

26 ● The Relationship Between Selected Immediacy Behaviors and Cognitive Learning

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LEARNING, particularly that which takes place in the traditional classroom setting, is an interactional process. Although curricular decisions, materials development, the organization of lectures, and the like focus primarily on the teacher's transmission of content—and student evaluation on comprehension and retention of that content—there is little disagreement that interpersonal perceptions and communicative relationships between teachers and students are crucial to the teaching-learning process.

From a theoretical standpoint, Bloom's (1956) conceptualization of learning as affective (development of a favorable or unfavorable attitude toward learning), behavioral (development of psychomotor skills or observable behavior change as a result of learning), and cognitive (comprehension and retention of knowledge) has for several decades been accepted widely as an elegant characterization of the learning construct. An interdependence among these domains of learning generally has been recognized among educators, an assumption crucial to the fact that evaluation of learning outcomes often is focused on measurement within a selected domain. Physical and vocational education skills, which are clearly observable psychomotor skills, are often assessed in the behavioral domain. Students' learning of traditional "academic subjects," for which generalization of learning to behavior outside the classroom is more difficult to assess, is generally measured via tests of recall, analysis, and synthesis, elements of the cognitive domain. Evaluation of teaching effectiveness, particularly that which is based on the ubiquitous student course evaluation form, is drawn largely from assessment of affective dimensions of teaching.

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An operational definition of what constitutes good teaching has been elusive (Brim, 1958; Cyphert, 1972; Getzels & Jackson, 1963; Heath & Nielson, 1974).

A great deal has been written lately about teaching techniques designed to help teachers engage in different types of classroom processes. Much of the literature about these classroom processes does not specify the teaching strategy necessary in order to be able to bring about desired outcomes. Often, this is because the tools for discussing the necessary teaching behaviors are not available, or not known about by the curriculum authors. Thus the desired outcome for students is discussed, but the way to get there is not.

The traditional role of teacher is described by a well-known set of behaviors. Any school child playing "teacher" will produce most of the behaviors used by most teachers. Typical behaviors are: standing in the front of a group of relatively passive onlookers (a position of authority), doing most of the talking (telling), asking questions to which they already know the answers (testing), and evaluating by passing judgments. Yet, no research base indicates that these behaviors have payoff in terms of learning, and much indicates that they do not. (Simon & Boyer, 1974, p. 5)

Without a clear picture of the relationship between specific teacher behaviors and student achievement, empirically grounded prescriptions for the training and evaluation of teachers are difficult to propose. Andersen (1978, 1979) presents strong support for the centrality of nonverbal immediacy behaviors in effective teaching-learning relationships. Victoria (1970, p. 3) has noted that "nonverbal phenomena become qualitatively predominant aspects of interpersonal relationships. These interpersonal relationships are critical aspects of all learning situations." Andersen's research has focused primarily on the impact of immediacy on student affect, with recognition of its possible influence in other learning domains (Krathwohl, Bloom & Masia, 1964; Ringness, 1968).

That immediacy—which Mehrabian (1969, p. 203) defines as communicative behaviors that "enhance closeness to and nonverbal interaction with another"—is related to affective learning is intuitively comfortable: A positive interpersonal relationship developed between teachers and students would seem likely to influence the development of favorable attitudes toward the learning situation. A number of empirical studies have supported this position (see Andersen & Andersen, 1982, pp. 110-112).

Although somewhat more elusive, in light of what we know about theories of persuasion, immediacy seems likely to influence the probability of behavioral change as well. The intuitive link between cognitive learning and nonverbal immediacy is less clear. Although nonverbal communication is a relationship language, cognitive gain is generally assessed via

measures of recall, synthesis, and application of information transmitted verbally. According to Mehrabian (1981, p. 3), "People rarely transmit implicitly [nonverbally] the kinds of complex information that they can convey with words; rather, implicit communication deals primarily with the transmission of information about feelings and like-dislike or attitudes. The *referents* of implicit behaviors, in other words, are emotions and attitudes or like-dislike."

The empirical evidence linking nonverbal immediacy behaviors to cognitive learning is also less clear. In Andersen's (1978, 1979) study of college students enrolled in an introductory interpersonal communication course, teacher immediacy predicted 46% of the variance in students' affect toward the instructor, 20% of the variance in students' affect toward the content of the course, and 18% of the variance in students' behavioral commitment. Cognitive learning, however, as operationalized by scores on a 50-item multiple choice test, was not significantly predicted by the teachers' immediacy. McDowell, McDowell, and Hyerdahl (1980) replicated Andersen's research in communication courses in junior and senior high schools, adding additional exploratory variables to determine whether or not measures of homophily and/or student attentiveness correlate with immediacy variables. The overall results revealed significant relationships between and among affect, behavior, immediacy, homophily, and attentiveness, but low correlation between these variables and a measure of cognitive learning. Junior high students who gave the teacher high ratings on Andersen's Behavioral Indicators of Immediacy Scale (BII)—which focuses on teachers' use of specific immediacy behaviors—reported that they enjoyed engaging in communication practices (that is, demonstrated behavioral commitment) and received higher course grades. These variables were, however, negatively correlated with the Generalized Immediacy Scale (GI), Andersen's assessment of the perceived general immediacy of the instructor. At the senior high level, significant positive relationships existed between the BII, engaging in communication practices, homophily, and attentiveness variables, but no relationship was found between these variable and cognitive learning (the course grade).

Andersen and Andersen (1982) summarize several additional studies in which examination of specific nonverbal immediacy behaviors such as eye contact (Breed, Christiansen, & Larson, 1972), vocal inflection (Coats & Smidchens, 1966), gestures (Gauger, 1952), proximity, smiling, and touch (Kleinfeld, 1973) have been positively related to various measures of cognitive gain. Taken together with the Andersen (1979) and McDowell, McDowell, and Hyerdahl (1980) studies, we are left with inconclusive and somewhat confusing data regarding the relationship of the teacher's immediacy and the cognitive domain of learning.

Krathwohl, Bloom, and Masia (1964) cite evidence that cognitive learning can occur at the expense of affective outcomes. It is equally possible

that affective outcomes might occur at the expense of cognitive learning, that high affect for the teacher might, in fact, interfere with cognitive learning (Andersen, 1979). If this is true and we are concerned with achievement in the cognitive domain, we might note that highly immediate teachers produce high affect and hypothesize that less immediate teachers will thus produce high cognitive outcomes, a sort of "pain equals gain" relationship like that espoused by at least some exercise fanatics. This interpretation of mutual exclusivity is, however, incompatible not only with Bloom's taxonomy, but with Mehrabian's conceptualization of the immediacy construct. We would hypothesize that at least part of the difficulty in establishing the relationship between the teacher's immediacy and cognitive learning relates to problems in establishing valid measures of the cognitive learning variable. Andersen suggests that the single test grade entered as the cognitive learning variable in her study may have been recorded too early in the course for a relationship between performance and immediacy to have been established, or that the nature of the course, incorporating a mastery-level design, might have skewed the distributions of grades. McDowell et al. (1980) suggest that junior high students might be more motivated to study for examinations, prepare assignments, and generally strive to meet criteria for determining the course grade for teachers they wish to please. Senior high students may be less influenced by adult authority and fail to prepare for tests and assignments from which the course grade is drawn; thus long-term cognitive gain might not be reflected accurately in grades for either group. A primary concern in the design of the present study was the development of an alternative means of assessing cognitive learning that can be applied across disparate content areas and is not influenced by factors such as attendance, perceived motivation, preparation for tests or assignments, course or test design, and similar elements that are commonly reflected in assigning grades but may or may not be directly associated with perceived or actual learning.

It is important to recognize that interactions between teachers and students are characterized by both verbal and nonverbal components and that nonverbal behaviors *will* be interpreted in terms of pleasure, arousal, dominance, and liking (Mehrabian, 1981). In other words, a relationship between a teacher and a learner cannot be free of affect; the "metaphors" of approach-avoidance (or immediacy), arousal-activity, and power-status represent dimensions on which the relationship is evaluated, largely through interpretation of nonverbal cues. Furthermore, the various dimensions subsumed under "liking" (preference for versus preference against, like-dislike, positive-negative attitude) are positively correlated with those subsumed under "approach-avoidance" (physical approach versus avoidance, attention versus inattention, exploration versus lack of exploration, examination versus lack of examination, striving to get closer versus away) (Mehrabian, 1978, 1980; Mehrabian & Russell, 1974). Within Mehrabian's conceptualization

of the liking/immediacy construct, then, a teacher's behavior must be characterized by some degree of immediacy.

We know that the teacher's immediacy is associated with increased student affect, and also that teachers' perceptions of success in teaching are largely associated with affective outcomes (Harootunian & Yarger, 1981). One definition of effective teaching behavior thus includes optimal use of nonverbal behaviors that enhance perceived immediacy. The prescriptive usefulness of this definition is directly associated with the degree to which nonverbal strategies can be consciously employed by teachers. It has been demonstrated (Bradley, 1979; Grant & Hennings, 1971; Karr-Kidwell, 1978; Klinzing, 1983, 1984; Nier, 1979; Nussbaum, 1984) that teachers' nonverbal behaviors can be modified through awareness and training. Because nonverbal communication is multichanneled and characterized by both intentionally and unintentionally transmitted messages, however, the totality of nonverbal behavior is difficult for teachers to monitor. Our objective in this study was thus to isolate specific nonverbal behaviors that are likely to have the greatest effect on learning. The identification of these behaviors will provide teachers and teacher educators with clearly focused behavioral objectives in their efforts to improve effectiveness in teaching.

Nonverbal Immediacy Behaviors

Mehrabian (1981) indicates that immediacy in the interaction between two people "includes greater physical proximity and/or more perceptual stimulation of the two by one another" (p. 14). Immediacy is thus characterized in part by reduced physical or psychological distances in teacher-student interaction. Hesler's (1972) study of teachers' proxemic positioning revealed that teachers who sat at, on, beside, or behind the desk were rated by students as low in both affection and inclusion and teachers who moved in front of the desk or among the students were more likely to be perceived as warm, friendly, and effective. Research has provided solid evidence that more immediacy is communicated when people face one another directly and that people assume closer positions to those they like than to strangers or those they dislike (for example, Aiello & Cooper, 1972; Andersen, Andersen, & Jensen, 1979; Byrne, Baskett, & Hodges, 1971; Mehrabian 1968, 1967; Mehrabian & Friar, 1969; Patterson & Sechrest, 1970). When social interaction takes place in close proximity, the frequency and duration of touch can be used as an indication of liking or interpersonal closeness (Andersen, Andersen, & Jensen, 1979; Fisher, Rytting, & Heslin, 1976; Henley, 1977; Jourard, 1966; Montague, 1978; Morris, 1971). Although the point at which physical proximity and, to an even greater extent, interpersonal touch become uncomfortable differs among individuals, the lack of recognition resulting from psychological distancing can negate any verbal attempts to establish interpersonal

bonds. A teacher's withholding of touch, for example, may result in feelings of rejection and isolation in students (Hurt, Scott, & McCroskey, 1978).

Even when close physical proximity is not possible, direct eye contact can provide psychological closeness between teachers and students and has been shown to be an important component of both interpersonal immediacy generally and the teacher's immediacy in particular (Andersen, 1979; Andersen, Andersen, & Jensen, 1979). Hodge (1971), Bishop (1976), and others have similarly commented on the importance of the teacher's establishing eye contact with both the class as a whole and with individual students within the group. In a series of studies on the effects of teacher gaze on the attitudes of university students, Breed (1971) found that the absence of eye contact between teachers and students usually produces negative feelings in students, and that high levels of gaze at particular students makes them more attentive to the teacher. Mehrabian (1981) notes that "considerable evidence has been accumulated showing that more eye contact is associated with greater liking and more positive feelings among interactants" (p. 23). Such evidence can be found in the work of Exline and Winters (1965), Kendon (1967), Mehrabian (1968), Mehrabian and Friar (1969), and Thayer and Schiff (1974).

Beyond increasing physical and/or psychological proximity, immediacy is also characterized by behaviors that contribute to perceptual stimulation during interpersonal interaction. Smiling is one nonverbal behavior that has been associated with such perceptual stimulation, indicating both liking and arousal (Kraut & Johnston, 1979; Mehrabian, 1981). Andersen, Andersen, and Jensen (1979) classified smiling as central to the concept of immediacy. Kendon (1967) notes that smiles are reciprocal immediacy behaviors: When one person smiles, the other is likely to smile in return. Ekman (Stern, 1984) has, in fact, reported that the act of smiling "causes your involuntary nervous system to go through corresponding changes in heart rate, skin temperature and electrical resistance usually associated with the emotion and causes you to experience the feeling your face is mimicking" so that "when we see someone else smiling, we *feel* a similar sensation" (p. 113). Rosenfeld (1966) found smiling the most commonly used behavior to communicate affiliativeness; similarly, Bayes (1970) identified frequency of smiling as the single best predictor of perceived interpersonal warmth.

Perceptual stimulation is also related to body movement: A physically active teacher provides both visual and auditory sensory arousal. Subjects in Rosenfeld's (1966) study of approval-seeking increased both gestural activity and head nodding when seeking positive affect. Andersen (1979) and Andersen, Andersen, and Jensen (1979) found overall body movement positively associated with the perceived immediacy of the teacher. Mehrabian (1971) proposed that greater use of gestures by a teacher "tends to be associated with a more affiliative classroom style which in turn

elicits liking and cooperation from others" (Smith, 1979, p. 649).

Beebe (1980) summarizes studies by Mehrabian (1971) and Seals and Kaufman (1975) that indicate clear differences between the kinesic patterns of effective and "average" teachers. Effective teachers moved more; student attitudes were positively correlated with increased activity by the instructor. A relaxed body posture also has been found to be related to teacher immediacy (Andersen, 1979), to be influential in eliciting opinion change (McGinley, LeFevre, & McGinley, 1975) and to be less likely when people dislike one another (Mehrabian, 1968).

A last factor related to perceptual stimulation and immediacy is the nonverbal paralinguistic or vocalic variable. Although Mehrabian (1981) demonstrates the clear relationship among vocal expressiveness, rate, and volume and both interpersonal liking and arousal, the effects of paralinguistic variables on classroom teaching have not been investigated extensively (Smith, 1979). Bayes's (1970) study of the behavioral cues of interpersonal warmth concluded that tone of voice was not a reliable indicator of affect; however, Scherer's (1972) experimentation with electronically synthesized nonverbal sounds indicated that emotional and affective cues could be communicated through changes in pitch and tempo. Andersen, Andersen, and Jensen (1979) similarly found vocal expressiveness to be an important factor in communicating immediacy. In a related study, Weineke (1981) concluded that the *delivery* as well as the content and organization of the first lecture in university classes had a significant impact on students' approach to the subject and to the teacher.

Research Questions

The studies reviewed above suggest a variety of nonverbal behaviors that teachers can employ to affect perceptions of immediacy. These include moving away from a desk or podium, facing students, touching students, establishing eye contact with students, smiling at students, moving around the room, having a relaxed posture, and being vocally expressive. All of these variables, individually and collectively, have been demonstrated to be associated with affective responses. Our concern in the present investigation, however, centered on cognitive learning. We were concerned with the degree to which these nonverbal behaviors, individually and collectively, are associated with cognitive learning in college classrooms. Specifically, our research questions were as follows:

- RQ₁ To what extent are student perceptions of individual types of nonverbal behaviors of teachers associated with cognitive learning of students?
- RQ₂ To what extent are student perceptions of nonverbal behaviors of teachers collectively associated with cognitive learning of students?

METHOD

Measurement

Cognitive learning. A vexing problem that has confronted previous researchers concerned with the impact of immediacy in the classroom, as well as with the impact of many other variables, is how to measure cognitive learning. Although standardized tests exist in a variety of subject matters, such tests, by their very nature, are individually restricted to a single subject area. Thus, if research is to be conducted across disciplines, such tests are not useful. Some researchers have chosen, as a result, to use grades as an indicator of cognitive learning. Unfortunately, such grades are subject to a variety of influences in addition to cognitive learning, such as attendance, participation, writing skills, and the like.

In the absence of a solid, objective measure of cognitive learning, we turned to a subjective measure. We did this with full recognition that any subjective measure would almost certainly be confounded to an unknown extent with affect. However, such confounding in measurement may be less of a problem than it may seem at first consideration, particularly among college students. Although a student may generate positive or negative affect for a course for many reasons, one very important basis for a student's affective response is whether or not the student perceives he or she "got anything out of the course." College students are adults with considerable experience in a school environment. We believe it is reasonable to expect them to estimate with considerable accuracy the amount they learn in a given class. In fact, it is likely that their estimate is at least as good as subjective grades provided by teachers in many classes or by tests administered in classes not based on clear behavioral objectives. Simply put, none of these methods is inherently superior to others in terms of validity. Rather, each probes the domain of cognitive learning in a different way and may tap it in such a way that it both overlaps with another method and captures unique information.

We asked the subjects to indicate how much they thought they learned in the classes studied. Specifically, the following scale was employed: "On a scale of 0-9, how much did you learn in the class, with 0 meaning you learned nothing and 9 meaning you learned more than in any other class you've had." Subjects were also asked, on the same scale, "How much do you think you could have learned in the class had you had the ideal instructor?" By subtracting the score on the first scale from the score on the second we created a variable labeled "learning loss" which was intended to remove some of the possible bias with regard to estimated learning that could stem from being forced to take a class in a disliked subject. As noted in the results reported below, this procedure produced results virtually

identical to those of the first scale alone. The correlation between the two scores was .94.

Immediacy behaviors. Subjects were presented with a series of 14 statements describing nonverbal behaviors of teachers (see Table 26.1) that were embedded in a longer questionnaire of 39 items. The remaining items related to irrelevant (to this study) verbal behaviors. The subjects were asked to indicate (by circling "Yes" or "No") whether or not the teacher in the target class used each given behavior. If they indicated the teacher did so, they were asked to indicate how frequently the teacher did so from rarely (scored 1) to very often (scored 4). The frequency of use score was set at 0 for those subjects indicating the teacher did not use the behavior described.

The use of students to report immediacy behavior of teachers was found to be a valid method of obtaining such data in previous research by Andersen (1978). In her study Andersen found high correlations between the reports of students in classes and reports of trained observers.

A total immediacy score was generated by summing the frequency scores of the items (after reflection when necessary). The alpha reliability of the score was .87 in the first study and .80 in the second study.

Participants

Participants in both studies in this investigation were undergraduate college students in basic communication courses. Approximately half in each study were female and half male. A total of 361 persons participated in the first study and 358 in the second study.

Procedures

Study 1. The first study was designed to provide an upper estimate of the potential impact of immediacy variables on learning. Approximately half of the participants were asked to recall the "best teacher you have had in college" and complete the questionnaire concerning that teacher and the class that the subject had with the teacher. The other half did the same for the "worst teacher you have had in college."

Study 2. The second study was designed to provide a more realistic estimate of the impact of immediacy on learning. Approximately half of the participants were asked to respond to the questionnaire on the basis of a "class you took in your major or intended major last semester." The other half responded on the basis of a "class you took outside your major or intended major last semester."

In both studies the respondents were asked to participate during regular class time but were permitted to decline to participate by simply turning in a blank questionnaire. Only three blank forms were turned in. All responses were anonymous.

Table 26.1
Immediacy Behavior Items

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- *1. Sits behind desk when teaching.
 2. Gestures when talking to the class.
 - *3. Uses monotone/dull voice when talking to the class.
 4. Looks at the class when talking.
 5. Smiles at the class as a whole, not just individual students.
 - *6. Has a very tense body position when talking to the class.
 7. Touches students in the class.
 8. Moves around the classroom when teaching.
 - *9. Sits on a desk or in a chair when teaching.
 - *10. Looks at board or notes when talking to the class.
 - *11. Stands behind podium or desk when teaching.
 12. Has a very relaxed body position when talking to the class.
 13. Smiles at individual students in the class.
 14. Uses a variety of vocal expressions when talking to the class.
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* Presumed to be *nonimmediate*.

Data Analyses

In both studies, simple correlations were computed between learning and learning-loss scores and both the total immediacy behavior score and the scores for the individual behavior categories. Multiple correlations were also computed in both studies with scores on the individual behavior categories serving as predictors of the learning and learning-loss scores. Discriminant analyses were conducted for the data in both studies. In the first study the classifications were "best" and "worst" teacher. In the second study, learning levels were created to serve as classifications (low = 0-3, moderate = 4-6, high = 7-9). Finally, analyses of variance were conducted in both studies with the individual behavior frequency scores and total score serving as dependent variables. In the first study the classification of the teacher was the independent variable. In the second study the independent variable was learning level of the students.

RESULTS

Table 26.2 reports the results of the correlational analyses from both studies. Correlations involving the learning and learning-loss variables were essentially similar in study 1. In both analyses, the correlation of learning with the total immediacy score indicated approximately 50% shared variance. The multiple correlations with learning indicated slightly higher shared variance.

In the second study, the correlations of the individual immediacy items with learning loss were generally somewhat higher than with learning. The correlations of the total immediacy score with learning indicated 26%

Table 26.2
Correlations of Learning and Learning-Loss Scores with
Immediacy Behavior Items and Total Immediacy Score

Immediacy Item/Score	Study 1		Study 2	
	Learning	Learning-Loss	Learning	Learning-Loss
1	-.31	.32	-.23	.29
2	.36	-.36	.09*	-.05*
3	-.58	.57	-.48	.53
4	.41	-.41	.29	-.27
5	.55	-.53	.31	-.40
6	-.37	.36	-.27	.32
7	.30	-.29	.12	-.16
8	.44	-.41	.25	-.24
9	-.12	.12	-.09*	.10*
10	-.38	.41	-.24	.34
11	-.18	.16	-.19	.25
12	.57	-.56	.26	-.39
13	.36	-.35	.18	-.20
14	.61	-.59	.40	-.45
Total	.71	.69	.51	.60
Multiple correlation	.74	.73	.57	.64

* $p > .05$.

shared variance and that with learning loss 36% shared variance. The multiple correlations indicated 32% and 41% shared variance, respectively.

Examination of the simple correlations in both studies indicated that use of vocal expressiveness, smiling at the class, and having a relaxed body position had the highest positive association with learning. Sitting on the desk when teaching and gesturing when talking demonstrated no significant relationship in the second study. In addition, touching students and smiling at individual students generated low, but positive, relationships in the second study. Moderate positive relationships were observed for looking at the class and moving around the room when teaching. Moderate negative relationships were observed for sitting behind the desk, having a tense body position, standing behind a podium or desk, and looking at the board or notes.

The discriminant analysis of the data from study 1 indicated that 95% of the participants could be classified correctly into the a priori best-teacher and worst-teacher categories. Best and worst teachers differed significantly on a linear combination of nine variables, $F(9,345) = 87.53$, $p < .0001$; Wilks's lambda = .30. Variables included in the model were numbers 3, 5, 6, 7, 8, 9, 10, 12, and 14 (see Table 26.1).

The discriminant analysis of the data from study 2 indicated that 68% of the subjects could be classified correctly into the a priori high, moderate, and low learner classifications. High, moderate, and low learners

Table 26.3
Means of Immediacy Items and Total Score by Teacher Classification

Immediacy Item/Score	Best Teacher	Worst Teacher	F-Ratio	Percentage of Variance
1	.41	1.22	33.45*	7.9
2	3.24	2.17	69.31*	14.8
3	.40	2.73	277.79*	41.4
4	3.63	2.28	119.67*	23.4
5	2.99	.91	273.64*	41.2
6	.35	1.42	60.60*	13.1
7	.71	.12	52.84*	11.8
8	2.68	1.19	113.18*	22.3
9	1.16	1.50	5.15**	1.3
10	1.09	2.29	84.99*	17.5
11	1.24	1.81	14.10**	3.5
12	3.25	1.15	275.65*	41.2
13	2.08	.99	72.16*	15.3
14	3.07	.77	400.82*	50.1
Total	41.30	22.33	546.11*	60.7

* $p < .0001$; ** $p < .05$.

could be discriminated by the teacher's scores on four immediacy variables, $F(8,656) = 11.80$, $p < .0001$; Wilks's lambda = .76. Variables included in the model were using a monotone/dull voice, looking at the class, moving around the classroom, and using vocal variety. Only use of a monotone/dull voice was a negative predictor.

A supplementary discriminant analysis involving only high and low learners indicated 92% of the subjects ($N = 210$) could be correctly classified into these a priori categories. Stepwise analysis yielded a six-variable model, $F(6,203) = 21.10$, $p < .0001$; Wilks's lambda = .62. Variables included in the model were gesturing when talking, using a monotone/dull voice (negative), moving around the classroom, looking at board or notes (negative), smiling at individual students, and using vocal variety.

The results of the analyses of variance for study 1 are reported in Table 26.3, those for study 2 in Table 26.4. The analyses based on the total immediacy score indicated approximately 61% of the variance was accounted for in study 1 and 21% in study 2. The individual variables on which the most variance was accounted for were those dealing with the use of voice.

An examination of the mean reported use of the individual variables in study 2 suggests that the teachers whom the students referenced in this study generally gestured and looked at the class when talking. In contrast, it appears that it was very unusual for these college teachers to touch a student and comparatively rare for the teachers to stand behind or sit on a desk or to have a tense body position when teaching.

Table 26.4
Means of Immediacy Items and Total Score by Learning Level Classification

Immediacy Item/Score	High Learner	Moderate Learner	Low Learner	F-Ratio	Percentage of Variance
1	.44	.68	1.24	7.61**	4.1
2	3.23	3.12	3.03	.89	—
3	2.67	1.15	.52	40.45*	18.6
4	3.72	3.47	3.12	12.02*	6.4
5	2.70	2.39	1.39	16.68*	8.6
6	.26	.42	1.18	13.58*	7.1
7	.40	.35	.12	1.59	—
8	2.46	2.12	1.18	12.00*	6.4
9	1.08	1.17	1.52	1.54	—
10	1.29	1.66	2.27	10.18*	5.5
11	1.58	1.81	2.33	4.18**	2.3
12	3.02	2.67	2.03	11.10*	6.1
13	1.82	1.71	1.03	5.46**	3.0
14	2.74	2.30	1.18	24.18*	12.0
Total	39.07	35.31	26.13	44.74*	21.3

* $p < .0001$; ** $p < .05$.

The total immediacy scores could range from 0 to 56; the hypothetical midpoint on the scale is 28. The observed standard deviation for the scores in study 2 was 8.22. Thus the "best" teachers in study 1 can be described as very highly immediate and the "worst" teachers probably should be described as moderately low in immediacy. Teachers of students reporting high learning in study 2 were only a little more immediate than those of students reporting moderate learning. However, both were substantially more immediate than those of students reporting low learning. An examination of a plot of the immediacy and cognitive learning scores in the second study indicated the association between the two scores clearly was nonlinear.

SUMMARY AND IMPLICATIONS

If we assume that the students in the present studies were in a position to give a reasonably accurate report of their cognitive learning and were motivated to respond truthfully to our request for that information, we may conclude from this research that immediacy behaviors are substantially associated with cognitive learning. These results suggest that across typical classrooms on the college level (study 2) the association may range from a quarter to a third of the variance. In extreme instances (study 1) the association may be quite a bit higher.

Although all of the immediacy items in our study of best and worst teachers were able to discriminate between such extreme types, it is clear that not all immediacy behaviors are of equal importance. Vocal expres-

siveness, smiling at the class, and having a relaxed body position appear to be most important, and looking at the class (instead of at the board or notes) and moving around the classroom rather than standing behind a desk or podium also seem to make a meaningful contribution. Although gesturing when talking made little contribution in the second study, there was a substantial correlation between gesturing and learning in the first study. The means for the gesturing item for all levels of learners were high in the second study. Consequently, it may be that most teachers actively gesture, thus providing little variance in this activity across typical classrooms. If a teacher were not to gesture, therefore, a negative impact could occur.

Whether or not these results should be generalized to lower levels of instruction must await future research at those levels. However, the present results relating to touching and smiling at individual students are unlikely to be generalizable to teaching at lower grade levels. In the studies reported here, our college student subjects indicated very few college teachers ever touch them. Observation of elementary school classrooms indicates that touch occurs on a regular basis in that environment. Similarly, because much teaching is individualized at the lower levels of education, the behavior of smiling at individual students may be much more important there than at the college level.

Our examination of the mean immediacy scores for the learning levels in the second study suggests a possible reason why previous research has not found association between cognitive learning and immediacy consistently. The present data suggest the possibility that the association between cognitive learning and immediacy is nonlinear and that most teachers may be at least moderately immediate. It seems possible that moderate immediacy is necessary for cognitive learning and low immediacy may suppress such learning. However, high immediacy may not increase cognitive learning over that generated by moderate immediacy.

In naturalistic research involving a limited number of consenting teachers, it is quite possible that the range on immediacy will be from moderate to high. The data from a study currently in progress reflect this pattern. This same pattern has been evidenced in several earlier studies in which teacher immediacy has been studied in the context of communication classes. In contrast, in experiments it would be normal to establish a clear high-low distinction. If our speculation on the nonlinearity of the relationship is correct, we would expect a low or nonsignificant relationship in the naturalistic studies but a meaningful positive relationship in the experimental studies. This expectation is consistent with the previous research in this area summarized earlier in this chapter.

The previous research relating to immediacy and affective learning, in contrast, is very consistent, and the observed relationship appears to be linear: the higher the immediacy of the teacher, the higher the affective

learning of the student. Thus the composite picture of the association between teacher immediacy and learning may be drawn as follows: Teachers with low immediacy will generate lower cognitive and affective learning. Teachers with moderate immediacy will generate higher cognitive learning and moderate affective learning. Teachers with high immediacy will generate similar (to moderately immediate teachers) cognitive learning, but higher affective learning. This conclusion, of course, is speculative at this point and calls for careful research to test both the assumptions upon which it rests and the outcomes it projects.

At this point, however, we can be reasonably assured that a teacher who increases immediacy with students is likely to generate more student learning. The behaviors most likely to accomplish this objective at the college level appear to be vocal expressiveness, smiling, and having a relaxed body position.

REFERENCES

- Aiello, J. R., & Cooper, R. E. (1972). Use of personal space as a function of social affect. *Proceedings of the 80th annual convention of the American Psychological Association*, 7, 207-208.
- Andersen, J. F. (1978). *The relationship between teacher immediacy and teaching effectiveness*. Unpublished doctoral dissertation, West Virginia University, Morgantown, WV.
- Andersen, J. F. (1979). Teacher immediacy as a predictor of teaching effectiveness. In D. Nimmo (Ed.), *Communication Yearbook 3* (pp. 543-559). New Brunswick, NJ: Transaction Books.
- Andersen, P., & Andersen, J. (1982). Nonverbal immediacy in instruction. In L. Barker (Ed.), *Communication in the Classroom* (pp. 98-120). Englewood Cliffs, NJ: Prentice-Hall.
- Andersen, J. F., Andersen, P. A., & Jensen, A. D. (1979). The measurement of nonverbal immediacy. *Journal of Applied Communication Research*, 7, 153-180.
- Bayes, M. (1970). *An investigation of the behavioral cues of interpersonal warmth*. Unpublished doctoral dissertation, University of Miami, Miami, FL.
- Beebe, S. A. (1980, November). *The role of nonverbal communication in education: Research and theoretical perspectives*. Paper presented at the annual meeting of the Speech Communication Association, New York.
- Bishop, A. (1976). Actions speak louder than words. *Mathematics Teaching*, 74, 49-71.
- Bloom, B. S. (Ed.). (1956). *A taxonomy of educational objectives. Handbook 1: The cognitive domain*. New York: Longmans, Green.
- Bradley, B. (1979, May). *Training manual. Focused observations: Nonverbal teaching behavior*. Paper presented at the annual meeting of the International Reading Association, St. Louis. (ERIC Document Reproduction Service No. ED 196 849)
- Breed, G. (1971). *Nonverbal behavior and teaching effectiveness*. Vermillion: University of South Dakota. (ERIC Document Reproduction Service No. ED 059 182)
- Breed, G., Christiansen, E., & Larson, D. (1972) Effect of a lecturer's gaze direction upon teaching effectiveness. *Catalog of Selected Documents in Psychology*, 2, 115.
- Brim, O. G. (1958). *Sociology and the field of education*. New York: Russell Sage Foundation.
- Byrne, D., Baskett, G. D., & Hodges, L. (1971). Behavioral indicators of interpersonal attraction. *Journal of Applied Social Psychology*, 1, 137-149.
- Coats, W. D., & Smidchens, U. (1966). Audience recall as a function of speaker dynamism. *Journal of Educational Psychology*, 57, 189-191.
- Cyphert, F. R. (1972). An analysis of research in teacher education. *Journal of Teacher Education*, 23, 145-151.

- Exline, R. V., & Winters, L. C. (1965). Affective relations and mutual glances in dyads. In S. S. Tomkins & C. Izard (Eds.), *Affect, cognition, and personality* (pp. 319-350). New York: Springer.
- Fisher, J. D., Rytting, M., & Heslin, R. (1976). Hands touching hands: Affective and evaluative effects of an interpersonal touch. *Sociometry*, 39, 416-421.
- French, R. L. (1970). *A study of communication events and teacher behavior: Verbal and nonverbal*. Unpublished doctoral dissertation, University of Tennessee, Knoxville, TN.
- Gauger, P. W. (1952). The effect of gesture and the presence or absence of speaking on listening comprehension of eleventh and twelfth grade high school pupils. In C. W. Dow (Ed.), *Abstracts of theses in the field of speech and drama. Speech Monographs*, 19, 116-117.
- Getzels, J. W., & Jackson, P. W. (1963). The teacher personality and characteristics. In N. L. Gage (Ed.), *Handbook of research on teaching* (pp. 506-582). Chicago: Rand McNally.
- Grant, B. M., & Hennings, D. G. (1971). *The teacher moves: An analysis of nonverbal activity*. New York: Teachers College Press.
- Harootunian, B., & Yarger, G. P. (1981). *Teachers' conceptions of their own success. Current issues*. Washington, DC: ERIC Clearinghouse on Teacher Education. (ERIC Document Reproduction Service No. ED 200 518)
- Heath, R., & Nielson, M. (1974). The research basis for performance-based teacher education. *Review of Educational Research*, 44, 463-484.
- Henley, N. M. (1977). *Body politics: Power, sex and nonverbal communication*. Englewood Cliffs, NJ: Prentice-Hall.
- Hesler, M. W. (1972). An investigation of instructor use of space. *Dissertation Abstracts International*, 33, 3044A. (University Microfilms No. 72-30, 905).
- Hodge, R. L. (1971). Interpersonal classroom communication through eye contact. *Theory Into Practice*, 10, 264-267.
- Hurt, H. T., Scott, M. D., & McCroskey, J. C. (1978). *Communication in the classroom*. Reading, MA: Addison-Wesley.
- Jourard, S. M. (1966). An exploratory study of body accessibility. *British Journal of Social and Clinical Psychology*, 5, 221-231.
- Karr-Kidwell, P. J. (1978). *The impact of discrepant verbal-nonverbal messages in the teacher-student interaction*. (ERIC Document Reproduction Service No. ED 207 123)
- Kendon, A. (1967). Some functions of gaze direction in social interaction. *Acta Psychologica*, 26, 22-63.
- Kleinfeld, J. (1973). *Using nonverbal warmth to increase learning: A cross-cultural experiment*. Fairbanks: University of Alaska. (ERIC Document Reproduction Service No. ED 081 568)
- Klinzing, H. G. (1983, April). *Effects of a training program on expressive nonverbal behavior*. Paper presented at the annual meeting of the American Educational Research Association, Montreal. (ERIC Document Reproduction Service No. ED 233 999)
- Klinzing, H. G. (1984, April). *The effects of nonverbal behavior training on teacher clarity, interest, assertiveness, and persuasiveness during microteaching*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans. (ERIC Document Reproduction Service No. ED 252 519)
- Krathwohl, D. R., Bloom, B. S., & Masia, B. B. (1964). *Taxonomy of educational objectives. Handbook II: The affective domain* (Chapters 1-4). New York: David McKay.
- Kraut, R. E., & Johnston, R. E. (1979). Social and emotional messages of smiling: An ethological approach. *Journal of Personality and Social Psychology*, 37, 1539-1553.
- McDowell, E. E., McDowell, C. E., & Hyerdahl, J. (1980, November). *A multivariate study of teacher immediacy, teaching effectiveness and student attentiveness at the junior and senior high levels*. Paper presented at the annual meeting of the Speech Communication Association, New York.
- McGinley, H., LeFevre, R., & McGinley, P. (1975). The influence of a communicators' body position on opinion change in others. *Journal of Personality and Social Psychology*, 31, 686-690.
- Mehrabian, A. (1967). Orientation behaviors and nonverbal attitude communication. *Journal of Communication*, 17, 324-332.

- Mehrabian, A. (1968). Relationship of attitude to seated posture, orientation and distance. *Journal of Personality and Social Psychology*, 10, 26-30.
- Mehrabian, A. (1969). Some referents and measures of nonverbal behavior. *Behavioral Research Methods and Instruments*, 1, 213-217.
- Mehrabian, A. (1971). *Silent messages*. Belmont, CA: Wadsworth.
- Mehrabian, A. (1978). Characteristic individual reactions to preferred and unpreferred environments. *Journal of Personality*, 46, 717-731.
- Mehrabian, A. (1980). *Basic dimensions for a general psychological theory: Implications for personality, social, environmental and developmental studies*. Cambridge, MA: Oelgeschlager, Gunn & Hain.
- Mehrabian, A. (1981). *Silent messages: Implicit communication of emotion and attitude*. Belmont, CA: Wadsworth.
- Mehrabian, A., & Friar, J. T. (1969). Encoding of attitude by a seated communicator via posture and position cues. *Journal of Consulting and Clinical Psychology*, 33, 330-336.
- Mehrabian, A., & Russell, J. A. (1974). *An approach to environmental psychology*. Cambridge: MIT Press.
- Montague, A. (1978). *Touching: The human significance of the skin*. New York: Harper & Row.
- Morris, D. (1971). *Intimate behavior*. New York: Random House.
- Nier, C. J. (1979). Educational autobiographies: Explorations of affective impact. *Teacher Educator*, 15, 14-20.
- Nussbaum, J. F. (1984, April). *The Montana program to systematically modify teacher communicative behavior*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans. (ERIC Document Reproduction Service No. ED 243 832).
- Patterson, M. L., & Sechrest, L. B. (1970). Interpersonal distance and impression formation. *Journal of Personality*, 38, 161-166.
- Ringness, T. A. (1968). *Mental health in the schools* (chapter 1). New York: Random House.
- Rosenfeld, H. M. (1966). Instrumental affiliative functions of facial and gestural expressions. *Journal of Personality and Social Psychology*, 4, 65-72.
- Scherer, K. R. (1972). *Acoustic concomitants of emotional dimensions: Judging affect from synthesized tone sequences*. Paper presented at the Eastern Psychological Association Meeting, Boston.
- Seals, J. M., & Kaufman, P. A. (1975). Effects of nonverbal behavior on student attitudes in the college classroom. *Humanist Educator*, 14, 51-55.
- Simon, A., & Boyer, E. G. (1974). *Mirrors for behavior III: An anthology of observation instruments*. Wyncote, PA: Communication Materials Center.
- Smith, H. A. (1979). Nonverbal communication in teaching. *Review of Educational Research*, 49, 631-672.
- Stern, B. L. (1984, January). When you're smiling. . . you may be saying more than you realize. *Vogue*, 113.
- Thayer, S., & Schiff, W. (1974). Observer judgement of social interactions: Eye contact and relationship inferences. *Journal of Personality and Social Psychology*, 30, 110-114.
- Victoria, J. (1970). *An investigation of nonverbal behavior of student teachers*. University Park: Pennsylvania State University. (ERIC Document Reproduction Service No. ED 042 724).
- Weineke, C. (1981). The first lecture: Implications for students who are new to the university. *Studies in Higher Education*, 6, 85-89.