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ABSTRACT

The purpose of this study was to investigate the frequency and type of nonverbal behaviors which occur in the speech pathology clinical practicum situation. It was hypothesized that undergraduate and graduate student clinicians ranked highest by clinical supervisors would differ in the use of nonverbal behaviors during the therapy session from those student clinicians ranked lowest. The following conclusions were drawn from the analysis of the data: high-rated and low-rated clinicians differ in the number of nonverbal behaviors they use in the clinical therapy setting; high-rated clinicians use significantly more of the nonverbal behaviors which serve as social reinforcers, including smiles, positive head nods, and eye contact; predictions can be made as to whether a clinician is high- or low-rated based on the number of particular nonverbal behaviors he employs; and the ratings of clinicians by supervisors may be influenced by the clinician's use of or nonuse of nonverbal behaviors. (RB)

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NONVERBAL BEHAVIORS OF SPEECH PATHOLOGISTS
IN THE THERAPY SETTING

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Introduction

The profession of speech pathology is concerned with human interaction and communication. Clinician-client interactions focus on verbal behavior. Researchers in the field of speech pathology have gathered little data on the nonverbal dimension of the communication process within the therapy setting, leaving to be investigated the extent to which the clinician-client relationship is affected by the nonverbal behaviors of the clinician. This paper investigates some nonverbal behaviors as they relate to the judged clinical skills of student-clinicians.

In the broadest sense communication includes all of the processes by which one individual may affect another. Verbal communication, which is only one aspect of the total process, is a specific form of message transmission which uses word symbols to represent real objects and ideas. The counterpart of verbal communication is nonverbal communication. This mode of sending messages includes all forms of transmission not represented by word symbols.

Nonverbal communication is important because of the role it plays in the total communication system, the tremendous quantity of informational cues it gives in any particular situation, and because of its use in fundamental areas of our daily life (Knapp, 1972, p. 21).

Egolf and Chester (1973, p. 511) state that "to have social contact without the transmission of nonverbal messages, in fact, is essentially impossible." In speech pathology where emphasis is on effectiveness of communication in the process of changing behavior, it is important that consideration be given to the area of nonverbal communication in the clinical setting.

Purpose

The purpose of this study was to investigate the frequency and type of nonverbal behaviors which occurs in the speech pathology clinical practicum situation. It was hypothesized that student clinicians ranked highest by clinical supervisors would differ in the use of nonverbal behaviors during the therapy session from those student clinicians ranked lowest.

Research Question

The research question to be answered by the study was: is there a significant difference between high- and low-rated clinicians in the observed frequency of each of ten selected nonverbal behaviors?

Procedure

Subjects

Graduate and undergraduate student clinicians who served as subjects for this study met the following criteria:

1. Subjects were majoring in Speech Pathology and Audiology at the University of North Dakota.
2. Subjects were those clinicians who were assigned to provide therapy to a client of preschool or school age at the University of North Dakota Speech and Hearing Clinic.

These clinicians were evaluated using the Criteria for Evaluating Clinicians in the Therapy Setting (Appendix A). The evaluation was done independently by the two faculty members primarily responsible for clinical supervision in the Clinic. Each student clinician was rated on a scale of one to seven for each of the twelve criteria. The scores on the twelve criteria were then summed to provide

one total score for each clinician. Clinicians whose total scores differed by six or more points between supervisors were excluded from the study.

The student clinicians were ranked according to their total score from high to low. The 33 per cent who ranked highest made up one group to be studied, while the 33 per cent who ranked lowest made up the second group. Each group was composed of eight students. The experimenter was given the names of the students who would serve as subjects for the study, but was not told to which of the two groups each subject belonged. Two subjects from the low-ranked group cancelled out of clinical practicum during the study. Therefore, the total number of subjects was fourteen, eight subjects in the high-rated group and six in the low-rated group.

Apparatus and Environment

The following equipment was used for the collection of data:

- 1) Ampex camera Model 3074, 2) Ampex recorder Model VR5100,
- 3) Shibaden monitor Model VM903, and 4) one inch Memorex and Scotch videotape.

Two rooms were used, a therapy room and an adjacent observation room. The observation room was equipped with a one-way mirror which allowed videotape recording without interruption of the therapy session. The videotape equipment was placed in the observation room. The therapy room was equipped with one table and two chairs. Each therapist was informed that he would be videotaped, but was not given an explanation for the videotaping. Videotaping was done during the regularly scheduled therapy time.

Explanation of System

The following were the ten nonverbal behaviors which were to be counted:

1. Smile - defined as the upward bilateral extension of the lateral aspects of the lip region from a position of rest with a pleasant connotation.
2. Positive head nod - defined as a distinct bidirectional movement of the head on the vertical plane, or a continuous sequence of such movements with eye position held constant.
3. Negative head nod - defined as a distinct bidirectional movement of the head on the horizontal plane or a continuous sequence of such movements with eye position held constant.
4. Gestures - defined as movement of arm, hand, finger, not in moving contact with another part of the body. Excluded were arm and hand movements directly related to therapy tools, such as picking up a picture or handing a client a reinforcement. Included were pointing, clapping, illustrating, defining, or commanding gestures, i.e., "over there," "sit here," "see this."
5. Self-manipulation - defined as a response that involved motion of a part of the body in contact with another part of the body, either directly or mediated by an instrument.
6. Negative touch - defined as bodily contact between clinician and client in a manner to restrain or punish physically.

7. Positive touch - defined as bodily contact between clinician and client other than to restrain or punish.
8. Eye contact - defined as the clinician looking in the direction of the face of the client and then away. The client was not required to establish mutual eye contact with the clinician.
9. Postural change - defined as gross movements of the body trunk or a shift in the position of the hips, except a forward lean.
10. Forward lean - defined as forward movement of the upper body of the clinician away from the vertical plane defined by a line from the clinician's hips to the shoulder.

The ten nonverbal behaviors which were selected for observation met the following criteria:

1. They occurred regularly in pre-experimental observation.
2. They were stated in the literature to be important in the process of communication.

The behaviors were tallied on the basis of frequency, that is, the number of times each behavior occurred within the five minute segment of therapy that was videotaped. Because of the limitations of the videotape equipment, the behaviors observed were those occurring above the table, no foot or leg movements were recorded. Cyclical movements such as a lean forward and then back to the previous position were scored as one behavior. Behaviors which occurred for a continuing

period of time (including eye contact, and positive and negative touch) were recorded again after five seconds as suggested by Mehrabian (1969).

Procedures

Each clinician from the two groups was videotaped for one randomly-selected five-minute segment from each of three forty-minute therapy sessions. Randomization was accomplished by establishing all the possible five-minute time periods within the forty-minute therapy session. These time periods were written on cards and dropped in a box. Three time periods were selected for each clinician, placing each time period card back in the box before drawing another. Each clinician was then videotaped during the specified five-minute time periods. Based on the findings of Boone and Prescott (1972), neither the first five minutes nor the last five minutes of a therapy session were taped. They stated that the first five and last five minutes of a therapy session were not representative of a typical therapy.

The experimenter then viewed these five-minute videotapings and counted the occurrence of each of the ten nonverbal behaviors under investigation (Appendix B). The viewing took place in a small, quiet room. Each tape was played through the number of times necessary to count each of the nonverbal behaviors. A tally counter was used so the viewer would not have to look away from the screen while counting

behaviors. The videotapings were recorded with voice, but to avoid contamination of nonverbal behaviors by verbal cues, the sound was turned off during viewing.

Reliability

Intra-observer reliability was established by viewing and counting behaviors on the first four sample sessions that were recorded. A period of twenty-four hours was allowed, and then the same segments were counted again. The results from the two observations were compared by use of the Pearson product-moment correlation coefficient and yielded an r of +1.0 for the categories of smile, self-manipulation, negative touch, positive touch, and posture change; .99 for gesture and forward lean; .95 for positive head nod; and .90 for negative head nod and eye contact.

Inter-observer reliability was established by having a trained graduate student tally behaviors from the same tape as the experimenter. Again the number of tallies per behavior were compared by use of the Pearson product-moment correlation coefficient and yielded an r of +1.0 for the categories of smile, negative head nod, self-manipulation, positive touch, negative touch, and forward lean; .99 for positive head nod and gesture; .95 for posture change; and .92 for eye contact.

Results

The total number of occurrences of each nonverbal behavior was counted for each clinician for the three different five-minute therapy sessions. The mean occurrence of the nonverbal behaviors for each clinician was established. Means were then calculated for each behavior for high- and low-rated groups of clinicians.

The question to be answered by this study was: is there a significant difference between high- and low-rated clinicians in the observed frequency of each of the ten selected nonverbal behaviors? Table 1 shows the group means of each of the nonverbal behaviors. In all behaviors except self-manipulation, the high-rated clinicians demonstrated a greater use of nonverbal behaviors. The mean of the total nonverbal behaviors for the two groups was 98 for the high-rated group and 69 for the low-rated group.

Table 1 also reports the t -test scores. The nonverbal behaviors which showed significant differences between the high- and low-rated groups were: smile and eye contact ($.05 > p > .025$), and positive head nods ($.025 > p > .01$). Total nonverbal behaviors for the two groups also showed a significant difference ($.025 > p > .01$).

Because the behaviors selected for this study were not inclusive of all possible nonverbal behaviors, limited conclusions may be made about the significance of total behaviors. The three behaviors seen as

significant from the t-test analysis are those stated by Dittman and Llewellyn (1968) to act as signals in social interaction. It is evident then, that high-rated clinicians use more of these signals in their communication with a client than do low-rated clinicians.

TABLE 1
MEANS, STANDARD DEVIATIONS, AND t-TEST SCORES OF NONVERBAL BEHAVIORS FOR HIGH- AND LOW-RATED GROUPS

Category	\bar{X} -High	\bar{X} -Low	sd-High	sd-Low	t
1. Smile	7.461	2.610	4.891	3.089	1.973 ^a
2. +Nod	10.584	5.388	4.351	2.752	2.375 ^b
3. -Nod	2.750	0.998	2.369	1.121	1.552
4. Gesture	12.000	10.223	7.519	4.004	0.487
5. Self-Man.	3.250	5.500	3.179	6.545	-0.785
6. -Touch	0.959	0.555	1.800	0.737	0.479
7. +Touch	3.749	0.277	6.496	0.486	1.210
8. Eye Cont.	45.001	37.945	4.410	8.456	1.872 ^a
9. Post. Ch.	4.042	1.223	3.709	1.214	1.658
10. For. Lean	<u>8.584</u>	<u>4.113</u>	<u>5.164</u>	<u>3.431</u>	<u>1.702</u>
Total	98.380	68.833	19.700	20.421	2.531 ^b

^aSignificant at $.05 > p > .025$ (with 13 d.f.)

^bSignificant at $.025 > p > .01$ (with 13 d.f.)

Figure 1 is a graphic representation of the means for each of the ten nonverbal behaviors for each of the two groups. It was noted that the basic pattern of behavior for the two groups was similar; the difference was one of degree. That is, with the exception of self-manipulation, the high-rated group used more of each particular behavior in the clinical therapy setting than the low-rated group.

Nonverbal behaviors which showed a small number of occurrences were: negative head nods (2.75 and 1), and negative touch (1 and .5) for high- and low-rated clinicians respectively, and positive touch

(.27), and posture change (1) for low-rated clinicians. The most frequently occurring behaviors were eye contact (45 and 38), positive head nods (10 and 5), and gestures (12 and 10) for high- and low-rated clinicians respectively.

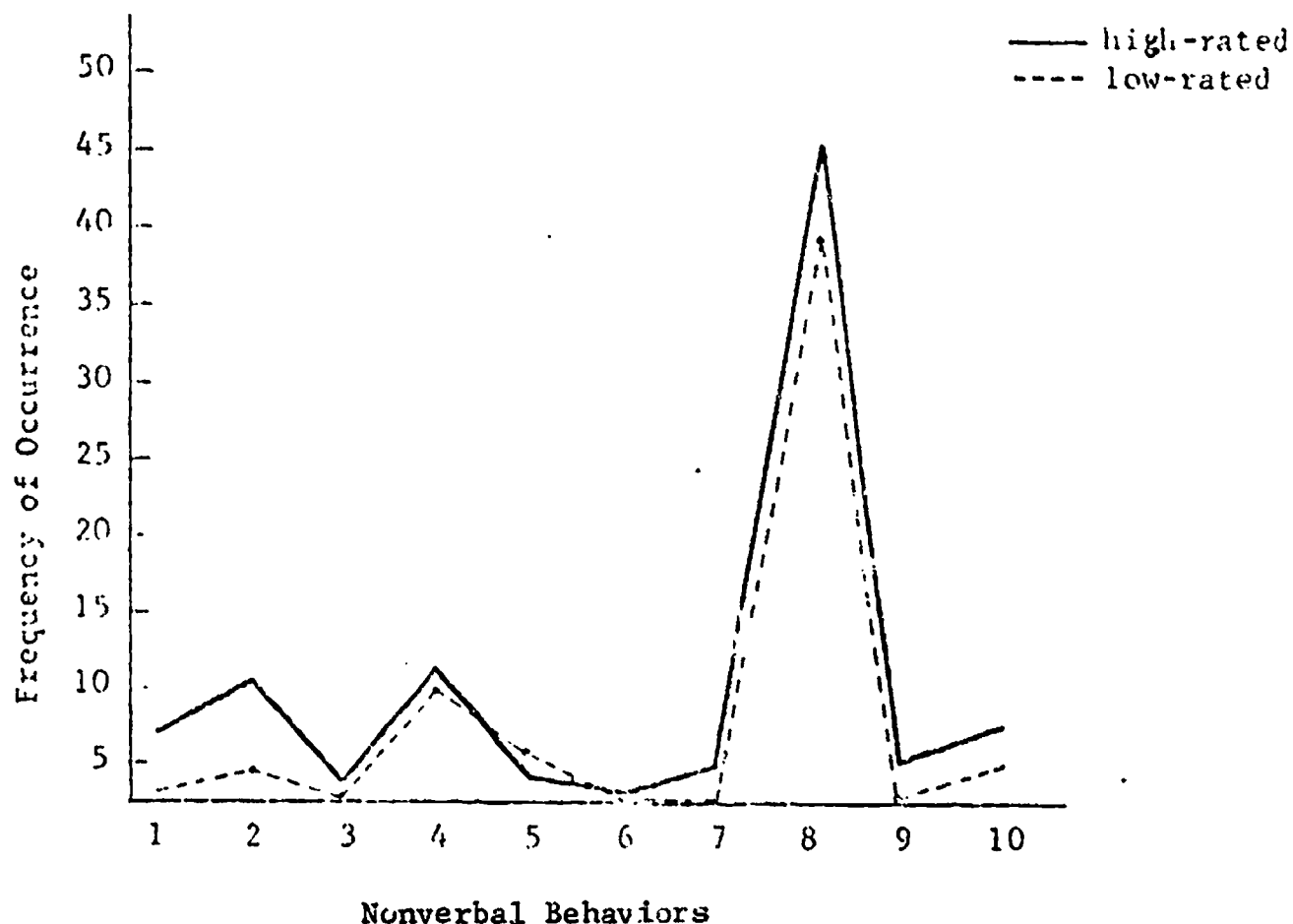


Fig. 1.--Mean number of occurrence of ten nonverbal behaviors for high- and low-rated groups.

A stepwise regression analysis was used to determine whether the deletion of a given independent variable to the regression equation showed significant drop in prediction. The results are shown in Table 2.

According to Table 2, the variables (nonverbal behaviors) which are significant as a group for prediction of group differences include forward lean, negative head nod, gesture, positive touch, positive head nod and smile. This group of six behaviors may be used to predict group

differences. The addition of each behavior in the regression--self-manipulation, eye contact, and posture change--adds a greater degree of predictability to the set of variables. Caution should be used in placing too much emphasis on the order of importance, however, in that only fourteen subjects have been utilized in forming the predictions. More confidence could be placed in a given order with a greatly increased sample size.

TABLE 2
ANALYSIS OF REGRESSION OF THE
TEN NONVERBAL BEHAVIORS

Variable	Step	Mult. R.	R ²	F	df
None	1	.97482	.95027	5.73198	10/3
-Touch	2	.97087	.94258	7.29564 ^a	9/4
Post. Ch.	3	.96332	.92798	8.05323 ^a	8/5
Eye Cont.	4	.94132	.88608	6.66703 ^a	7/6
Self-man.	5	.90098	.81177	5.03139 ^a	6/7
Smile	6	.83790	.70208	3.77065 ^a	5/8
+Nod	7	.72704	.52858	2.52285	4/9
+Touch	8	.66697	.44484	2.67098	3/10
Gesture	9	.61824	.38222	3.40281	2/11
-Nod	10	.44090	.19439	2.89553	1/12
For. Lean	11				

^aSignificant at the .05 level

It was suggested in Chapter 1 that nonverbal behaviors employed by clinicians may be related to the quality of their overall clinical performance. This overall performance was judged according to specific criteria (Appendix A).

A question that was not directly asked by this study but noted to be relevant and available from the statistical analysis was: what is the relationship between each of the ten nonverbal behaviors examined

by this study, and the specific criteria of the evaluation used to establish the high and low groups? The correlation coefficients are shown in Table 3.

The nonverbal behaviors which showed significant correlations to the evaluation criteria were: smile, positive head nod, negative head nod, self-manipulation, positive touch, and eye contact.

Smiles correlated significantly with five of the evaluation criteria: establishes rapport (.49), is confident (.54), uses appropriate communication (.48), is interested and enthusiastic (.53), and establishes appropriate goals (.45). Clinicians who are more confident and enthusiastic may express this in a higher rate of smiling. Rapport is more easily established in an atmosphere of approval and liking reflected by frequent smiles.

Positive head nods correlated significantly with: is confident (.51), controls (.52), is interested and enthusiastic (.49), establishes appropriate goals (.68), chooses appropriate therapy techniques (.45), and effectively motivates client (.48), for a total of six criteria. Again, a clinician who shows more interest and enthusiasm is using more positive head nods, important to social interaction. Serving as a means of social reinforcement positive head nods could be seen to aid in the motivation of the client.

The nonverbal behavior which correlated significantly with the largest total number of evaluating criteria was negative head nods. The eight criteria with which negative head nods correlated were: establishes rapport (.63), is confident (.47), uses appropriate communication (.45), controls (.45), is interested and enthusiastic (.50), effectively motivates (.58), modifies (.53), and evaluates

TABLE 3
CORRELATION COEFFICIENTS OF NONVERBAL BEHAVIORS
WITH CRITERIA OF EVALUATION FORM

Evaluation Criteria	Nonverbal Behaviors											
	1. Smile	2. +Nod	3. -Nod	4. Gest.	5. Self- manipul.	6. -Touch	7. +Touch	8. Eye Contact	9. Post Change	10. For. Lean	11. Total	
1. Rapport	.49 ^a	.44	.63 ^c	.34	-.48 ^a	-.02	.38	.57 ^b	.24	.27	.56 ^b	
2. Confidence	.54 ^b	.51 ^a	.47 ^a	.27	-.38	.07	.32	.53 ^b	.35	.43	.59 ^b	
3. Problem	.38	.15	.33	.11	-.61 ^c	.16	.18	.48 ^a	.30	.11	.29	
4. Communication	.45 ^a	.38	.45 ^a	-.15	-.16	.36	.46 ^a	.10	.38	.30	.39	
5. Control	.35	.52 ^a	.45 ^a	.10	-.23	.10	.31	.27	.36	.35	.45 ^a	
6. Interest	.53 ^b	.49 ^a	.50 ^a	.17	-.35	.14	.36	.47 ^a	.28	.35	.51 ^b	
7. Est. Goals	.45 ^a	.60 ^d	.32	-.03	-.04	.05	.44	.25	.29	.25	.47 ^a	
8. Techniques	.29	.45 ^a	.13	-.12	-.04	.12	.18	.03	.44	.31	.29	
9. Motivates	.29	.48 ^a	.58 ^b	.13	-.49 ^a	-.05	.39	.31	.27	.18	.37	
10. Modifies	.27	.37	.53 ^b	.05	-.57 ^b	-.09	.38	.32	.24	.15	.30	
11. Evaluates	.18	.37	.50 ^a	-.03	-.64 ^c	-.13	.40	.27	.20	.03	.20	
12. Ach. Goals	.18	.36	.37	-.02	-.52 ^a	-.01	.20	.30	.40	-.05	.19	
Total	.43	.49 ^a	.52 ^a	.10	-.45 ^a	.06	.38	.40	.34	.27	.45 ^a	

^aSignificant at .05 > p > .025

^bSignificant at .025 > p > .01

^cSignificant at .01 > p > .005

^dSignificant at .005 > p > .0005

progress (.50). Because of the number of criteria with which both positive and negative head nods correlate, it is suggested that a clinician either uses both positive and negative head nods frequently, or does not use either.

Self-manipulation, the mean rate of which increased with the low-rated group, was seen to correlate negatively with six of the evaluation criteria. These criteria were: establishes rapport (-.48), recognizes problem (-.61), effectively motivates (-.49), modifies therapy (-.57), evaluates progress (-.64), and accomplishes goals (-.52). Low-rated clinicians were judged to be less confident than high-rated clinicians. It is hypothesized that this lack of confidence is expressed in high rates of self-manipulation in the low-rated clinician.

Positive touch correlated significantly with only one criterion: uses appropriate communication for the age and ability of the child (.48). Touch was found to be associated with a positive attitude. A clinician who does not talk above or below the level of the client is also communicating a more positive attitude.

Eye contact correlated significantly with four of the criteria: establishes rapport (.57), is confident (.53), recognizes problem (.48), and is interested and enthusiastic (.47). Again, the clinician who is rated high on these criteria, by his frequent use of eye contact, may be expressing an interest in the client and his needs. A clinician who is less confident may use less eye contact, expressing his uneasiness.

The nonverbal behaviors which did not correlate significantly with any of the criteria were: gestures, negative touch, posture change, and forward lean. These behaviors then may not be as important to the judged overall performance of a clinician as those that do correlate significantly. There were no criteria which did not correlate significantly with at least one nonverbal behavior.

Finally, correlation coefficients were established between each of the nonverbal behaviors to test the extent to which the frequency of use of the various categories related to each other. The results are presented in Table 4.

The specific nonverbal behaviors which the literature suggests, tend to reflect a liking of the addressee, are employed as a means of expressing approval, and as a means of reinforcement are higher rates of: smile, head nod, gesture, touch, eye contact, and forward lean. One might anticipate a relatively high relationship between these categories of behavior.

Table 4 shows smiles significantly correlated with gestures (.62), eye contact (.46), and forward lean (.58). Positive head nods correlated significantly with negative head nods (.46), positive touch (.48), and eye contact (.49), but correlated negatively with negative touch (-.48). Negative head nods correlated significantly with positive touch (.91). Gestures correlated with eye contact (.62), and forward lean (.61), and eye contact correlated with forward lean (.51). Of the twenty-eight possible inter-correlations of these eight behaviors, twelve were found to be significant.

It was noted that, unlike Rosenfeld's findings (1966), this study did not find a significant correlation between smiles and positive

TABLE 4
CORRELATION COEFFICIENTS FOR NONVERBAL BEHAVIORS

Nonverbal Behaviors	2. +Nod	3. -Nod	4. Gesture	5. Self-manipul.	6. -Touch	7. +Touch	8. Eye Cont.	9. Post. Ch.	10. For. Lean	11. Total
1. Smile	.40	.36	.62 ^c	-.14	.19	.30	.46 ^a	-.16	.58 ^b	.74 ^d
2. -Nod		.46 ^a	.57	.10	-.48 ^a	.48 ^a	.49 ^a	.22	.35	.73 ^d
3. -Nod			.12	-.32	-.20	.91 ^e	.18	.02	-.05	.43
4. Gesture				-.12	-.28	-.10	.62 ^c	-.07	.61 ^c	.63 ^d
5. Self-man.					.17	-.20	.01	-.09	.12	.12
6. -Touch						-.15	-.07	.03	.21	-.05
7. +Touch							.05	.04	-.07	.36
8. Eye Cont.								.15	.51 ^a	.73 ^d
9. Post. Ch.									.29	.22
10. For. Lean										.74 ^d

^aSignificant at .05 > p > .025
^bSignificant at .025 > p > .01
^cSignificant at .01 > p > .005
^dSignificant at .005 > p > .0005
^eSignificant at .0005 > p

head nods. A positive correlation (.40) was found, but it did not meet the criteria for significance at the .05 level of confidence.

Specific nonverbal behaviors which were suggested in the literature to correlate with relaxed posture (Mehrabian and Williams, 1969; and Mehrabian, 1968) were higher rates of gesture and forward lean. These two behaviors were positively correlated (.61). Again, high-rated clinicians use more of these behaviors suggesting them to be more relaxed in the therapy session than those who were low-rated.

Specific nonverbal behaviors which were suggested in the literature to reflect discomfort (Rosenfeld, 1966), were high rates of self-manipulation and postural change. Self-manipulation and posture change did not correlate with any other nonverbal behaviors thus indicating them to be independent behaviors within the limits of this study. Self-manipulation is the only nonverbal behavior which the low-rated group used more than the high-rated group. It is reasonable to assume that if a clinician is doing more self-manipulating he has less time to do the more reinforcing types of nonverbal behaviors.

Posture change was seen to occur more often in the high-rated group. It was noted, however, that posture change for this group of subjects was mainly a change from seated to standing position, or from seated to leaning down to pick up new material. This differs from the turning away or constant change of position indicative of discomfort. The posture changes seen usually initiated a new activity, a stand-up game, or the introduction of new materials. Therefore, posture changes may not be seen as reflecting discomfort.

The nonverbal behaviors which correlated with the total number of nonverbal behaviors were: smile (.74), positive head nod (.73),

gesture (.69), eye contact (.78), and forward lean (.74). All correlations meet the criteria for significant at the .005 level of confidence.

Conclusions

The following conclusions were drawn from the analysis of the data:

1. High-rated and low-rated clinicians differ in the number of nonverbal behaviors they use in the clinical therapy setting.
2. High-rated clinicians use significantly more of the nonverbal behaviors which serve as social reinforcers and as signals in social interaction, than did low-rated clinicians. These behaviors are: smiles, positive head nods, and eye contact.
3. Predictions can be made as to whether a clinician is high- or low-rated based on the number of particular nonverbal behaviors he employs. Typically, the higher-rated clinician employs more nonverbal behaviors than the low-rated clinician.
4. The ratings of clinicians by supervisors may be influenced by the clinician's use of or nonuse of nonverbal behaviors. This finding is supported by the correlations between the criteria used for evaluating clinicians and some of the nonverbal behaviors.

5. Particular nonverbal behaviors occur in conjunction with one another. A clinician who uses frequent head nods uses both negative and positive head nods. Other behaviors that occur as a group are gestures, eye contact, forward lean, and smiles.
6. Low-rated clinicians use more distracting self-manipulations during a therapy session than do high-rated clinicians.

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APPENDIX B

RAW DATA COLLECTION SHEET

Clinician:
Sex: M F
Clinical Prac. Level: 02 03 04 05
Client age:
Client disorder:
Group: HR LR

Nonverbal Behaviors:

Sessions:

	1	2	3
Smile	_____	_____	_____
Positive head nod	_____	_____	_____
Negative head nod	_____	_____	_____
Gesticulation	_____	_____	_____
Self-Manipulation	_____	_____	_____
Negative touch	_____	_____	_____
Positive touch	_____	_____	_____
Eye contact	_____	_____	_____
Postural change	_____	_____	_____
Forward lean	_____	_____	_____

Comments: