B-P is a measurement tool used predominantly by clinicians and supervisors to evaluate the nature of the clinician-client interactive behavior during a management session. Additionally, the Boone-Prescott Ten-Category Speech and Hearing Therapy Session Scoring Form provides a Therapy Evaluation rating scale which was adapted for use by subjects in this study (see Appendix B). This scale provides for subjective evaluation by the scorer of the clinician (Clinician Effective), the client's progress (Client Effective Progress), and overall session quality (A Good Session). The rating scale consists of a nine-point continuum (1-9) with 1 representing "No" and 9 representing "Yes."

The rating reflects whether the clinician was felt to be effective; the client was judged to have made effective progress; and whether the session, in general, was judged to be good. For example, the rater may rate the category "Clinician Effective" with an 8 or 9, thereby indicating strongly that the clinician was effective. A converse example is the rater rating the category "Client Effective Progress" with a 1 or 2. This would indicate the rater strongly believed the client did not make any effective progress. And, as a final example of possible ratings, the category "A Good Session" may receive a 5 rating, indicating the rater believed the general session quality to be average. Each of the categories mentioned could receive ratings ranging from 1 through 9. Such a rating scale allows for varying degrees of agreement along the "Yes/No" continuum.

Videotaped management sessions were presented for the subjects' viewing via a Soney-Matic AV-3650 reel-to-reel videotape recorder and a Setchell Carlson T.V. monitor, model 2100 S.D. Video presentations were delivered at a comfortable listening level in a carpeted, quiet, basement-level university laboratory room. The taped clinical management sessions were edited from a larger sample of videotaped sessions which had been prepared for previously-conducted research. All videotaped

sessions were of Articulation/Language Clinic or Urban
Language Clinic clinicians and their clients. Each of
the videotaped sessions was five minutes in length and
a total of five sessions were selected for viewing and
rating. The adequacy of using five-minute segments has
been validated by Schubert and Laird (1974).

The training tape developed by the author in-
corporated the following material and required approxi-
mately 60 minutes to show and another 15-20 minutes to
discuss and practice coding.

I.   Operant Conditioning: Behavior Modification

    A.   Operant behaviors and conditioning defined

    B.   Reinforcement
       1.   Positive
       2.   Negative
       3.   Punishment

    C.   Applying reinforcement
       1.   Contingencies
       2.   Immediacy
       3.   Continuous and intermittent

    D.   Shaping: Antecedents of behavior
       1.   Stimulus control
       2.   Instructional control
       3.   Modeling and imitation
       4.   Prompting and fading
       5.   Chaining

II. Boone-Prescott Content and Sequence Analysis
    System

    A.   Purpose
    B.   Description and explanation
    C.   Coding procedure
    D.   Coding practice (brief)
    E.   Desirable versus undesirable coding
       sequences

Procedures

The sixteen student subjects were arbitrarily assigned to one of two experimental groups resulting in two groups of eight subjects each. Both experimental groups participated in a two-phase experiment (see Figure 1).

The participating supervisors, serving as the control group, selected and rated five management sessions prior to implementation of Phases I and II.

	Experimental Group A	Experimental Group B
(Phase I)	1. Receive rating instruction 2. Observe videotapes 3. Evaluate sessions	1. Non-participation
(Phase II)	1. Receive B-mod. instruction 2. Take post-test 3. Receive B-P instruction 4. Receive rating instruction 5. Observe videotapes 6. Evaluate sessions	1. Receive B-mod instruction 2. Take post-test 3. Receive B-P instruction 4. Receive rating instruction 5. Observe videotapes 6. Evaluate sessions

Figure 1. Experimental Model Design

Session selection criteria required only that one session be judged, in an overall sense, an 8 or 9 (strong "Yes" or good session) on the Management Evaluation rating scale, one session be judged as a 1 or 2 (strong "No" or poor session), with the remaining three sessions rated somewhere between these two extremes. The supervisors' ratings were used as the standard by which the experimenter made judgments of subsequent student rating appropriateness.

Videotaped clinician-client management sessions were presented to subjects for observation and evaluation.

In Phase I for Experimental Group A, subjects received instruction in rating procedures using the Management Evaluation rating scale (see Figure 2), then observed five 5-minute videotaped clinical management sessions and rated independently each session, using the scale shown in Figure 2. Rating instructions

---

Management Evaluation

	No	Yes
A Good Session	1--2--3--4--5--6--7--8--9	
Clinician Effective	1--2--3--4--5--6--7--8--9	
Client Effective Progress	1--2--3--4--5--6--7--8--9	

Figure 2. Management Evaluation Rating Scale adapted from Boone and Prescott.

informed subjects that they would be evaluating the management sessions on three parameters. Each parameter was explained and questions were answered. The nine-point rating scale was described and examples of hypothetical ratings were provided. Again, questions were answered if they arose. Actual session viewing and rating were then begun.

A maximum of three minutes was allowed between session presentations for subjects to perform their ratings.

Phase I, Experimental Group B, required non-participation, that is, subjects were neither exposed to nor instructed to rate any of the videotaped sessions.

Phase II was implemented three weeks later. Phase II was exactly the same for both experimental groups. Because of individual schedule variations, each of the experimental subjects participated in Phase II during one of four different time slots. That is, there were four participation times which accommodated all experimental subjects. Group A and B subjects participated simultaneously in most cases, depending on the time slot selected.

During Phase II, both experimental groups received, via videotape, a brief overview of operant

conditioning, as outlined on page 17. This was for the purpose of familiarizing the subjects with learning theory and its application as a behavior modification technique. If any questions arose from the taped presentation, they were answered at this time. A short ten-item post-test, covering operant conditioning, was administered. Two forms (Form A and Form B) were developed (see Appendix C). Form A was administered to all experimental subjects, then correct answer feedback was provided as subjects corrected their own test. In the event any subject achieved less than an 80 percent correct response level (missed more than two of the ten test questions), the test items missed would have been discussed by the group as a whole. No subject failed post-test Form A. Had any subject failed Form A then all subjects present would have been administered post-test Form B. Subjects retained their own test for scoring purposes as correct answer feedback was provided. Had any subject scored below 80 percent on Form B, he would have been retained in the study and Phase II then would be initiated. Data generated by these subjects would have been analyzed later to determine if any significant feature might be detected which was the possible result of achieving below 80 percent on the post-test.

Instruction was then given in the clinical application of the B-P. This instruction was provided via a

training tape developed by this author. Subjects were provided with a handout which listed the numerical coding, title, and description of the B-P Ten-Category Content and Sequence Analysis System (see Appendix D). At the same time subjects received a sample coding handout (see Appendix E). The ten-category system was discussed and example coding provided. Any questions subjects had regarding the instruction session were answered at this time. Experimental subjects were then provided with Management Evaluation rating scales (see Appendix F) and instruction instruction in their use. Subjects viewed the management sessions and rated independently each session on the three items listed on the Management Evaluation scale.

Analysis of Data

Data were analyzed by using descriptive statistics, that is, data were evaluated in terms of group difference means in a before/after comparison. Difference means were determined by comparing "Target Ratings" established by supervisors with ratings made by student subjects. The difference between what the supervisors rated a management session and what the student rated the same session is the difference value. Difference values for each subject for each phase were collectively summed and mean difference values determined and compared.

CHAPTER IV

RESULTS AND DISCUSSION

Results

The appropriateness of beginning students' sub-
jective evaluation ratings of clinical management ses-
sions was measured in a before and after comparison.
The experimental design allowed for a comparison of
student ratings with supervisors' ratings both prior
to and after students received instruction in the
Boone-Prescott Content and Sequence Analysis System
(B-P).

Sixteen beginning students in speech-language
pathology and two clinical supervisors participated
in this study. Supervisors jointly rated five
5-minute videotaped clinical management sessions using
a 9-point continuum rating scale. Each session was
rated on three parameters or attributes. The "Target
Ratings" established by the supervisors are represented
in Table I. These ratings became the standard or target
ratings against which student subjects' ratings were
compared for purposes of evaluation to determine the

appropriateness of their ratings. The heading "attri-
butes" of Table I refers to the three parameters for
which each session was evaluated.

TABLE I

TARGET RATINGS ESTABLISHED BY SUPERVISORS

Sessions	Attributes		
	a(overall)	b(clinician)	c(client)
1	3	4	2
2	6	6	6
3	8	9	8
4	1	1	3
5	8	7	8

Attribute "a" was overall session quality, "b" was
effectiveness of the clinician and "c" was progress made
by the client. Ratings were based on a 9-point continu-
um scale (see Appendix F). Thus, ratings could range
from 1 to 9. Ratings by student subjects participating
in the "before training" phase (Group A, Phase I) are
listed in Table II. Ratings by the same subjects in the
"after training" phase (Group A, Phase II) are displayed
in Table III. The rating given by those subjects par-
ticipating in a control "after training" rating phase
(Group B, Phase II) are shown in Table IV. The Group
B, Phase II subjects provided a control for viewing

TABLE II

"BEFORE TRAINING" RATINGS OF MANAGEMENT
SESSIONS BY GROUP A, PHASE I
AND TARGET RATINGS

Target Ratings Session	Attributes a	b	c
1	3	4	2
2	6	6	6
3	8	9	8
4	1	1	3
5	8	7	8

Subject #1 Session	Attributes a	b	c
1	7	7	7
2	5	6	6
3	8	8	8
4	5	5	4
5	8	7	6

Subject #2 Session	Attributes a	b	c
1	7	7	7
2	7	7	6
3	5	4	5
4	7	7	7
5	7	7	7

Subject #3 Session	Attributes a	b	c
1	7	6	8
2	9	8	8
3	4	2	3
4	5	5	5
5	5	7	6

Subject #4 Session	Attributes a	b	c
1	8	9	8
2	6	7	5
3	5	7	5
4	7	7	7
5	8	8	8

Subject #5 Session	Attributes a	b	c
1	7	7	7
2	4	5	3
3	3	3	4
4	4	3	3
5	4	4	3

Subject #6 Session	Attributes a	b	c
1	8	9	9
2	9	9	8
3	7	3	7
4	9	9	8
5	7	8	9

Subject #7 Session	Attributes a	b	c
1	8	8	8
2	8	8	6
3	6	6	6
4	6	8	4
5	6	7	5

Subject #8 Session	Attributes a	b	c
1	7	8	7
2	6	6	8
3	8	8	7
4	7	9	7
5	6	6	5

TABLE III

"AFTER TRAINING" RATINGS OF MANAGEMENT SESSIONS BY GROUP A, PHASE II

Target Ratings

Session	Attributes a	b	c
1	3	4	2
2	6	6	6
3	8	9	8
4	1	1	3
5	8	7	8

Subject #1

Session	Attributes a	b	c
1	3	5	5
2	3	3	2
3	9	9	9
4	5	5	5
5	3	3	4

Subject #2

Session	Attributes a	b	c
1	7	7	7
2	7	8	8
3	9	9	8
4	8	8	9
5	8	8	8

Subject #3

Session	Attributes a	b	c
1	9	9	9
2	9	9	9
3	4	2	2
4	9	9	9
5	9	9	9

Subject #4

Session	Attributes a	b	c
1	9	9	9
2	7	7	7
3	7	7	7
4	8	8	8
5	9	9	9

Subject #5

Session	Attributes a	b	c
1	8	8	8
2	4	4	5
3	2	2	2
4	6	5	7
5	8	8	8

Subject #6

Session	Attributes a	b	c
1	7	7	8
2	6	6	7
3	6	6	6
4	7	7	7
5	7	7	8

Subject #7

Session	Attributes a	b	c
1	7	7	7
2	8	8	8
3	6	7	5
4	6	7	5
5	8	8	8

Subject #8

Session	Attributes a	b	c
1	6	6	7
2	6	7	8
3	7	5	5
4	8	7	7
5	8	8	8

TABLE IV

"AFTER TRAINING" RATINGS OF MANAGEMENT SESSIONS BY GROUP B, PHASE II (CONTROL FOR VIEWING EFFECT)

Target Ratings

Session	Attributes		
	a	b	c
1	3	4	2
2	6	6	6
3	8	9	8
4	1	1	3
5	8	7	8

Subject #9

Session	Attributes		
	a	b	c
1	6	6	6
2	7	8	7
3	8	8	8
4	6	8	4
5	9	9	9

Subject #10

Session	Attributes		
	a	b	c
1	6	6	8
2	7	8	8
3	7	7	8
4	8	8	8
5	8	8	8

Subject #11

Session	Attributes		
	a	b	c
1	9	9	9
2	6	5	6
3	5	4	5
4	9	9	9
5	8	8	8

Subject #12

Session	Attributes		
	a	b	c
1	6	6	5
2	7	7	6
3	6	6	8
4	5	6	4
5	5	6	6

Subject #13

Session	Attributes		
	a	b	c
1	6	5	7
2	6	6	7
3	5	7	4
4	7	8	7
5	8	8	3

Subject #14

Session	Attributes		
	a	b	c
1	6	6	6
2	5	6	5
3	6	5	6
4	7	7	7
5	9	9	8

Subject #15

Session	Attributes		
	a	b	c
1	5	5	6
2	6	6	6
3	3	2	4
4	5	5	4
5	4	3	4

Subject #16

Session	Attributes		
	a	b	c
1	6	7	6
2	6	8	4
3	5	4	5
4	8	9	8
5	9	9	9

effect which may have been influential in Group A sub-
jects' ratings by virtue of their having viewed the same
management sessions on two occasions.

For convenience of comparison, Tables II, III, and
IV, each have the target ratings established by super-
visors (Table I) displayed in the upper left-hand corner.
By calculating the differences between supervisors' target
ratings and students' ratings, difference values were
determined.

The difference values for each subject for each
phase are presented in Tables V, VI, and VII. Again,
target ratings established by supervisors have been in-
cluded in the upper left-hand corner of these tables.
Table V represents difference values for Group A, Phase
I subjects; Table VI represents difference values for
Group A, Phase II subjects; Table VII represents dif-
ference values for Group B, Phase II subjects. The
notations "+", "-" and "0" indicate the direction of
difference of student ratings from target ratings. A
"+" indicates a rating difference which is higher than
the target score or toward the "9" end of the rating
scale. A "-" indicates the opposite, a rating lower
than the target score or toward the "1" end of the
rating scale. A "0" indicates no difference between
student and target ratings.

TABLE V

"BEFORE TRAINING" DIFFERENCE VALUES OF GROUP A, PHASE I

(AS COMPARED TO SUPERVISOR RATINGS)

Target Ratings

Session	Attributes a	b	c
1	3	4	2
2	6	6	6
3	8	9	8
4	1	1	3
5	8	7	8

Subject #1

Session	Attributes a	b	c
1	+4	+3	+5
2	-2	+2	0
3	0	-1	0
4	+4	+4	+1
5	0	0	-2

Subject #2

Session	Attributes a	b	c
1	+4	+3	+5
2	+1	+1	0
3	-3	-5	-3
4	+6	+6	+4
5	-1	0	-1

Subject #3

Session	Attributes a	b	c
1	+4	+2	+6
2	+3	+2	+2
3	-4	-7	-5
4	+4	+4	+2
5	-3	0	-2

Subject #4

Session	Attributes a	b	c
1	+5	+5	+6
2	0	+1	-1
3	-3	-2	-3
4	+6	+6	+4
5	0	+1	0

Subject #5

Session	Attributes a	b	c
1	+4	+2	+4
2	-2	-1	-3
3	-5	-6	-4
4	+3	+2	0
5	-4	-3	-4

Subject #6

Session	Attributes a	b	c
1	+5	+5	+7
2	+3	+2	+2
3	-2	-1	-1
4	+8	+8	+5
5	-1	+1	+1

Subject #7

Session	Attributes a	b	c
1	+5	+4	+6
2	+2	+2	0
3	-2	-3	-2
4	+5	+7	+1
5	-2	0	-3

Subject #8

Session	Attributes a	b	c
1	+4	+4	+5
2	0	0	+2
3	0	0	-1
4	+6	+8	+4
5	-2	-1	-3

TABLE VI

"AFTER TRAINING" DIFFERENCE VALUES OF GROUP A, PHASE II
(AS COMPARED TO SUPERVISOR RATINGS)

Target Ratings

Session	a	b	c
1	3	4	2
2	6	6	6
3	8	9	8
4	1	1	3
5	8	7	8

Subject #1

Session	a	b	c
1	0	+1	+3
2	-3	-3	-4
3	+1	0	0
4	+4	+4	+2
5	-5	-4	-4

Subject #2

Session	a	b	c
1	+4	+3	+5
2	+1	+2	+2
3	+1	0	0
4	+7	+8	+6
5	0	+1	0

Subject #3

Session	a	b	c
1	+6	+5	+7
2	+3	+3	+3
3	-4	-7	-6
4	+8	+8	+6
5	+1	+2	+1

Subject #4

Session	a	b	c
1	+6	+5	+7
2	+1	+1	+1
3	-1	-2	-1
4	+7	+7	+5
5	+1	+2	+1

Subject #5

Session	a	b	c
1	+5	+4	+6
2	-2	-2	-1
3	-6	-7	-6
4	+5	+4	+4
5	0	+1	0

Subject #6

Session	a	b	c
1	+4	+3	+6
2	0	0	+1
3	-2	-3	-2
4	+6	+5	+4
5	-1	0	0

Subject #7

Session	a	b	c
1	+4	+3	+5
2	+2	+2	+2
3	-2	-2	-3
4	+5	+6	+2
5	0	+1	0

Subject #8

Session	a	b	c
1	+3	+2	+5
2	0	+1	+2
3	-1	-4	-3
4	+7	+6	+4
5	0	+1	0

TABLE VII

"AFTER TRAINING" DIFFERENCE VALUES OF GROUP B, PHASE II
(AS COMPARED TO SUPERVISOR RATINGS)

Target Ratings

Session	Attributes a	b	c
1	3	4	2
2	6	6	6
3	8	9	8
4	1	1	3
5	8	7	8

Subject #9

Session	Attributes a	b	c
1	+3	+2	+4
2	+1	+2	+1
3	0	-1	0
4	+5	+7	+1
5	+1	+2	+1

Subject #10

Session	Attributes a	b	c
1	+3	+2	+6
2	+1	+2	+2
3	-1	-2	0
4	+7	+7	+5
5	0	+1	0

Subject #11

Session	Attributes a	b	c
1	+6	+5	+7
2	0	-1	0
3	-3	-5	-3
4	+8	+8	+6
5	0	+1	0

Subject #12

Session	Attributes a	b	c
1	+3	+2	+3
2	+1	+1	0
3	-2	-3	0
4	+4	+5	+1
5	-3	-1	-2

Subject #13

Session	Attributes a	b	c
1	+3	+1	+5
2	0	0	+1
3	-3	-2	-4
4	+6	+7	+4
5	0	+1	0

Subject #14

Session	Attributes a	b	c
1	+3	+2	+4
2	-1	0	-1
3	-2	-4	-2
4	+6	+6	+4
5	+1	+2	0

Subject #15

Session	Attributes a	b	c
1	+2	+1	+4
2	0	0	0
3	-5	-7	-4
4	+4	+4	+1
5	-4	-4	-4

Subject #16

Session	Attributes a	b	c
1	+3	+3	+4
2	0	+2	-2
3	-2	-5	-3
4	+7	+8	+5
5	+1	+2	+1

The difference values were arranged for purposes of descriptive analysis of the phases in Table VIII. Each subject's difference values for the five sessions rated in each phase of the study were summed and presented here. To sum the difference values, "+" and "-" notations were disregarded, and the difference values were summed, which made it possible to determine the overall degree of off-target scoring on the part of each subject. In addition, mean ($\bar{X}$) difference values for each experimental phase are presented as are ranges of difference scores for each phase. Table VIII best displays the experimental results.

The question being asked was: Does instruction in the Boone-Prescott Content and Sequence Analysis System result in appropriate subjective evaluation ratings by beginning speech-language pathology students observing videotaped clinical management sessions?

Examination of Table VIII data suggests an absence of any training effect between Phase I and Phase II. Group A, Phase I mean difference value of 44 is very similar to both after training groups' mean difference values of 45 (Group A, Phase II) and 40 (Group B, Phase II). Had training been influential, one would expect Phase II mean difference values to be noteably different relative to the pre-training phase (Phase I) mean difference value. More specifically, one would expect decreased mean difference values for both Phase II groups,

TABLE VIII

RANGE AND MEAN DIFFERENCE VALUES OF SUBJECTS
AND GROUPS WHEN COMPARED WITH
SUPERVISORS' RATINGS

	Group A			Group B		
	Subject	x^*	$\overline{X}$	Range		
(Phase I)	1	27	44	27-58	(Non-Participation)	
	2	40				
	3	50				
	4	42				
	5	47				
	6	58				
	7	44				
	8	$\underline{41}$				
		349				

	Group A Subject	x^*	$\overline{X}$	Range	Group B Subject	x^*	$\overline{X}$	Range
(Phase II)	1	38	45	38-68	9	31	40	31-53
	2	40			10	39		
	3	68			11	53		
	4	53			12	31		
	5	38			13	37		
	6	39			14	38		
	7	39			15	44		
	8	$\underline{48}$			16	$\underline{48}$		
		363				321		

*Difference value totals

as compared to Phase I mean value. This was not the case. Training as presented in the present investigation did not result in more appropriate subjective evaluation ratings by beginning speech-language pathology students. There was actually an increase in the mean difference value of Group A subjects in the after training phase. The greater difference values, the less appropriate or less in agreement subjects' ratings are with supervisor ratings.

Range figures presented in Table VIII indicate a minimum difference value of 27 and a maximum of 68. For Group A, Phase I, the range of difference values was from 27 to 58. The same group in Phase II had a range of 38 to 68. Group B, Phase II, had the smallest range of 31 to 53. Group A, Phase II difference values skewed more away from supervisors' ratings than did any of the other range values.

The data presented in Table VIII suggest that instructional training, as provided subjects in this investigation, did not result in more appropriate subjective evaluation ratings by beginning speech-language pathology students.

Discussion

This study's purpose was to determine if beginning students in the field of speech-language pathology could make appropriate subjective observation evaluations of videotaped clinical management sessions when provided with instruction in an interactional analysis system. From the results of this investigation, it may be stated beginning students receiving instruction in the Boone-Prescott Content and Sequence Analysis System (B-P) did not make appropriate subjective observation evaluations of clinical management sessions. Subjective observation evaluations as measured in the present evaluation were no more appropriate after instruction in the B-P system than before instruction.

The use of interactional analysis systems has been shown to be useful in the training and supervision of student speech-language clinicians (Boone and Goldberg, 1969; Boone and Prescott, 1972; Boone and Stech, 1970). Golper (1976), in an unpublished clinical research project, demonstrated beginning speech-language pathology students could be trained to use the B-P system as a behavioral coding device with a high degree of accuracy in a minimal amount of training time. Her subjects received nine 30-minute training sessions and take-home

readings. It was concluded the B-P system could be used as a training device for observational training. Thus, Golper demonstrated beginning students with no previous training in observation could perform accurate observations as reflected in their ability to reliably code clinical interaction. Subjects were essentially trained to perform a clerical task of correctly identifying behaviors, assigning appropriate numerical codes to those behaviors, and recording those codes in an efficient manner.

In light of the foregoing, the present study sought to achieve a similar goal, using the same interactional analysis system, but to take things one step further and assess students' evaluative or judgmental abilities. If beginning students could not only acquire observational skill but also be able to interpret those observations in a minimal amount of training time, then students would profit sooner and supervisory personnel would be used more cost efficiently. The training tool in the present investigation was presented to subjects as a framework for judging clinical effectiveness as determined by such aspects as on task behavior, appropriateness of reinforcement, and speed of delivery of stimulus-response. Instruction time was approximately one hour. In addition, approximately 15 minutes was utilized for practice

coding by subjects of staged clinician-client inter-
action with feedback and assistance being provided by
the investigator. Total training time amounted to
about one hour and fifteen minutes.

In retrospect, it seems clear that Golper's study
focused on being able to teach a clerical task, whereas
the present study focused on being able to gestalt bits
of behavior into a professional judgment.

Data presented in Table VIII are meaningful for
purposes of discussion. Comparison of mean difference
($\bar{X}$) values between phases and between groups suggests
little variation in any comparison combination. Most
importantly, mean difference values for Group A subjects
reflect no meaningful change in the after training phase,
Phase II. It would be expected Phase II subjects would
have substantially reduced difference values, and hence
reduced mean difference values, had instruction in the
B-P system been effective. What the data indicate is
over fifty percent of Group A subjects (subjects 1, 2,
3, 7, 8) rated more appropriately or the same prior to
the training phase (Phase I) as they did in the after
training phase (Phase II). This is reflected in the
difference value totals of Group A, Phase I (349) and
Group A, Phase II (363). Difference scores increased

after training, rather than decreased. This suggests training was not effective in improving subjects' evaluative abilities.

The range of difference values when compared between Phases I and II for Group A subjects indicates greater variability in the after training phase. Whereas pre-training Group A difference values ranged from 27 to 58, after training the range for the same group was 38 to 68. Although the respective mean difference values for this group varied by only one point (44 and 45) individual subjects varied more from the target ratings in their after training ratings than they did in their before training ratings.

Group B, Phase II difference values and mean difference values are lower (more in agreement with supervisor ratings) than either Group A, Phase I or II values. Group B acted as a control for viewing effect. Based on Group B's total difference value (321) and mean difference value (40), it appears viewing the videotaped management sessions by Group A subjects on two occasions, versus Group B subjects' single viewing, did not provide an advantage.

Failure of subjects in this study to demonstrate more appropriate subjective observation evaluations in the after training phase is discussed below.

Insufficient training and practice time may be one reason for the results yielded by this investigation. Golper (1976) invested 4-1/2 hours of training versus 1-1/4 hours invested by the present study. In light of Golper's finding that beginning students could be taught to code observed behaviors accurately after receiving 4-1/2 hours of training, one would question whether the present subjects had received sufficient training. In a sense time is a factor, but it is not believed to be the main one. It is far more likely that the nature of the task required of subjects in this study is the central factor which should be examined.

The task of the subjects required not only that they be able to focus their observations on significant clinician-client interactions, but subsequently to interpret what those interactions meant. That is, subjects were provided with a behavior labeling or coding system which was expected to be internalized. Then, with minimal practice in applying the coding system and minimal discussion about desirable and undesirable sequences of interactions, subjects were asked to make a clinical value judgment regarding observed management sessions. This task is undoubtedly more complex than simply achieving accurate coding observation abilities. Students may very well have been able to utilize the

labeling system to organize the interactions they ob-
served, but it is quite another matter to make a value
judgment about those observations.

Subjective comments made by subjects regarding
their impressions of the training session lead the author
to suspect that at least some of the subjects had inter-
nalized the labeling system and thus came away from the
training session with improved observational skills. As
a group, Phase II subjects expressed an increased aware-
ness of what was occurring in the taped management ses-
sions they had viewed. The general concensus was that
observational skills had improved because the management
sessions had more meaning as a result of the subjects'
being able to determine, for most videotaped segments,
what the clinician and client were doing, and why. In
general, subjects attributed their increased awareness
to the B-P instruction. It is inferred from the fore-
going that most subjects may have, in fact, internalized
the B-P labeling system. The failure to find any im-
provement reflected in the 9-point continuum rating scale
ratings is not surprising. Because of the design and
nature of the rating scale, subjects were required to
analyze their observations and make value judgments.
Phase II data indicate subjects were not able to do this
appropriately. Evaluation requires higher level abstrac-
tion abilities which, apparently, were not developed in

subjects from the training provided by this study.

Very minimal instruction was provided subjects regarding qualitative judgments of management sessions. The labeling system in and of itself does not communicate all the essential information one needs to make value judgments. If human interaction is important, as any speech-language pathologist would agree it is, then to evaluate such interaction appropriately requires one to integrate both objective data and be able to assess qualitative aspects of the interaction. Interactional analysis systems do not provide their users with necessary qualitative information. The B-P system will tell one how often reinforcement follows correct responses, but nothing is communicated about how the reinforcement was delivered. Was the clinician sincere in his rewarding or simply going through the motions of coldly responding "good," "great," etc.? Was rapport and a humanistic understanding established with the client who needed it? The data obtained from a coding system such as the B-P does not provide for recording this kind of necessary evaluative information. The person faced with evaluating a management session must supplement the data provided from the interactional analysis system with information about how the interaction took place. This information is obtained by having a greater understanding of the interactive process than can be learned from the interactional analysis system

alone. A possible flaw in the present study is that it did not take into account the sophistication of the judgment demanded of the subject beyond the behavior labeling aspects of the B-P system.

Another possible variable is supervisor ratings. There is no guarantee that supervisor ratings were any more accurate than the student subjects' ratings. Perhaps supervisors were evaluating sessions based on a different focus from students. Student subjects may have focused more on the clinician's interactive style (affect), whereas, supervisors may have been much more interested in the clinician's clinical skills and performance. This would seem plausible considering comments made by subjects and considering the training and feedback roles of the supervisors. Comments by several subjects suggested clinicians were being judged and rated on the basis of their "likeableness." In one management segment the clinician, although efficient and task-oriented, maintained a neutral affect and little or no social interaction with her clients. Student subjects, on several occasions, said they rated the clinician low because they did not like the way she interacted with the children. Supervisors, on the other hand, rated the same clinician very highly based on her clinical effectiveness and good use of time.

Another consideration is supervisor bias. It was suggested by one supervisor that having had previous

contact with some of the clinicians participating in the
videotaped segments may have biased her ratings of those
clinicians. The supervisor had brought with her to the
evaluation session previously conceived impressions re-
garding the clinicians' performances and skill. The
supervisor had had previous exposure to the clinicians
and thus remembered at least some of her impressions.
This is additional information that none of the student
subjects would have had. Undoubtedly, such information
would be difficult to completely ignore or prevent from
biasing evaluative ratings in some way.

In retrospect, it should not be too surprising that
the results of this investigation do not reflect appro-
priate subjective observation evaluation abilities on the
part of participating subjects. Perhaps these abilities
come from years of experience. Obviously, they do not
come from coding instruction and a brief discussion on
behavior modification principles.

CHAPTER V

SUMMARY AND IMPLICATIONS

Summary

Student speech-language pathologists begin their
academic preparation as observers. Observations of the
clinical management session are for the purpose of pro-
viding student clinicians with insight into the manage-
ment process by providing clinical models. To make
observation experiences meaningful, there must be some
guiding framework which will demonstrate the significance
of behaviors observed. Interactional analysis systems
are behavior labeling devices utilized in the field of
speech-language pathology primarily to provide clinicians
and their supervisors with performance feedback. Since
interactional analysis systems are essentially guides for
focusing one's observations, the system's application to
beginning observational experiences was expected to make
the observational experiences more meaningful. The pur-
pose of this investigation was to determine the effect
Boone-Prescott Content and Sequence Analysis System (B-P)
instruction had upon the accuracy of beginning student
observation evaluations of clinical management sessions.

Sixteen Portland State University students and
two clinical supervisors participated in this investi-
gation. The experimental design allowed for a comparison
of student evaluative ratings of clinical management ses-
sions with supervisors' ratings, both prior to and after
students received instruction in the B-P system. This
system was intended to provide students with a behavior
labeling framework for the purposes of improving observa-
tional skills and evaluative abilities.

Data were analyzed using descriptive statistics.
Group mean values suggested an absence of training effect.
Pre-training evaluative ratings by subjects evidenced
large deviations from supervisors' ratings. Post-
training evaluative ratings were equally inappropriate.
Pre- and post-training phase mean values were essentially
the same. Had instruction in the B-P system been influ-
ential, one would expect the after-training mean value
for both experimental groups to be notably different
relative to the pre-training mean value. Training as
presented in the present investigation did not result in
more appropriate observation evaluation ratings by begin-
ning speech-language pathology students. From this out-
come, it was postulated experimental subjects had re-
ceived instruction which allowed them to identify specific
behaviors, but which did not provide them with the skills

necessary to gestalt bits of behavior into a professional
judgment.

Research Implications

It is believed because of the nature and complexity
of the evaluative process, as dealt with in the present
investigation, that a replication study would not be ad-
visable. A post-investigation informal study was per-
formed with four graduate-level speech-language pathology
students which suggested evaluative skills require time
to develop. The four graduate students had all previously
received training in the B-P system, had received B-P
feedback from supervisors, and had participated for at
least two terms in clinical management practicums. These
graduate students were believed to have sufficiently
greater experiential background than beginning students
which would allow them to be better able to evaluate
clinical management sessions. Upon this assumption, the
graduate students were asked to observe and evaluate the
same videotaped management segments beginning students
had observed and evaluated. The rating results indicated
that even graduate students having considerably more
clinical experience and training did not make evaluative
judgments which were any more appropriate than the begin-
ning student subjects of this investigation. The inference

drawn from this finding was that the graduate clinicians may be attending to different things. The state of the art may be that supervisors weigh some things as more important than others - or have a hidden agenda - in addition to the B-P. Another inference is that evaluative abilities require time to develop. That is, evaluative skills would seem to besomething one develops gradually over several years. Clinical experience would seem to be a necessary building block for developing a sufficient experiential background which would allow one to accurately evaluate the client's progress, the clinician's effectiveness, and the overall session quality.

An investigation dealing with the training of beginning students specifically in evaluative skills would be a worthwhile endeavor. Even if evaluative skills do require time to develop, it would be informative to investigate the effect specific instruction in such skills has on beginning or graduate level students' evaluative abilities. Training in the interactional analysis system would be included essentially in the same manner as the present investigation. Emphasis would then be focused on providing training in qualitative aspects of clinician-client interaction. Subjects should receive instruction and practice in assessing the variables significant to effective management interactions. That is, there needs to be training aimed at raising students' awareness of

not only the fundamental behavior modification paradigm,
but also how that paradigm is put into practice and what
human variables influence the management progress and
success.

Clinical Implications

The findings of this investigation suggest the use
of interactional analysis systems such as the Boone-
Prescott Content and Sequence Analysis system (B-P) have
a limited and specific role in their clinical application
in the field of speech-language pathology. The use of the
Boone and Prescott system for the purpose of guiding one's
observations of a management session is one such specific
role. Investigations such as Golper's (1976) have sup-
ported the efficacy of the Boone and Prescott system as a
framework for guiding beginning clinicians' observations.
Assisting students in the acquisition of behavioral prin-
ciples is another such specific purpose. This has been
demonstrated by Boone and Goldberg (1969) and Boone and
Stech (1970). A final, and perhaps primary purpose of
interactional analysis systems is that of providing super-
visors and student clinicians with relatively objective
feedback regarding clinical management sessions.

It must be kept in mind, the numerical codes yielded
by such systems as the B-P have minimal significance and

meaning in and of themselves. Instruction in the analysis and interpretation of such numerical data is essential if one wishes to abstract useful information which may be helpful in evaluating the management interaction. Further, the state of the art is that these evaluations collectively are essentially subjective biases of the trained clinician. It should be emphasized that although management interaction can be accurately observed and recorded with minimal training, accurate interpretation of such behaviors may not be such a readily acquired skill.

A post-investigation informal study was conducted utilizing four graduate speech-language pathology students. All students were judged to have considerably more experiential clinical background than the experimental subjects of this investigation. Each had received instruction in the Boone and Prescott system sometime during their academic preparation, and each had had B-P feedback discussed and analyzed with them by supervisors. These students were instructed to perform the same observations and evaluations that experimental subjects had performed. The evaluation results of the four graduate students combined with the evaluation results of experimental subjects suggest simply knowing how to give labels to observed behaviors does not mean one can make evaluative judgments about behaviors. The evaluative ratings of the four graduate students were as equally inappropriate as those

of the experimental subjects. Clinicians, student or
otherwise, must develop an understanding (a "feel" for,
if you will) of the qualitative aspects of clinical
interaction which make for either a good session or a
poor session. This evaluative ability is believed to
require time to establish and must not be an ability which
clinicians can be assumed to have while in a training pro-
gram or even after they have been graduated.

In light of the above, there would appear to be im-
plications for supervisory personnel as well. It would
seem the primary function of a supervisor is that of
developing a student's clinical skills. In performing
this function the supervisor is required to make a sub-
jective judgment as to the clinician's effectiveness
within the management session. If, in fact, evaluative
skills do require time to develop, then the validity of
the clinical judgments being made by supervisors who lack
sufficient experiential background to adequately qualify
them to make such judgments is a matter of concern for
training programs and the clinicians they train.

A survey conducted in 1975 by Schubert and
Aitchison was directed at clinical supervisors in the field
of speech-language pathology. Of a total of 204 colleges
and universities polled nationwide, 151 program directors
responded. Pertinent to the implications being discussed
are the following findings. The typical supervisor is a

female between the ages of 26 and 32 years, is employed full-time in a 9- to 10-month position which she has held for one to three years. She has a master's degree and has had between three to five years of paid clinical experience before becoming a supervisor. She has held no paid professional position as an instructor in speech pathology or audiology, and is not tenured. She has had no course work which would prepare her to supervise but she believes having specific academic preparation in the clinical supervision process is important for supervisors.

Although it was not the case in the present study, the typical supervisor would seem to be someone relatively knew to the training program and as such finds as her duties the supervision of students. Is she qualified for the supervisory role? It is, of course, impossible to answer the question from the profile presented. This pro-file does suggest, though, that clinical supervision is largely conducted by the younger, less experienced train-ing personnel. Since this study seemed to indicate that time is essential to learning to make subjective evalua-tive judgments, it is this aspect which may have the most significant clinical implications. The youngest, least clinically experienced personnel are in the position of molding and shaping the student clinician through evalua-tive feedback. How sure can we be that such feedback is accurate?

In performing the evaluative task, a supervisor using a system such as the Boone-Prescott Content and Sequence Analysis System must be aware of the need to expand upon and discuss with the student the significance of the numerical tracking codes obtained. The student should also be informed as to the criteria used by the supervisor in formulating an evaluation. The student should understand the supervisor's clinical expectations as well as his/her management philosophies. If the student lacks such insight, the evaluative process may be biased against the student.

BIBLIOGRAPHY

AMERICAN SPEECH-LANGUAGE-HEARING ASSOCIATION, ETB Manual.
Rockville, Maryland: ASHA (1977).

BANDURA, A., Vicarious processes: A case of No-trial
learning. In L. Berkowitz (Ed.), Advances in Experi-
mental Social Psychology, Vol. II. New York:
Academic Press (1965).

BANDURA, A., Principles of Behavior Modification. New York:
Holt, Rinehart and Winston, Inc. (1969).

BOONE, D. R. and GOLDBERG, A., An Experimental Study of
the Clinical Acquisition of Behavioral Principles by
Videotape Self-Confrontation. Final Report, Project
No. 4071, Grant No. OEG 8-071319, U.S. Department of
Health, Education and Welfare, Division of Research,
Bureau of Education for the Handicapped, Office of
Education (1969).

BOONE, D. R. and PRESCOTT, T. E., Application of Videotape
and Audiotape Self-Confrontation Procedures to
Training Clinicians in Speech and Hearing Therapy.
Final Report, Project No. 1412, Grant No. OEG 0-70-
4758(607), U.S. Department of Health, Education and
Welfare, Division of Research, Bureau of Education
for the Handicapped, Office of Education (1971).

BOONE, D. R. and PRESCOTT, T. E., Content and sequence
analysis. ASHA, 14, 58-62 (1972).

BOONE, D. R. and STECH, E. L., The Development of Clinical
Skills in Speech Pathology by Audiotape and Video-
tape Self-Confrontation. Final Report, Project No.
1381, Grant No. OEG 9-071318-2814, U.S. Department
of Health, Education and Welfare, Division of
Research, Bureau of Education for the Handicapped,
Office of Education (1970).

CONOVER, H., Conover analysis system. Paper presented at
the American Speech and Hearing Association Conven-
tion, Las Vegas (November, 1974).

FLANDERS, N. A., <u>Interaction Analysis in the Classroom:
    A Manual for Observers</u>. Ann Arbor: University of
    Michigan (1965).

GOLPER, L. A. C., The Efficacy of Teaching Interaction
    Analysis to Students in Speech Pathology. A
    clinical research project. Portland State University
    (1976).

HALL, R. V., <u>Managing Behavior, Part 2: Basic Principles</u>.
    Lawrence, Kansas: H and H Enterprises (1975).

HANLAN, J., Comparisons of Videotape Observation to Direct
    Observations. M.S. thesis, Portland State University
    (1980).

KUNZE, L., Program for training in observation. <u>ASHA</u>, 9
    473-476 (1967).

LONDON, R., The Modes and Morals of Psychotherapy. In
    W. H. Perkins, <u>Speech Pathology: An Applied Be-
    havioral Science</u>. St. Louis: The C. V. Mosby Co.
    (1977).

MILLENSON, J. R., <u>Principles of Behavior Analysis.</u>
    New York: The Mac Millan Co. (1968).

ORATIO, A. R., <u>Supervision in Speech Pathology: A Hand-
    book for Supervisors and Clinicians</u>. Baltimore:
    University Park Press (1977).

PERKINS, W. H., <u>Speech Pathology: An Applied Behavioral
    Science</u>. St. Louis: The C. V. Mosby Co. (1977).

SCHUBERT, G. W. and AITCHISON, C. T., A profile of clinical
    supervisors in college and university speech and
    hearing programs. <u>ASHA</u>, 17, 440-447 (1975).

SCHUBERT, G. W. and LAIRD, B. A., Length of Time Necessary
    to Obtain a Representative Sample of Clinician-
    Client Interaction. Paper presented at the American
    Speech-Language-Hearing Association Conventaon,
    Las Vegas (1974).

SCHUBERT, G. W., MINER A. L., and TILL, J. A., <u>The
    Analysis of Bheavior of Clinicians System</u>. Grand
    Forks, N. Dakota: University of North Dakota Press
    (1976).

SCHULTZ, M. C., <u>An Analysis of Clinical Behavior in Speech
    Pathology</u>. New Jersey: Prentice-Hall, Inc. (1972).

STECH, E. L., A Set of Learning Theory Categories for
        Analyzing the Speech Therapy Situation. An unpub-
        lished manuscript, Denver, Colorado (1968).

THOMAS, E. J., <u>Behavior Modification Procedures: A
        Sourcebook</u>. Chicago: Aldine Publishing Co. (1974).

YEN, S. and MC INTIRE, R. W., <u>Teaching Behavior Modification</u>.
        Michigan: Edwards Brothers, Inc. (1976).

APPENDIX A

INFORMED CONSENT

I, _____, hereby agree to

serve as a subject in the research project on the effect

of <u>Boone-Prescott Content and Sequence Analysis System</u>

instruction upon student subjective rating accuracy by

Douglas Peterson, Graduate Student, Speech and Hearing

Sciences Program, Portland State University.

I understand the study will involve viewing video-

taped articulation/language management sessions and sub-

jectively evaluating these sessions. Additionally, I

understand I will receive instruction in operant and re-

spondent conditioning and in the <u>Boone-Prescott Content and</u>

<u>Sequence Analysis System</u>.

I understand that there are no possible risks to me

associated with this study and my participation in no way

effects instructor evaluation of my participation in the

course for which I am currently enrolled.

It has been explained to me that the purpose of

this study is to compare the accuracy of student ratings

of management sessions before and after receiving instruc-

tion in the <u>Boone-Prescott Content and Sequence Analysis</u>

<u>System</u>.

I may not receive any direct benefit from participation in this study, but my participation may help to increase knowledge which may benefit others in the future.

Douglas Peterson has offered to answer any questions I may have about the study and I have been assured that all information I give will be kept confidential and the identity of all subjects will remain anonymous.

I understand that I am free to withdraw from participation in this study at any time without jeopardizing my relationship with Portland State University and the Department of Speech Communication, Speech and Hearing Sciences Program.

_____
Signature of Participant

Date: _____

If you experience problems that are the result of your participation in this study, please contact Victor Dahl, Office of Graduate Studies and Research, 105 Neuberger Hall, Portland State University, 229-3413.

APPENDIX B

BOONE-PRESCOTT TEN-CATEGORY SPEECH AND HEARING
THERAPY SESSION SCORING FORM

Category Counts			Category Counts		
Category	# of Events	% of Total	Category	# of Events	% of Total
1	_____	_____	6	_____	_____
2	_____	_____	7	_____	_____
3	_____	_____	8	_____	_____
4	_____	_____	9	_____	_____
5	_____	_____	10	_____	_____
Clinician Total	_____		Client Total	_____	

Sequence Counts

Sequence	# of Events
6/3	_____
7/4	_____
8/1,2	_____

Ratio Scoring

Correct Response $\dfrac{6}{6+7}$ = _____

Incorrect Response $\dfrac{7}{6+7}$ = _____

Good Eval Ratio $\dfrac{6/3}{6}$ = _____

Bad Eval Ratio $\dfrac{7/4}{7}$ = _____

Inappro. Response $\dfrac{8}{6+7+8}$ = _____

Direct Control $\dfrac{8/1,2}{8}$ = _____

Socialization $\dfrac{5+8}{Total}$ = _____

Therapy Evaluation

	No	Yes
A Good Session	1--2--3--4--5--6--7--8--9	
Therapist Effective	1--2--3--4--5--6--7--8--9	
Client Effective Progress	1--2--3--4--5--6--7--8--9	
Client Effectiveness Measures	_____ = _____	

Comments:

APPENDIX C

POST-TEST (FORM A)

Phase II, Experimental Groups A and B
Post-test (Form A)

Select the best answer by circling its corresponding letter.

1) Operant behavior is:

   a. emitted behavior.
   b. controlled by its consequences.
   c. significant to behavior modification principles.
   d. all of the above.

2) It is possible to <u>increase</u> and <u>decrease</u> operant
   behavior by:

   a. applying punishment.
   b. systematically arranging consequences.
   c. observing behaviors.
   d. operant behaviors cannot be increased or decreased.

3) To be effective, reinforcement must be:

   a. positive.
   b. negative.
   c. delayed.
   d. immediate and contingent.

4) If a child gives an incorrect response and the clini-
   cian says, "No!" the response will:

   a. decrease because the "No!" is punishing.
   b. be unaffected.
   c. increase.
   d. none of the above.

5) A shortcut way of getting a response to occur is by:

    a. hoping with all your might.
    b. using punishment.
    c. waiting.
    d. manipulating antecedent stimuli so they bring about a response.

6) A clinician may initially reinforce a child contin-uously for correct responses because learning occurs fastest by this pattern or reinforcement. Intermittant reinforcement should be used later because:

    a. the child likes it.
    b. it's easier to give.
    c. learning will last longer.
    d. it doesn't have to be contingent.

7) Modeling by the clinician and imitating by the child are behavior shaping techniques which are useful because:

    a. sometimes it is difficult to verbally explain certain behaviors.
    b. punishment is used.
    c. they require no skill.
    d. none of the above.

8) Prompting and Fading are behavior shaping techniques. They are used:

    a. infrequently.
    b. never.
    c. to punish.
    d. to get a new behavior started.

9) An example(s) of operant behavior(s) is(are):

    a. saying "wabbit" for "rabbit."
    b. singing in the shower.
    c. a bored student tapping the top of his desk.
    d. all of the above.

10) It is very important for speech-language clinicians to be:

    a. considerate.
    b. good observers of behavior.
    c. nicely dressed.
    d. studious.

Phase II, Experimental Groups A and B
Post-test (Form B)

Select the best answer by circling its corresponding letter.

1) Learning will <u>last longer</u> if responses are reinforced
   intermittantly. When teaching a new skill reinforce-
   ment should be given for appropriate responses in a
   continous pattern because:

   a. the response will be learned faster.
   b. it makes the client happy.
   c. it's easy.
   d. patterns of reinforcement really don't matter.

2) Reinforcement or punishment can be effective if:

   a. applied immediately and contingently.
   b. used seldomly.
   c. never used.
   d. used with adults.

3) In order to know what the response-stimulus relationships
   are in a clinical interaction, one must:

   a. study psychology.
   b. be able to take notes.
   c. make careful observations.
   d. know all about Skinner.

4) If a clinician wishes to <u>decrease</u> a child's inappro-
   priate responses he could:

   a. say "Good job!" following the response.
   b. wait for the response to go away.
   c. use punishing consequences.
   d. smile at the child.

5) By systematically arranging consequences of an operant
   behavior, one can:

   a. do nothing about the behavior.
   b. increase and decrease the behavior.
   c. create a disaster.
   d. get what one wants.

6) Manipulating antecedent (preceding) stimuli so they bring about an operant response may be thought of as:

    a.   quackery.
    b.   unethical
    c.   a shortcut way for getting a behavior to occur.
    d.   a way to punish a child.

7) Behavior which is emitted voluntarily is called:

    a.   the consequence.
    b.   insignificant behavior.
    c.   operant behavior.
    d.   none of the above.

8) Whistling as you walk down the street or writing a letter to a friend are:

    a.   operant behaviors.
    b.   not voluntary behaviors.
    c.   not behaviors.
    d.   never reinforcing.

9) To get a new behavior started it is sometimes helpful to use:

    a.   pleading.
    b.   suggestions from friends.
    c.   punishment.
    d.   prompting and fading techniques.

10) Because it is sometimes difficult to verbally explain a new behavior, a clinician and client may use:

    a.   paraphrasing.
    b.   modeling and imitation.
    c.   games.
    d.   pictures.

TEN-CATEGORY CONTENT AND SEQUENCE ANALYSIS SYSTEM

Phase II, All Subjects
Handout_____

Boone-Prescott Ten-Category Content
and Sequence Analysis System

Clinician Behaviors: The first five codes pertain to the
clinician's behaviors.

Number   Description

   1   EXPLAIN, DESCRIBE   The clinician describes or explains
                           the specific goals or precedures
                           of the session

                           Examples: "Now, it's time to work
                           on our /r/ words" or "Let's get
                           ready to name some colors."

   2   MODEL, INSTRUCTION The clinician specifies client be-
                           havior be direct modeling or by
                           a specific request.

                           Examples: "Say, rah, rah, rah" or
                           Say, the girl is running."

   3   GOOD EVALUATIVE   The clinician evaluates the
                           client's response and indicates
                           approval either verbally or non-
                           verbally.

                           Examples: "Good job, you said rah
                           with a perfect /r/ sound" or
                           "Fantastic! You named all the
                           colors correctly."

4   BAD EVALUATIVE   The clinician evaluates the
                        client's response as incorrect
                        and gives a verbal or nonverbal
                        disapproval.

                        Examples: The child incorrectly
                        produces an /r/ sound. "No, I
                        don't want wah, wah, wah" or
                        "Not right, let's say that sen-
                        tence again."

5   NEUTRAL, SOCIAL   The clinician engages in be-
                        havior that is not management
                        goal oriented. Sometimes called
                        a "wastebasket" category be-
                        cause any clinician behavior
                        that can't be placed in any
                        other category goes here.

                        Examples: "Oh Billy, what a
                        pretty shirt you're wearing
                        today" or "We're going to have
                        fun today; you just wait and see."

Client Behaviors: Numbers 6 through 10 pertain to the
                   client's behaviors.

6   CORRECT RESPONSE   The client makes a response
                        which is correct in terms of the
                        stated management goals, or the
                        clinician stimulus.

                        Examples: The child correctly
                        says the /r/ sound, or the child
                        correctly nods her head "yes"
                        when the clinician asks if the
                        yellow block is yellow.

7   INCORRECT RESPONSE The client makes a response
                        that is incorrect according to
                        the stated management goals or
                        clinician requests.

                        Examples: A child saying, "The
                        girl eated the cake" for "The
                        girl ate the cake" or saying
                        "wah, wah, wah" for "rah, rah,
                        rah."

8   INAPPROPRIATE and   The client makes a response or
       SOCIAL (irrelevant   engages in social conversation
       behaviors)   that is not appropriate to the
                          management goals. Sometimes
                          called a "wastebasket" category
                          because any <u>client</u> behavior
                          that cannot be placed in any
                          other category goes here.

                          Examples: The clinician may
                          want the child to say "rabbit,"
                          but the child starts to discuss
                          the color of the clinician's
                          shirt or hair, or the child may
                          want to tell the clinician
                          what will be happening at
                          school that day.

9   POSITIVE SELF-   The client positively rein-
       REINFORCEMENT   forces himself (rewards himself
                          in an observable manner) verb-
                          ally or non-verbally when he
                          considers his response correct.

                          Examples: The child makes a
                          correct response and then com-
                          ments, "I think I did pretty
                          good on that one" or "I did
                          it just like you told me to."

10   NEGATIVE SELF-   The client negatively rein-
       REINFORCEMENT   forces himself (punishes or re-
                          moves a positive reinforcer)
                          verbally or non-verbally when
                          he considers his response to
                          be incorrect.

                          Examples: The child makes an
                          incorrect response and then
                          says, "Oops, I said it wrong"
                          or "I forgot to touch my teeth
                          with my tongue that time."

<u>Scoring</u>:

     Scoring or coding is performed by either observing

a live management session or a session which has been video-

taped or audiotaped. The observer sequentially records

the clinician and client behaviors using the Ten-Category system as a labeling device.

The units of scoring are sentences and phrases. This means a number code is given to each sentence or phrase even though the category may not change. This will be explained more fully by example shortly.

I will now provide some examples of how the coding is performed. Please follow along by looking at your handout labeled SAMPLE SCORING SHEET.

APPENDIX E

SAMPLE CODING SHEET

Phase II, All Subjects
Handout _____

Sample Coding Sheet

Category #	Speaker	Dialogue
_____	Clinician:	Today, Billy, we're going to work on our /s/ sound.
_____	Client:	I'm going camping over the week-end.
_____	Clinician:	You'll have lots of time to practice your sound up there.
_____	Client:	We get to stay until Tuesday. So I won't be here next week.
_____	Clinician:	Let's talk about camping later. Today I want us to get some work done.
_____	Client:	You never want to talk anymore.
_____	Clinician:	We just don't have time to talk so much, Billy.
_____	Client:	You want to go with us?
_____	Clinician:	Let's say our /s/ sounds now. Say, saw, saw, saw.
_____	Clinician:	Pay attention Billy. Say, saw, saw, saw.
_____	Client:	Tha, tha, tha.

_____ Clinician: I don't want tha, tha, tha.

_____ Client: Tha, tha, tha.

_____ Clinician: Nope. You're biting your tongue when you say it that way.

_____ Client: I never could say it right.

_____ Clinician: I just heard you say, say. That was a perfect /s/ sound.

_____ Clinician: Say, say, say, say.

_____ Client: Say, say, say.

_____ Clinician: Great! You said the /s/ sound perfectly.

APPENDIX F

MANAGEMENT EVALUATION RATING FORM

Phase II   Name: _____
Experimental Groups A and B
Handout_____   Date: _____

Management Evaluation Rating Form

<u>Videotape Segment #1</u>
                                    No   Yes
A Good Session   1--2--3--4--5--6--7--8--9
Clinician Effective   1--2--3--4--5--6--7--8--9
Client Effective Progress   1--2--3--4--5--6--7--8--9

<u>Videotape Segment #2</u>
                                    No   Yes
A Good Session   1--2--3--4--5--6--7--8--9
Clinician Effective   1--2--3--4--5--6--7--8--9
Client Effective Progress   1--2--3--4--5--6--7--8--9

<u>Videotape Segment #3</u>
                                    No   Yes
A Good Session   1--2--3--4--5--6--7--8--9
Clinician Effective   1--2--3--4--5--6--7--8--9
Client Effective Progress   1--2--3--4--5--6--7--8--9

<u>Videotape Segment #4</u>
                                    No   Yes
A Good Session   1--2--3--4--5--6--7--8--9
Clinician Effective   1--2--3--4--5--6--7--8--9
Client Effective Progress   1--2--3--4--5--6--7--8--9

<u>Videotape Segment #5</u>
                                    No   Yes
A Good Session   1--2--3--4--5--6--7--8--9
Clinician Effective   1--2--3--4--5--6--7--8--9
Clinet Effective Progress   1--2--3--4--5--6--7--8--9