

A METHODOLOGICAL DISCUSSION OF NONVERBAL  
BEHAVIOR\*

*Department of Psychology, Adelphi College*

---

PAUL EKMAN<sup>1</sup>

---

The behavior of the organism in any interpersonal situation can be classified into three categories: verbal, vocal, and nonverbal. These three types of behavior can be distinguished in terms of their medium of expression, the manner in which they are perceived, their developmental sequence, and their communicative value.

Verbal behavior, which can be defined as the content of an organism's spoken statements, and vocal behavior, the timbre, pitch, and intensity of a spoken statement, are both motor expressions originating in the pharynx. Nonverbal behavior, which is defined as the body movements of the organism, also consists of motor expressions, though they may originate in various parts of the body. Verbal and vocal behavior are similar in that they are both perceived through the auditory senses. Nonverbal behavior is chiefly perceived through the visual sense organs, though occasionally this is supplemented by auditory and tactual sensations.

The organism learns about both itself and its surroundings and communicates chiefly through nonverbal and vocal behavior during the earliest part of its life. Later, verbal behavior emerges and it tends to become the form of communication which commands most attention. Nonverbal and vocal behavior are also alike in reference to their later communicative value. All three forms of behavior have both consensually validated linguistic or symbolic meaning, and more private or autistic connotations. Verbal far exceeds vocal or nonverbal behavior in degree of codification and consequent symbolic use. Although some gestures, postures, facial expressions, and vocal inflections, achieve definite symbolic usage, for the most part vocal and nonverbal behavior are less defined as to their meaning or intent.

The basic assumption, however, in this discussion, is that although non-

---

\*Received in the Editorial Office on December 10, 1956, and published immediately at Provincetown, Massachusetts. Copyright by The Journal Press.

<sup>1</sup>This paper is based on an investigation supported by a pre-doctoral research fellowship from the Institute of Mental Health of the National Institutes of Health, Public Health Service. The writer is indebted to Dr. Gordon F. Derner and Dr. Robert Berryman for their guidance and criticisms in the research reported, and in the preparation of the manuscript.

verbal and vocal behavior after early childhood come to be largely ignored for purposes of conversation, they do have significant communicative value. The organism tends to both communicate by means of and react to nonverbal and vocal cues, regardless of whether the individual enacting the behavior, the actor, or the individual perceiving it, is able to report the use of these media of communication.

Nonverbal behavior may be conceived as supplying two types of information which may or may not correspond to verbal behavior. It may have a specific direct meaning. This type of nonverbal behavior may emphasize, contradict, aid in the interpretation of, or have little relation to a verbal statement. Nonverbal behavior may also have a more general significance, providing information about such variables as activity level, and the accumulation and discharge of tension or anxiety during a specific time period. The implications of this distinction, the problem of the differential effects of efforts to control or censor communication upon verbal, vocal, and nonverbal behavior, the complications provided by the differences in amount of agreement between individuals as to the meaning of specific nonverbal acts, and a review of some of the evidence supporting the previous assumption as to the communicative significance of nonverbal behavior, have been discussed elsewhere (2, 4, 6).

The present paper will be concerned only with those aspects of nonverbal behavior which are observable and can be assumed to provide cues both for the actor and the perceiver. Nonverbal behavior which supplies cues only to the actor, such as an increase in heart beat, or a muscle twitch occurring in a place covered by clothing, and which therefore can have communicative significance solely for the actor, will not be considered. The form of nonverbal behavior, then, which will be pertinent to this discussion, will be those motor responses, such as gestures, postures, facial expressions, and other less defined actions which are observable to both actor and perceiver.

Although global methods of recording, which give hope of preserving the gestalt qualities of a situation, may appear to be most appropriate to the study of nonverbal behavior, their advantage may prove to be illusory. Essentially, global methods, which are most closely approximated by motion pictures or tape recording techniques, are of little help to the experimenter other than providing a permanent record of some of the stimuli present. Unless the data are obviously meaningful from initial inspection, the mere amassing of them in great quantities has no inherent merit. The problem of the selection of variables to be analyzed still remains, for the data collected by global techniques are often of the same order of complexity as the original behavior itself.

In attempting to select those nonverbal responses to be studied, the fluidity of this type of behavior poses special difficulties, in that there are no apparent or natural divisions in its occurrence. While verbal behavior may readily be analyzed into units of words, sentences, or utterances, nonverbal behavior is continually occurring or being enacted, with no such obvious separations apparent.

Nonverbal behavior may be viewed as displaying various positions and movements occurring between positions. Positions can be conceived as any prescribed discrete aspect of motor behavior. Facial expression, gesture, and posture are among the most familiar positional variables. Movement can be thought of as that which takes place when an individual changes from one position to another. Movement variables are magnitude and speed. Before any selection or analysis occurs, all nonverbal behavior consists of movements, apart from those which we have previously learned to identify and separate out as positions, such as frowns or slouching. Actually, movements are merely the undefined mass of rapidly occurring positions. If treated only as movements, nonverbal behavior is relatively useless, since, as such it can be neither recorded nor analyzed. Recording devices can deal only with positions. The motion picture camera differs from other techniques only in that it takes more samples of positions per second and thus can produce the visual effect of recording movement. The investigator must specify certain positions and separate them through his recording techniques from the mass of positions which is continually occurring.

Positions may be classified into discrete response categories. Each category, such as posture, hand position, leg position, includes an almost endless number of separate alternative motor behaviors. When nonverbal behavior is viewed in terms of these categories it is always continuously being enacted. The separate responses within each category, however, vary as to the frequency of their occurrence, and may be said to be either present or absent at a specific moment.

Rate measures of the frequency of occurrence of the nonverbal responses within each category selected, form the basic methodological procedure advocated in this paper. Skinner (7) has pointed out that probability of action, which can be determined through recording the frequency of occurrence of a specified response, is perhaps the most basic datum of psychology. Information as to the future behavior of the organism is provided, and principles for controlling and manipulating that behavior can be derived. In regard to the study of nonverbal behavior, rate measures furnish data which are easily related to both experimental variables and other ongoing behaviors

being recorded. An advantage found in the use of rate measures is the possibility of having a subject serve as his own control, by recording his behavior before and after the introduction of an experimental variable.

The actual research utility of rate measures of nonverbal behavior will differ depending upon whether the communicative or the expressive aspect of nonverbal behavior is being considered. In any interpersonal setting, either the effect of a non-personal situational factor upon the behavior of each subject, or the effect of the behavior of one subject upon the behavior of another subject, can be studied.

The expressive aspect of nonverbal behavior may be investigated by studying the effect of changes in the task, instructions, or other situational variables on the nonverbal behavior of each subject. Changes in the rate of occurrence of specified nonverbal responses are related to the introduction of such experimental variables as frustration, conflict, or stress. Each subject is studied separately, and the communication and interaction between subjects present in a group can be ignored.

The communicative aspect of nonverbal behavior may be investigated through studying the effect of the verbal and/or nonverbal behavior of one subject on the verbal and/or nonverbal behavior of another subject present in a group. Changes in the rate of occurrence of specified nonverbal acts for one subject are related to changes in the rate of occurrence of that same specified nonverbal act, other nonverbal actions, or the verbal behavior of another subject.

Whether studying the expressive or communicative aspects of nonverbal behavior, one serious limitation found in the present methodological approach is in regard to nonverbal responses which occur infrequently. Although quite possibly important nonverbal responses which occur infrequently can not be handled with this methodology.

Sampling procedures must be developed in order to take rate measures of specific alternative responses within any of the nonverbal response categories. As was mentioned earlier, all recording devices only take samples of nonverbal responses. The specific apparatus employed for recording will dictate the number of samples which it is possible to take during any time interval. For example, the typical motion picture camera takes 16 samples each second. The recording equipment will also act to determine the number of different categories which can be recorded in a sampling period, and the number of alternative specific responses which can be recorded for each category.

The choice of nonverbal response categories and of the specific alterna-

tive responses within each category to be recorded must at this time, because of the relative paucity of experimental data, be dependent upon the particular preferences of the investigator. Reliance can be placed on his previous experience, pilot studies, or the empirical and theoretical guides offered by other investigators (2, 3, 4, 5, 6).

While many investigators have been interested in interpreting the nonverbal behavior displayed by subjects in various situations, few actual methodologies have been devised which permit this type of analysis to be performed upon the basis of systematic recordings of the behavior itself. Bales (1) has developed one of the most detailed methodologies for recording behavior in small groups. His observers classify various aspects of behavior into a set of 12 predetermined interpretative categories. Although Bales' chief concern has been verbal behavior, his techniques also incorporate judgments made upon the basis of certain forms of nonverbal behavior. Nonverbal cues form the basis of the observer's classification decisions only when the observer is certain as to the meaning of that behavior, and when he is also able to fit it into one of the 12 categories. This requirement probably has the effect of limiting the observer to the use of the most conventional and stereotyped forms of nonverbal behavior. Interpretative recording, which Bales claims to be the heart of his method, would seem to be more appropriate to verbal behavior, where the meaning of the behavior is more likely to be obvious, than nonverbal behavior, in which many actions are ambiguous or uncertain.

Bales has stated that "interaction process analysis" cannot be readily performed from a tape recording of a group's behavior, which includes only verbal and vocal behavior. He states that analyses made from tape alone differ and are not as accurate as those made from direct observation of behavior. This would seem to indicate that despite the fact that his techniques do not systematically record or interpret nonverbal behavior, they rely extensively upon nonverbal cues in the discriminations and inferences that are made about verbal behavior.

Birdwhistell (2) has devised a seemingly comprehensive system for recording nonverbal behavior which relies upon written symbols being transcribed while the behavior is occurring. Despite the fact that the use of such a notational system would act to unnecessarily curtail the amount of behavior which could be recorded, since the observer is required to spend a good deal of his time making the notations, Birdwhistell makes no provision for sampling procedures. The use of written symbols would appear to be uneconomical in regard to both the training of observers and the later tabulation

of data. His work is of considerable use, however, in that he presents a formidable catalogue of possible nonverbal responses which might be recorded.

The methodological approach described in this paper was applied in a study of a three-person group in which mimeographed cards were used for recording rate measures of selected nonverbal response categories (4). A separate card was used for each response category; on each card the possible alternative responses which were to be considered for each category were drawn in picture form. Thus, for example, the response category of body posture was recorded on a card on which five different alternative body postures were drawn. The observer's task was to record which of the alternative responses was being enacted during each sampling period. A separate observer was assigned to record the behavior of each subject from behind a one-way vision screen. A timing device was employed which gave both a signal for the observer to pick up the appropriate card, and a signal to record the response occurring at that specific moment. Five response categories were recorded, with each category being sampled once each minute.

The data obtained from this technique or from any other technique which follows the general methodological procedures outlined, are amenable to a variety of treatments. Statistical tests could be made for each response category comparing the frequency of occurrence of a certain class of behavior before and after the introduction of the experimental variable. In a specific application of the card technique, it was possible to treat statistically differences before and after the introduction of frustration (4).

Cumulative frequency curves could be graphed for each alternative response. The relationship of each response to the experimental variable could then be studied in more detail. The relationship of one type of response to another for each subject during specific intervals could be analyzed. The changes in rate of occurrence for the various nonverbal categories could be compared with the verbal behavior of each subject. The effect of a specific nonverbal or verbal response of one subject on the rate of occurrence of that same specific response, or on other aspects of nonverbal or verbal behavior for another subject could be analyzed.

Since the cards had pictures drawn on them for the different responses the training of observers was relatively simple. The cards also were economical in regard to their cost, and in terms of the ease with which the data could be tabulated.

The disadvantages found in this procedure can be remedied through a further elaboration of techniques without departing from the basic methodological approach. One of the chief difficulties encountered was that of con-

trolling the amount of time spent observing before each response was recorded on a card. The timing device described permitted control over when an observer began to look at a subject but not over how long he looked before he recorded the response called for on a particular card. It became obvious that a different amount of time was necessary for observing for each of the response categories studied. It was not possible, however, to be sure that an observer spent the same amount of time observing a specific response each time that response was sampled, and it was probable that there were differences between the observers in the time spent observing each response category. One possible solution to this problem would be the use of a tachistoscopic device which would expose the subject's behavior for a specified period of time to all the observers simultaneously. The tachistoscopic device would also permit alterations in the exposure time for each response category.

The type of recording technique employed determines the number of samples which can be taken, and the number of categories and responses within each category which can be recorded in each sampling period. With the use of the cards, samples could be taken only five times each minute. In order for the observer to be able to make his recording quickly and with a minimal amount of confusion, there could be only four or five alternative responses drawn on each card. Thus if it were necessary to have each category sampled for each subject once a minute, only five categories, each having at most five alternative responses, could be recorded. One way the number of categories sampled could be increased would be through assigning more than one observer to each subject.

The number of alternative responses, and possibly also the number of categories, which one observer can record could be substantially increased through the use of a 20-pen operations recorder connected to a push-button switching system. One set of buttons could be used to indicate the category being recorded; another set being used to record the particular alternative response observed. In this fashion a record would be acquired on which up to 10 response categories, each one of which had up to 10 alternative responses would be indicated along a time continuum. With this procedure, however, the training of observers, and the tabulation of data would become more complicated processes.

Another solution to the problems mentioned would be the use of a stop motion picture record, with samples being taken as frequently as desired. Although it might seem that this technique would sample all response categories simultaneously, the focus of the lens, the angle of the camera, and

other such technical factors act to select only certain responses for exposure on the film. The chief virtues of the photographic techniques are in providing more samples per minute than other devices allow, and in producing a permanent record of some of the stimuli present from which rate measures for more different response categories, than is usually possible from direct observation, can be made. Motion pictures might also be used to check the reliability of observers recording nonverbal behavior directly.

During the early stages of experimentation, when little work has been done to isolate or study response categories, it is questionable whether photographic records are useful or necessary. It might be wiser, initially, to use simpler techniques recording a small number of categories from direct observation. Later, when a number of categories have been studied, and theoretical formulations about both the meaning and use of nonverbal cues are more advanced, research on a more complex level might be undertaken in which the cost of using photographic techniques would be overruled by the necessity of dealing with larger numbers of categories simultaneously.

#### SUMMARY

Nonverbal behavior can be distinguished from verbal and vocal behavior in regard to its medium of expression, the manner in which it is perceived, its rôle developmentally, and its communicative significance. Only nonverbal behavior, which is defined as the body movements of the organism, which is observable and thus of communicative significance to both an actor and a perceiver was considered in the present paper.

Global recording techniques were found to be of little use in helping the investigator gather data, but instead provide information as complex as was the original behavior itself. Before any analysis or selection takes place, nonverbal behavior consists of various movements. As such it is relatively intractable to analysis. Movements are merely the undefined mass of rapidly occurring positions or discrete responses. The investigator must select out from the mass of responses those which he is interested in studying.

Rate measures of the frequency of occurrence of specific nonverbal responses form the basic methodological procedure. The type of recording device employed determines the number of samples which can be taken in a specified time interval and the number of response categories which can be recorded.

In a specific application of the methodological procedures discussed, mimeographed cards were utilized to record the behavior of a three-person group.



A separate card was used for each response category, with the specified alternative responses in each category drawn on each card.

Various ways of analyzing the data obtained from rate measures of non-verbal behavior were presented. Statistical tests can be made on the frequency of occurrence of a response before and after the introduction of an experimental variable. Cumulative frequency curves for each response can be graphed. This would permit analysis of the relationship of one response to another, of the relationship of the behavior of one subject to that of another subject present in the group, and of the relationship between the non-verbal and the verbal behavior.

Advantages and disadvantages of the card techniques were presented. An elaboration of techniques which would remedy the difficulties encountered without departing from the basic methodological procedure were offered. The use of a tachistoscopic viewing device and a 20-pen operations recorder would enable better control over time spent observing, and would allow the investigator to record up to 10 categories and up to 10 alternative responses within each category.

#### REFERENCES

1. BALES, R. F. *Interaction Process Analysis*. Cambridge, Mass.: Addison-Wesley, 1950.
2. BIRDWHISTELL, R. L. *Introduction to Kinesics*. Louisville, Kentucky: Univ. Louisville Press, 1952.
3. DEUTSCH, F. Analysis of postural behavior. *Psychoanal. Quart.*, 1947, 16, 195-213.
4. EKMAN, P. A. An exploratory study of nonverbal behavior in group interaction. Unpublished master's dissertation, Adelphi College, 1955.
5. RUESCH, J. Nonverbal language and therapy. *Psychiatry*, 1955, 18, 4.
6. RUESCH, J., & KEES, W. *Nonverbal Communication*. Berkeley: Univ. California Press, 1956.
7. SKINNER, B. F. Some contributions of an experimental analysis of behavior to psychology as a whole. *Amer. Psychol.*, 1953, 8, 2.

*Psychology Department*  
*Adelphi College*  
*Garden City, N. Y.*