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ABSTRACT

Student emotional response to teacher classroom behaviors may offer a theoretical framework for explaining student learning. Such a framework may encompass other models, such as arousal/motivation or identification, in offering an explanation of why students learn when teachers exhibit certain behaviors. Emotional response has provided explanations for human behavior in several communication contexts. Research has sought to explain student learning using emotion theory, originally developed by A. Mehrabian and further refined by J. A. Russell. Based upon assumptions of human emotional response offered by R. Buck and others, emotions are influenced by implicit teacher communication behaviors. In the classroom implicit behaviors may include both verbal but especially nonverbal teacher behaviors. Student emotional response can be conceptualized along three dimensions: pleasure, arousal, and dominance. These three dimensions, as documented in several lines of research, can account for emotional responses and can be operationalized using 7-point scales. Using the emotional response paradigm is not without limitations and challenges. New methods need to be found to measure human emotional response. (Contains 63 references and a figure illustrating the emotional response model.) (Author/RS)

WHAT WORKS AND WHY DOES IT WORK: EXPLANATORY MODELS OF EFFECTIVE TEACHER COMMUNICATION

Explaining Student Learning: An Emotion Model

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Panel Abstract

Research in instructional development over the past twenty-five years has sought to identify specific teacher behaviors that enhance student learning. Little is known, however, about why some specific teacher behaviors are more effective than others. Each paper on this program presents an explanatory model that has been used to interpret research conclusions about why such teacher behaviors as immediacy, affinity seeking, power and communicator style may lead to enhanced student learning.

Paper Abstract

This paper reviews research which seeks to explain student learning using emotion theory as originally developed by Mehrabian and further refined by Russell. The rich stream of teacher immediacy research stems from Mehrabian's initial conception of implicit messages and their effects upon approach-avoidance. Based upon assumptions of human emotional response offered by Buck and others, this paper suggests that emotions are influenced by implicit communication behaviors. In the classroom implicit behaviors may include both verbal but especially nonverbal teacher behaviors. Student emotional response can be conceptualized along three dimensions: pleasure, arousal, and dominance. These three dimensions, as documented in several lines of research, can account for emotional responses and can be operationalized using seven-point scales. This paper compares implicit and explicit communication systems, reviews previous work which has used this paradigm in a classroom setting, and offer suggestions for future research.

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INTRODUCTION

Effective teaching has always been valued. For over a quarter century, communication scholars have dedicated considerable effort identifying which teacher behaviors enhance learning. Based upon research in education as well as in a variety of content-specific disciplines, prescribed teacher behaviors have been identified that are thought to engender student learning. Many high school and elementary principals regularly visit teachers' classrooms armed with an evaluation form that includes a list of expected teacher behaviors.

In the speech communication instructional development literature, several variables have been correlated with improved learning. For example, programmatic research investigating immediacy has resulted in explicit suggestions for enhancing student learning. Others have pursued teacher enthusiasm and specific nonverbal variables as prescriptions for effective teaching. Teacher communicator style, solidarity, affinity-seeking behaviors and teacher power are other variables which have been linked to enhanced student learning.

Much of this important research, however, has been described as variable analytic. Teacher behavior "X" seems to be correlated (based upon student self-report measures) with improved affective and (sometimes) cognitive learning. While these studies are useful in identifying effective low-inference teacher behaviors, there has yet to emerge a widely embraced theoretical explanation which links these numerous research efforts to a unified set of principles or a cogent theoretical perspective. A theoretical framework would enhance the application of these studies. We suspect that little has changed since 1963 when Solomon, Bezdek and Rosenburg suggested that it was not a lack of research that results in uncertainty about the relationship between teacher behaviors and learning. Rather, it is the lack of a common theoretical framework that can explain and predict

relationships among teacher verbal and nonverbal behavior and learning outcomes that hinders our understanding of the teaching-learning process.

The purpose of this paper is to review research which suggests that student emotional response to teacher classroom behaviors may offer a theoretical framework for explaining student learning. Such a framework may encompass other models, such as arousal/motivation or identification, in offering an explanation of why students learn when teacher exhibit certain behaviors.

Directly measuring student emotional responses to teachers may provide a more fruitful approach to help explain why certain teacher behaviors enhances student learning. Recent research by Butland and Beebe (1994, 1992a, 1992b) suggests that emotional response may indeed explain why certain implicit messages such as teacher affinity-seeking, immediacy and Behavioral Alteration Techniques affect student learning. Their research has documented relationships between specific teacher behaviors, student emotional response and learning.

EMOTIONAL RESPONSE THEORY

Emotional response has provided explanations for human behavior in several communication contexts. Evidence suggests emotional response helps explain communication apprehension (Biggers & Masterson, 1983, 1984), television viewing patterns (Christ & Medoff, 1984; Christ & Biggers, 1984; Beebe & Biggers, 1986), conceptualizations of dissonance (Biggers, 1985), the effects of environment upon behavior (Biggers & Rankis, 1983; Russell & Mehrabian, 1974a) attitude change (Biggers & Pryor, 1982), empathic competence (Vinson, 1988), speaker delivery (Beebe & Biggers, 1988) and compliance-gaining strategies (Vinson & Biggers, 1993).

Mehrabian (1981) argues that implicit communication, which he defines as "aspects of speech [that] are not dictated by correct grammar but are rather expressions of feelings and attitudes above and beyond the contexts conveyed by speech" (p. 2), plays the predominant role in affecting emotional response to messages. Implicit communication includes such aspects of communication as head nods, use of personal space, facial expression, and body posture as well as paralinguistic features such as tone, rate, pitch, and volume. These behaviors communicate implicit messages because they are often unintentional or implied expressions of underlying emotions (Mehrabian, 1981). Teacher affinity-seeking behaviors could be described as efforts to implicitly communicate liking.

Whether or not emotions are expressed explicitly through words and overt behaviors, they often manifest themselves in the form of implicit messages to which others consciously or subconsciously respond. Emotions manifest themselves in a positive or negative attitude toward the subject. Approaching or avoiding behaviors are based on these attitudes. Put most simply, one pursues things that one likes; one likes things that one feels positive emotions for (e.g., teachers who use affinity-seeking strategies, immediacy cues, or pro-social behavioral alteration techniques); one's emotions are affected by the implicit messages one receives.

The implicit-explicit dichotomy is analogous to the often references content and relationship dimensions of messages (Watzlawick, Beavin & Jackson, 1967). The implicit-explicit taxonomy has also been used to classify communication rule development and use (Shiminoff, 1980). According to Buck (1984) and Biggers (1990), emotional states are the referents for implicit messages; objects and behaviors as symbolized through language are the referents for explicit communication systems.

An individual's emotional response is based, in part, upon the way he or she perceives implicit "information about feelings and like-dislike or attitudes" from others (Mehrabian, 1981, p. 3). Separate and collaborative research and theory development by Russell (1974a, 1974b, 1978) and Mehrabian (1974a, 1976, 1978, 1980, 1981) has resulted in a three-factor model of human emotional response. Instruments for measuring emotions along the three-factor structure have demonstrated appropriate validity and reliability in a variety of situations (Beebe & Biggers, 1986; Biggers & Masterson, 1984, 1984; Biggers & Pryor, 1982; Biggers & Rankis, 1983; Biggers & Walker, 1984; Christ & Biggers, 1984; Vinson, 1988; Vinson & Biggers, 1993).

Theory and research suggests that all emotional states may be adequately described in terms of three independent dimensions: (1) pleasure-displeasure, (2) arousal-non arousal, and (3) dominance-submissiveness. Each dimension is of a continuous nature and has within its range positive and negative values as well as a neutral point. Combinations of various values on each dimension characterize different emotions.

Pleasure. The pleasure-displeasure dimension is defined by adjective pairs like happy-unhappy, pleased-annoyed, or satisfied-unsatisfied. Psychological indication of this dimension is the presence or absence of a longing to approach the subject or object; generally, stimuli that produce greater pleasure elicit greater liking (Mehrabian, 1981).

Arousal. The arousal-non arousal dimension is defined by adjective pairs like stimulated-relaxed, excited-calm, or frenzied-sluggish. Psychological indication of this dimension is mental alertness (Mehrabian, 1981). Behavioral indications for this

dimension are physical activity levels (Mehrabian, 1980). The arousal dimension modifies emotional reactions to stimuli by exaggerating the reaction of liking or disliking.

Dominance. The dominance-submissiveness dimension is defined by adjective pairs like controlling-controlled, influential-influenced, or in control-cared for (Mehrabian, 1981). Psychological indications of this dimension are feelings of power and control (Mehrabian, 1981). Behavioral indications for this dimension are found in a relaxed posture, body lean, reclining angle while seated, or asymmetrical position of the limbs (Mehrabian, 1980). Generally, stimuli that produce greater dominance result in feelings of greater empowerment or permission to behave. Alternately, emotions of submissiveness result in decreased license to acknowledge liking or disliking (Mehrabian, 1981).

The identification of a three-factor schema to interpret the meaning of messages is not novel. Osgood, Suci's and Tannenbaum (1957) three-factor structure of interpreting explicit messages preceded Mehrabian's (1981) factor structure for interpreting implicit messages. Berlo, Lemert and Mertz (1969) used a three-factor structure for measuring the effects of a speaker's behavior upon the speaker's perceived credibility.

Consider this illustration of the three factor structure of emotional response: Imagine that your car breaks down at night in an isolated part of a large city known for criminal activity. As you sit in your car pondering your options, in the night's misty darkness you catch a glimpse of someone heading toward you. You are concerned. Your primary worries include: (1) how close is this person to you?(pleasure-displeasure; immediacy-non-immediacy); (2) how fast is the person approaching you? (arousal-non-arousal); and (3) is this person armed and much larger than you? (power and dominance). Your feelings of fear (if the person approaching you is a stranger brandishing a gun) or joy (if the person is you dad coming you rescue you) are influenced by three primary factors: pleasure-displeasure, arousal-nonarousal, and dominance-submissiveness.

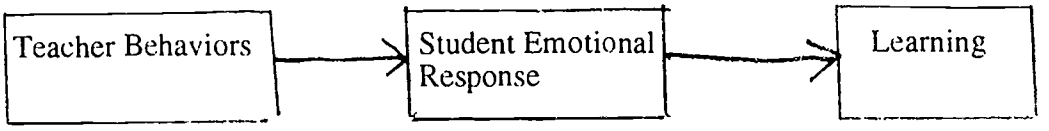
Biggers (1990) and Vinson and Biggers (1993) supported by the work of Mehrabian and Russell (1974a) suggest that the three dimensions (pleasure, arousal and dominance) combine to permit predictions of a higher order construct called liking. The greater the degree of liking felt by a subject the greater the likelihood of approach behaviors. Human emotional response can thus permit predictions of approach or avoidance. As explicated by Biggers (1990) the following relationships can be predicted:

1. Increased emotional responses of pleasure, arousal and dominance increases liking.
2. Arousal acts to amplify pleasure; increased arousal increases the liking of pleasurable stimuli and increases the disliking of displeasurable stimuli.

3. Dominance acts as permission to behave so that increased dominance increases liking of pleasurable stimuli and increases disliking of displeasurable stimuli.

The overall implications of the effect of emotional response upon behavior are that increased liking will result in greater approach behavior, increased disliking will result in greater avoidance. This three-factor emotional response schema has been successfully applied to the public speaking context. Beebe and Biggers (1988) explained the effects of speech delivery variations of perceived source credibility and receiver comprehension; they documented relationships between listener emotional response and credibility and comprehension. In the context of a classroom, approach behavior could be operationalized as increased learning. Thus relationships could be tested between student emotional responses to teacher behavior and student learning. The following model shown in Figure 1 describes the relationship between the predicted effect of teacher behavior, the mediating presence of student emotional response, and student learning.

FIGURE 1 The Emotional Response Model



Nonverbal immediacy
Verbal immediacy
Behavioral Alternation Techniques
Affinity-Seeking Behaviors

Pleasure
Aoursal
Dominance

Cognitive
Affective

RESEARCH SUPPORT FOR THE EMOTIONAL RESPONSE MODEL

There is evidence that student learning can be explained by student emotional responses to teacher behavior. Butland and Beebe (1992a) measured student emotional response to teacher immediacy behaviors and found positive relationships between teacher use of immediacy cues and student perceptions of affective and cognitive learning. In a subsequent study, Butland and Beebe (1992b) found that teacher use of Behavior Alteration Techniques can also be explained in terms of student emotional response to teacher behavior. These relationships may occur because teachers use implicit rather than explicit message to communicate relational messages of power, immediacy and affinity. Beebe and Biggers (1992) argue that the effects of teacher

variables on learning may be explained using the approach metaphor central to implicit communication theory. Gorham (1988) suggests that teacher immediacy can be understood within the larger framework of Mehrabian's (1981) theoretical assumptions.

Beebe and Butland (1994) reported relationships between student emotional response and teacher affinity-seeking cues. Students reported greater feelings of pleasure and arousal from those teachers who used affinity-seeking behavior. Conceptually, teacher affinity-seeking behaviors may have increases learning by effecting students' liking for the instructor and/or course (Andersen, 1978, 1979; Oester, 1955; Frymier, 1992). Liking is an attitude that can be operationalize in terms of a combination of Mehrabian's three dimensions of emotion. Increases in pleasure and arousal levels correlated with this increased liking. Thus, teacher affinity-seeking strategies may function by eliciting emotional responses either conducive or detrimental to liking, and learning by extension.

Richmond (1990) suggests that student motivation is the underlying construct that explains why affinity-seeking strategies enhance learning. Her operational definition of motivation, student's "feelings" about studying the class content, may really be another way of assessing student emotional response. Student motivation to learn may be significantly influenced by student emotional response to the teacher, subject matter and teaching strategies. Measuring student emotional states may be a more direct way to assess student responses to learning. Emotional response as conceptualized by implicit communication theory can then be used to explain why students are motivated to learn.

Accordingly, then, teacher behavior (e.g. immediacy, affinity-seeking, pro-social behavioral alternation techniques) would involve a three-part process: First, teachers' emotions are communicated implicitly and are observed by students. Second, students feel increased or decreased pleasure, arousal and dominance characteristic of increased or decreased liking. Third, liking manifests itself in approach behavior (e.g., learning and being motivated to learn) in the classroom.

The results of several studies suggest that student emotional response to teacher behaviors may be a more precise method of assessing student meaning ascribed to teacher behaviors. We agree with Richmond's (1990) conclusion that "meanings in the minds of students, not teachers, are the critical meanings" (p. 193). Richmond suggests that assessing student motivation may be the key to interpreting student ascribed meanings to teacher behaviors. As operationalized by Richmond (1990), motivation was measured by asking students how they *felt* about studying the content in the class. Motivation was conceptualized as a predictor of approach or avoidance toward learning. Assumptions of the tripartite dimensions of pleasure, arousal and dominance may help us more accurately

measure how students interpret teacher behaviors and assess approach or avoidance to learning. Most teachers do not frequently *explicitly* say "I like you" or "I want you to like me and the subject I'm teaching." Rather, they described behaviors that *implicitly* communicate perceptions of immediacy or affinity. Therefore, implicit messages may prove useful in helping us interpret what teacher behaviors mean in the minds of students. The emotional responses to these teacher behaviors may be the best predictors of student approach-avoidance toward the teacher and subject (cognitive and affective learning). Knowing how students emotionally respond to teacher behaviors may help us develop more effective teacher training and education efforts.

SUGGESTIONS FOR THE FUTURE

While giving us insights as to the role of human emotional response in explaining learning, using the emotional response paradigm is not without limitations and challenges. New methods need to be found to measure human emotional response. Asking students to recall emotional responses to a stimuli clearly draw upon cognitive information as well as emotions. Yet responses to implicit messages are assumed to be based upon emotional rather than cognitive responses as a key predictor of approach-avoidance behaviors. The current search for linkages between student emotional response and learning is severely limited until more precise measures of emotional response are developed. While several studies report adequate reliability scores for the dimensions of pleasure and arousal, the dominance dimension has consistently been a troublesome emotional response to tap. Additional work needs to be done in scale development or perhaps using new technology to measure student emotional response.

Exploring the use of physiological measures of pleasure, arousal and dominance such as facial expressions, pulse rate and body symmetry as well as self-assessment measures such as Continuous Affective Response Technology (CART) (Ivy, Beebe, Friedreich, Javidi & Biggers, 1991) should be investigated. CART involves having subjects view a stimulus (video tape or live presentation) and respond on hand-held dials to register their degree of pleasure or displeasure. CART permits the measurement of pleasure (dialing to the right for pleasure and to the left for displeasure) and arousal (how far students dial to the left or right on the hand-held dial) but does not assess feelings of dominance or submissiveness. If valid and reliable measures of student emotions can be isolated, investigations of teacher variables that effect student emotions will have more precision.

More direct measures of student cognitive learning would also strengthen claimed relationships between teacher behaviors, student emotional responses and learning. The measures of cognitive learning used in this study are consistent with methods used during the past decade to measure relationships between teacher use of immediacy, power and affinity-seeking behaviors (Frymier, 1992; Frymier & Thompson, 1992; Gorham, 1988; Gorham & Christophel, 1990; Richmond, 1990; Richmond, Gorham & McCroskey, 1987; Richmond, McCroskey, Kearney & Plax, 1987). It can be argued, however, that perceived student learning is a less direct measure of cognitive learning than actual assessments of information gain. A stronger case for linking teacher behaviors with cognitive learning can be made if more direct measures of learning are employed (Gorham and Kelly ,1988).

Using statistical techniques such as path analysis is another method which could strengthen claims that student emotional responses are central to affecting student learning. Frymier (1994) reports a linkage between student motivation and teacher immediacy based upon path analysis. Vinson and Nutt (1992) found that liking and teacher verbal immediacy were the primary predictors of affective and cognitive learning rather than student emotional response. Additional research which mirrors the methodology of these two studies and that also includes valid and reliable measures for all three emotional response dimensions may begin to explain the complex cause and affect relationships between what teachers do and how much students learn.

We have over two decades of research which identifies relationships among specific teacher behaviors such as immediacy, use of Behavior Alteration Techniques and affinity-seeking behaviors and student outcomes variables. Understanding the relationship between these and other teacher behaviors and student emotional response may help us better explain and predict teacher effectiveness and student learning. Unraveling such mysteries will help existing teachers as well as the teachers of tomorrow.

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