DOCUMENT RESUME

ED 104 853 SP 009 091

AUTHOR Feldman, Robert S
TITLE Nonverbal Behavior in Tutoring Interactions.
PUB DATE Apr 75
NOTE 15p.; Paper presented at the Annual Meeting of the American Educational Research Association (Washington, D.C., April 1975)

EDRS PRICE MF-$0.76 HC-$1.58 PLUS POSTAGE
DESCRIPTORS *Nonverbal Communication; *Peer Teaching; Research; Student Behavior; *Student Teacher Relationship; *Teacher Behavior; *Tutoring

ABSTRACT

This document reports on a series of studies carried out concerning nonverbal behavior in peer tutoring interactions. The first study examined the encoding (enactment) of nonverbal behavior in a tutoring situation. Results clearly indicated that the tutor's nonverbal behavior was affected by the performance of the tutee. The question of whether or not nonverbal "leakage" (failure to hide undesired displays of negative affect) occurs was raised in this study and tested in another. Findings from the second study indicated that tutors encode differentially according to whether or not they are being truthful, and moreover, that other untrained students were capable of decoding such behavior. Because the difference in the tutor's nonverbal behavior in the above situation could have been caused by the lying itself, or by his/her negative feelings regarding the failing tutee, a third study was performed to determine causality. Results from this study indicated that both factors--deception and a dislike for the tutee--cause negative verbal behavior in the tutor. A fourth study was carried out to determine the tutor's ability to understand the meaning of the nonverbal behavior of a tutee in regard to his/her degree of comprehension. Results revealed that (a) children encode nonverbally the degree of comprehension of material being presented to them, and (b) their nonverbal behavior can be decoded by other children. These studies indicate that nonverbal behavior is, in fact, an important factor in the tutoring situation and must be considered when examining tutoring interactions. (PB)

NONVERBAL BEHAVIOR IN TUTORING INTERACTIONS

Robert S. Feldman

Virginia Commonwealth University

A paper presented as part of a symposium on
Cross-Age and Peer Tutoring: Current Practice and Research
at the annual meeting of the American Educational Research Association
Washington, D.C., April, 1975

Nonverbal Behavior in Tutoring Interactions

Robert S. Feldman

Virginia Commonwealth University

It is customary to begin reports of research related to peer tutoring with the statement that although there is much interest in tutoring and tutoring programs, there is little in the way of controlled, empirical research to guide in the understanding of the tutoring process. I fear that in this paper I must raise the same soporific, and go a step beyond regarding the study of nonverbal behavior in tutoring situations. For not only is little known about variables related to the nonverbal behavior of both the tutor and tutee, but I cannot even point to much interest that has been evinced about the topic. In this paper, I hope to show that nonverbal behavior may be a critical factor not only in tutoring situations but in many other educational settings as well. In doing so, I will rely heavily on a number of studies that I have carried out in conjunction with Vernon L. Allen of the University of Wisconsin - Madison, and I want to acknowledge from the start his contribution to the line of research to be reported here.

The first clues that one finds suggesting that nonverbal behavior may be a crucial factor in tutoring situations comes from the social psychological literature on person perception and on the display of emotions. This research has a long and honorable tradition beginning with Darwin (Tagiuri, 1969), and among other things it clearly shows that individuals tend to draw inferences about and act upon the behavior and appearance of others. It has been shown quite consistently that individuals are capable of fairly accurately inferring emotional states from nonverbal

behavior, whether while viewing still photographs (Zaidel & Mehrabian, 1969), video recordings of ongoing behavior (Lanzetta & Kleck, 1970), or even by listening to vocal intonation (Dimitrovsky, 1964). Findings such as these show two things very clearly: First, there is a lawfulness in the display (or encoding) of nonverbal behavior, such that particular emotional states are related to particular nonverbal behaviors. Second, individuals attempt to decode and act upon the meaning of nonverbal behaviors.

It must be noted from the start, then, that to understand nonverbal behavior in the tutoring setting, one should approach the topic from an interactional point of view in which both halves of the dyad are studied. It is not sufficient to show that tutors or tutees encode nonverbally in a particular manner. If nonverbal behavior is to have any impact on the tutoring situation, then the occurrence and effects of decoding must be demonstrated also. Most frequently, this research process cannot be accomplished in a single study, but rather must occur through a series of investigations.

Nonverbal Encoding

With this background in mind. I would like first to report a study which looked at the encoding (enactment) of nonverbal behavior in a tutoring situation (Feldman & Allen, 1975). In this experiment, we looked at the nonverbal behavior of a sixth-grader who was tutoring a third-grade tutee. We were most interested in the way in which the tutor's nonverbal behavior varied as a function of the performance of the tutee. To provide experimental control, the third-grade tutee was a confederate

who performed very well in one condition or very poorly in another. A hidden camera secretly recorded the nonverbal behavior of the tutor while he was administering a lesson to the seemingly successful or unsuccessful tutee.

Two trained coders objectively analyzed the nonverbal behavior of the tutor. The coders used 22 categories of behavior, each of which was expressed as a proportion of the total behaviors emitted by the tutor. (This procedure controlled for differences between subjects in total length of the lesson, since the lesson generally took longer under conditions of tutee failure than tutee success.) Results for each category of behavior were analyzed in a 2 x 2 analysis of variance, with tutee performance (success or failure) and sex of tutor as factors.

There were no sex differences on any category, but there were a number of differences in the nonverbal behavior of the tutor according to the success of the tutee. When the tutee did poorly, tutors pursed their lips more, shook their heads more, leaned forward more often, and reached toward the tutee more frequently. Tutors also fidgeted more when their tutee performed poorly. On the other hand, when the tutee was doing well, tutors tended to sit upright more often (as opposed to slouching or leaning forward or back) and nodded their heads more frequently. Results on a measure of eye gaze also showed that tutees were looked at a greater proportion of time under conditions of failure than when they were successful.

It appeared quite clearly from these data that the nonverbal behavior of the tutor was affected by the performance of the tutee. Some of the specific findings bear note. Traditionally it has been found in the

literature on nonverbal behavior that positive affect is related to behaviors such as leaning forward and greater eye contact (Mehrabian, 1972). But our data showed the opposite trend: greater forward leaning and eye contact under conditions of tutee failure. Since we knew from results of a post-experimental questionnaire that tutors liked successful tutees more than unsuccessful ones, the typical finding was reversed. The explanation for these results probably rests on the specific nature of the tutoring task. When the tutee was doing poorly, the tutor would often lean forward towards the tutee and attempt to explain things, pointing out examples in the tutee's materials. Greater eye contact under conditions of tutee failure may have been caused by the tutor using the nonverbal behavior of the tutee to try to assess what was the source of the tutee's difficulty, resulting in greater eye contact in the failure conditions. I speculate on these points merely to stress that there may be unique properties of the tutoring situation which do not allow a direct extrapolation to tutoring of findings on nonverbal behavior from other settings.

Overall, the results of this first study showed that tutors displayed differential nonverbal behavior according to the performance of their tutee on almost half the categories used for coding behavior. Yet some very obvious measures we took -- such as smiling and laughing -- failed to differentiate between subjects' condition. Although there are a number of possible explanations for this phenomenon (such as simply a basic underlying lack of relationship between what we measured and tutee

performance), the most intriguing possibility rests on the assumption that there is a norm against the overt display of negative affect. If this is the case, then the tutors would be attempting to hide nonverbal displays of negative affect when the tutee was failing. Ekman and Friesen (1969) have speculated that when an individual attempts to suppress his veridical feelings, the fact that he is dissembling may "leak" out nonverbally. If this leakage phenomenon does occur, then we might expect that the most obvious signs of nonverbal affect, which the individual would attempt to control, would not reveal the affect. Instead, only more subtle nonverbal cues, which the individual does not try to censor, would show the effects of dissembling. The greater occurrence of fidgeting under conditions of tutee failure provides suggestive evidence for such a hypothesis. Still, this is mere speculation.

It was decided to test the possibility of nonverbal "leakage" quite directly in another study. Devin-Sheehan, Feldman and Allen (1975) set up a one-session tutoring experiment in which a third grader tutored a second-grader in a lesson on trapezoid identification. Again, the tutee was a confederate of ours, and, depending upon condition, either performed very well or very poorly on a 20-item test. We were particularly interested in the tutor's nonverbal behavior when he was not being truthful to the tutee about the tutee's performance. In order to set up the proper conditions, we told the tutor that part of the teaching method required that each time the tutee answered a test item, he be invariably praised and told that he had answered the item correctly. This procedure meant that tutors were being truthful under conditions of tutee success, but were dissembling under conditions of tutee failure.

The subjects were secretly video-taped while they were giving their tutee either veridical or nonveridical feedback. Trained coders analyzed their nonverbal behavior into various categories, and a few significant differences were found. There was greater smiling under conditions of truthfulness, while there was more crossing of legs under conditions of dissembling. Curiously, there were more indications of displeasure in the mouth when the tutor was being truthful than when lying.

Although there was little in the way of a systematic pattern obtained from the objective coding, more meaningful results were found by showing 32 20-second silent samples of the tutors' nonverbal behavior to groups of naive, untrained third-graders. The observers rated each sample on a Likert-type scale which asked how happy the tutor appeared to be with his tutee. Results were clear: the observers rated the tutors as being significantly more pleased with the tutee when the tutor was being truthful than when the tutor was lying. Thus, results indicate not only that tutors nonverbally encode differentially according to whether they are being truthful or not, but that untrained third-graders are capable of decoding such behavior.

These findings suggest that children's decoding abilities must be viewed with respect, and that such abilities should not be overlooked when designing tutoring programs. For instance, there are a number of tutorial "systems" which prescribe that the tutor should only give positive reinforcement to his tutee, regardless of performance. Such notions ignore the possibility -- made quite real by our data -- that the tutor will reveal to the tutee his actual feelings regarding the tutee's performance.

The preceding study provided information showing that tutors who are being deceptive to their tutees tend to reveal this deception nonverbally. But the precise explanation for the findings was not entirely clear to us. The difference in tutors' nonverbal behavior between conditions of tutee success or failure could have been due to at least two factors. First, it could have been caused by the lying per se; that is, lying, by itself, could have led to our results. But there is another possibility: that the tutors' negative affective feelings regarding their failing tutee led to the differences in nonverbal behavior, and had little to do with the lying per se.

To determine more precisely the locus of causality, I conducted a study using female college-age subjects (Feldman, 1974). In this experiment, two factors were manipulated independently -- whether the tutor was being truthful or lying to the tutee, and whether the tutor liked or disliked the tutee. The manipulation of truthfulness was accomplished as in the earlier study. The tutee, a confederate, was either successful or unsuccessful, and the tutor was again instructed to always praise her tutee. To manipulate liking, a situation was devised in which the subject supposedly overheard the confederate saying either very positive or negative things about her. (Other research has consistently shown that this procedure results in reciprocated liking or dislike.) Using an analysis of variance design, the independent effects of the manipulation of dissembling and liking could be determined.

The nonverbal behavior of the tutors, who were secretly video-taped during the tutoring lesson, was analyzed using objective scoring by

trained coders and also by showing samples of subjects' behavior to naive judges who rated how pleased a sample of the subjects appeared. The clearest results came from the ratings of the untrained observers. Nonverbal behavior tended to reflect whether a person was being truthful or was lying -- a replication of our previous results. But it was also clear that, at least when the tutor was being truthful, she revealed her underlying liking or dislike for the tutee. When lying, there was no difference in nonverbal behavior according to the affect held for the tutee; such behavior was uniformly rated as negative. It appears that when a tutor (1) dislikes his tutee, or (2) is not being truthful to either a liked or disliked tutee, the nonverbal behavior of the tutor will appear to naive observers as indicating displeasure.

The preceding studies show that even untrained observers are able to distinguish when the tutor is unhappy about various aspects of the tutoring situation -- whether it be dislike for the tutee or having to be less than truthful in the administration of positive feedback. But do the abilities of children to decode the meaning of nonverbal behavior extend beyond the identification of simple displays of positive and negative affect? To answer this question, we designed a study to examine the abilities of potential tutors to decode the amount of comprehension a set of third-grade students had for a lesson to which they were listening (Feldman & Allen, 1974). A tutor's ability to understand the meaning of the nonverbal behavior of a tutee in regard to the degree of comprehension of the tutee would seem to greatly facilitate the effectiveness of a tutorial lesson.

Ten third-graders were used as stimulus persons. Each child was secretly video-taped while he or she listened to two four-and-a-half minute lessons, one of which was very difficult and the other very easy. (Order of presentation of the lessons was counterbalanced.) Following presentation of the lessons, the stimulus persons were asked to rate the difficulty of the material, and they rated the easy lesson as being significantly easier than the difficult lesson.

A 30-second segment from each of the ten stimulus persons' nonverbal responses to both the easy and the difficult lessons was edited from the original video-tape onto a new tape in a partially randomized order, giving us a total of 20 samples (10 easy and 10 hard). These samples then were shown to groups of untrained observers, who were asked to rate each stimulus person in a segment on a 6-point, Likert-type scale which asked "How much did the student understand about the lesson"? The six points on each scale were labelled: "understood everything," "understood very much," "understood a lot," "understood some," "understood a little bit," or "did not understand at all." We used three different age groups to rate the subjects: college students, sixth graders, and third graders.

The analysis of our data was complicated (we initially used a 6-way analysis of variance mixed design), but happily our results were quite clear. There was a main effect for the type of lesson to which stimulus persons were listening; the mean rating for the easy lesson stimuli was 3.12 versus 2.76 for the difficult lesson stimuli. Interestingly, the sex of the stimulus persons also led to differential ratings, with female stimulus persons being seen as understanding significantly more than male stimulus persons.

The most intriguing finding was a significant interaction between age of subject and lesson difficulty, indicating differential accuracy among ages in determining the type of lesson to which the stimulus persons were listening. Examination of the means showed that the third-and sixth-graders were more accurate in their ratings than the adults. In fact, analysis of the ratings within each age group showed that only the third- and sixth-graders successfully discerned the understanding of the stimulus persons.

Our results reveal at least two important findings. First, it appears that children encode nonverbally the degree of comprehension they hold for material that is being presented to them. Second, their nonverbal behavior can be decoded, at least by other children (if not adults). I might point out that the findings related to adult deficits in decoding ability clearly show the potential superiority of youthful tutors over adult teachers, since adults, at least in our study, seem to be missing an important teaching skill which the children held.

Conclusions

I hope that this brief review of some of the studies I have carried out on nonverbal behavior has made clear a point I emphasized originally and that I would like to reiterate now: It appears that nonverbal behavior is an important factor in the tutoring situation and must be considered when examining tutoring interactions. It would seem incumbant upon developers of tutoring programs and "packages" to take into account the operation of nonverbal factors when promulgating broad prescriptions for particular behavioral sequences. For if children are made to follow a set pattern of steps in tutoring, the tutor's actual feelings may be revealed by his nonverbal behavior, and the tutee may receive contradictory verbal and nonverbal messages.

It is also clear, I think, that research on tutoring ought to focus on the interaction that occurs between the tutor and tutee. We gain an insufficient -- and perhaps misleading -- understanding of the tutoring process by examining solely the tutor or the tutee. It is imperative that we look at both halves of the dyad and to determine how the tutor's behavior affects the tutee, and vice versa. It is overly simplistic to view the tutoring process as just the tutor influencing and affecting the tutee.

From a methodological point of view, I think the study of nonverbal behavior in tutoring situations demands the use of both encoding and decoding experimental paradigms. To understand completely the interaction between tutor and tutee, one must know not only that a participant in the situation is nonverbally encoding in a particular manner, but also how his dyadic partner is decoding the message. It is also useful to employ two techniques for identifying nonverbal behavior: objective coding by trained coders, and subjective ratings by untrained naive observers. The first method allows identification of the specific behaviors that are occurring, while the second technique allows determination of the connotative meaning of nonverbal behavior.

Another point that I should like to make is a cautionary note. We should not hastily generalize our findings in the nonverbal domain to different populations of subjects. For instance, results reported here suggest that children and adults encode differentially. Hence, findings which have applicability to children may not generalize to adults. Furthermore, it appears that the nature of the particular task on which the tutor and tutee are working has a definite effect on the types of nonverbal

behaviors that are encoded. All this suggests that relationships between nonverbal behavior and an individual's internal affective or emotional state which are stated in invariant, one-to-one terms are subject to disconfirmation. The nature of the situation must be taken into consideration when hypothesizing about nonverbal behavior.

Finally, I would like to suggest that nonverbal behavior may be an important variable in educational settings other than the tutoring situation. Many of the findings reported here have implications for the classroom, and further research seems warrented. It appears that we are just beginning to realize the profound impact of nonverbal behavior on social interaction, and the field promises to be an exciting one, both from a theoretical and applied point of view.

REFERENCES

Devin-Sheehan, L., Feldman, R. S., and Allen, V. L. Nonverbal cues of tutor deception. Unpublished manuscript. 1975.

Dimitrousky, L. The ability to identify the emotional meaning of vocal expressions at successive age levels. In J. Davitz (Ed.), The communication of emotional meaning. New York: McGraw-Hill, 1964.

Ekman, P., and Friesen, W. Nonverbal leakage and clues to deception. Psychiatry, 1969, 32, 88-106.

Feldman, R. S. Nonverbal disclosure of deception and interpersonal affect. Unpublished doctoral dissertation. Madison, Wis., 1974.

Feldman, R. S., and Allen, V. L. Developmental trends in decoding of nonverbal behavior. Paper presented at the annual meeting of the Eastern Psychological Association, Philadelphia, 1974.

Feldman, R. S., and Allen, V. L. Effect of tutee performance on tutor's nonverbal behavior. Technical Report No. 305. Wisconsin Research and Development Center for Cognitive Learning. Madison, Wisconsin, 1975.

Lanzetta, J. T., and Kleck, R. E. Encoding and decoding of nonverbal affect in humans. Journal of Personality and Social Psychology, 1970, 16, 12-19.

Mehrabian, A. Nonverbal communication. Chicago: Aldine-Atherton, 1972.

Tagiuri, R. Person Perception. In G. Lindzey and E. Aronson (Eds.) Handbook of Social Psychology. Vol. III. Reading, Mass: Addison-Wesley, 1969.

Zaidel, S. F., and Mehrabian, A. The ability to communicate and infer positive and negative attitudes facially and vocally. Journal of Experimental Research in Personality, 1969, 3, 233-241.