

POWER IN THE CLASSROOM VII: LINKING BEHAVIOR ALTERATION TECHNIQUES TO COGNITIVE LEARNING

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The research program entitled, "Power in the Classroom," was initiated in an effort to determine those strategies that teachers employ to gain student on-task compliance (Kearney, Plax, Richmond, McCroskey, 1984, 1985; McCroskey & Richmond, 1983; McCroskey, Richmond, Plax, & Kearney, 1985; Plax, Kearney, McCroskey, & Richmond 1986; Richmond & McCroskey, 1984). With the exception of one study (Richmond & McCroskey, 1984), however, this research series has focused almost exclusively on those techniques that are associated with students' affective learning. Without denying the importance of affective outcomes in the classroom, teachers' use of control is not intended to be primarily an affect-gaining function. Instead, such strategies function to modify students' behavior in order to increase cognitive learning.

While instructional communication researchers continue to argue that positive student affect should, in turn, promote cognitive learning, a number of studies point to inconsistencies in the presumed one-to-one relationship between the two learning variables. For instance, Peck and Veldman (1973) found that teachers who were rated the *least* interesting or pleasant were those who were *most* successful in promoting student cognitive learning. Similarly, Abrami, Perry and Levanthal (1982) discovered that the most popular teachers were not predictably those who helped students learn more. Consequently, researchers who investigate predictors of affective outcomes cannot readily assume that the same variables necessarily will be associated with cognitive learning. In other words, teachers may be likeable and friendly, but also may be "off-task" (Coatney, 1985).

Returning to the primary concern of this research program, then, the purpose of this investigation is to isolate those strategies that are associated with students' cognitive learning. Important to this relationship, the following review explicates the role of behavior alteration techniques in optimizing cognitive learning by maximizing students' academic engagement time.

Academic engagement time

While a variety of both teacher and student behaviors are associated with student achievement, the single best predictor of learning is simply "academic engagement time" (Woolfolk & McCune-Nicolich, 1984). The amount of active time spent on specific academic tasks consistently results in higher achievement gains (Denham & Lieberman, 1980; McGarity & Butts, 1984; Rosenshine, 1979; Samuels & Turnure, 1974). Given this repeated finding, a whole new area of research has emerged over the last decade which focuses on classroom management. Defined as those teacher

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behaviors which "produce high levels of student involvement in classroom activities, minimal amounts of student behaviors that interfere with the teacher's or student's work, and efficient use of instructional time" (Emmer & Evertson, 1981, p. 342), a number of investigations have determined that successful classroom managers are more likely to produce positive student achievement. For instance, effective teachers have been differentiated from ineffective teachers on the basis of their familiarity with and practice of classroom management behaviors that increase students' time spent on-task (Brophy & Evertson, 1976; Cantrell, Stenner, & Katzenmeyer, 1977; Emmer, Evertson, Sanford, Clements, & Worsham, 1984; Evertson, Emmer, Clements, Sanford, & Worsham, 1984). Other research indicates that students at all aptitude levels spend more time engaged and achieve more when taught by teachers competent in classroom management (McCarit & Butts, 1984).

Given the overriding emphasis on on-task behaviors within the classroom management perspective, the role of the teacher is not only one that provides students with the opportunity to learn (e.g., information disseminator and resource guide), but also one that encourages and monitors active student involvement in assigned learning activities. Consequently, the link between teacher instruction and student achievement is, to a large extent, student behaviors of task engagement (McGarity & Butts, 1984). "Teachers who keep their students actively involved in academic tasks, no matter what [instructional] method is used, are more likely to be effective in helping students learn" (Woolfolk & McCune-Nicolich, 1984, p. 442). This fundamental principle of effective teaching has led a number of researchers to identify those teacher behaviors that influence students' academic engagement time. For instance, teacher-led group activities (Good & Beckerman, 1978), avoiding "slow downs" through appropriate transitions and pacing (Charles, 1981; Kounin, 1970), careful monitoring of seatwork (Emmer et al., 1984), the use of prompts (Krantz & Scarth, 1979) and other management behaviors all impact student on-task attentiveness. Also concerned with obtaining on-task behaviors, a recent series of studies on power in the classroom has examined message-based strategies teachers commonly employ to gain student compliance. Such strategies are designed to elicit student on-task behaviors.

Power in the classroom

Defining teacher power as the ability or potential to change student behavior, the "power in the classroom" series originally relied on French and Raven's (1959) five bases of power. The first two studies were designed to determine the degree to which teachers and students shared perceptions of teacher power usage as well as the association between power and student learning (McCroskey & Richmond, 1983; Richmond & McCroskey, 1984). Results indicated that, although teacher and student perceptions of power use were related, student perceptions were more predictive of student learning than were teacher perceptions. The third and fourth investigation in the series focused on expanding the conceptualization of power use in the classroom (Kearney, Plax, Richmond, McCroskey, 1984, 1985). Based upon earlier work in the area of compliance-gaining, typologies of behavior alteration techniques appropriate for use in the classroom were derived from student-generated data and expanded on the basis of teacher-generated data. A typology of 22 behavior alteration techniques (BATs) with verbal messages characteristic of each type (behavior alteration messages; BAMS) was produced.

Relying on the BAT typology, the fifth investigation determined that student

perceptions of teachers' use of BATs were significantly related to student affective learning in grades 7–12 (McCroskey, Richmond, Plax, & Kearney, 1985). Moreover, communication training of teachers significantly altered student perceptions of teachers' use of these techniques in positive ways. That is, teachers who received communication training produced more affective learning in their students than did comparable teachers without training. Because student, rather than teacher, perceptions were more predictive of these particular outcomes, student perceptions were recommended for use in later research. The sixth investigation confirmed the association of student-perceived BAT use with affective learning at the college level as well as at the secondary level (Plax, Kearney, McCroskey, & Richmond, 1986). In addition, it was determined that the impact of BAT use is mediated by students' perceptions of their teachers' nonverbal immediacy behaviors. Use of differential BATs seemed to provide verbal immediacy cues that are merged with the more common nonverbal immediacy cues. As a result, this combined, gestalt perception of teacher immediacy was found to be highly associated with students' affective learning.

Overall, this series revealed that teacher use of particular BATs was associated with either positive or negative student affective responses. Regardless of the affective outcome, however, students may still remain off-task. Given the influence potential of BATs to obtain student on-task compliance, the criterial outcome for BAT use is more appropriately defined as student achievement or cognitive learning. Because the literature consistently points to student on-task behavior as the most important predictor of cognitive learning, it is essential to investigate the association between BAT use and cognitive learning.

Moreover, we argue that particular BATs may be more or less effective at gaining student-on-task compliance. The research on student resistance to BAT use suggests that students may be unwilling to comply with teacher on-task demands as a function of the particular strategy employed (Plax, Kearney, Downs, & Stewart, 1985). Interestingly, those BATs that were positively associated with student resistance were also those previously identified as predictors of negative student affect. Consequently, those BATs that promote positive affective outcomes may also be those that obtain on-task compliance. Even though we contend that an affective focus should not replace a cognitive emphasis, we might also suggest that instructors who are limited exclusively to on-task concerns may promote student resistance. Failing to encourage convivial teacher-student interaction may retard student motivation and discourage academic achievement over time (Coatney, 1985). In those learning environments where affect is ignored, student resistance and thus, less time spent on task, may result. In order to determine those BATs which are associated with cognitive learning and, in turn, to not simultaneously decrease affective learning reported in earlier studies, the following research question was asked:

RQ: To what extent is differential use of behavior alteration techniques by teachers related to students' cognitive learning?

METHODS

In order to generate data related to the question, we sought to establish both the *upper* limit of the BAT use/cognitive learning relationship and the degree of association which might be expected under more *normal* circumstances. Consequently, two studies were conducted.

Subjects

Subjects were college students enrolled in large basic courses in communication. Study 1 included 397 subjects; Study 2 included 360. The students were predominantly sophomores and juniors with approximately 15 percent being seniors and 2 percent, freshmen. No first-semester freshmen were included. The break-down by gender was almost exactly 50-50.

Procedures

In both studies the data were collected on the first day of class in order to reduce the possibility of any contamination as a function of course content. The subjects completed two instruments: BAT use and cognitive learning. Responses were anonymous and students were allowed to decline to participate by simply turning in a blank instrument. Three blank instruments were submitted in Study 2, none in Study 1.

Instructions on the instruments differed for each study in terms of the teacher and class to which students should direct their attention while completing the instruments. Study 1 was designed to establish an upper limit of the possible relationship between use of BATs and learning. Approximately half ($n = 196$) of the students were asked to recall the *best* teacher they had had while in college while the other half ($n = 201$) were asked to recall their *worst* teacher. The data from this study permitted comparisons of best and worst teachers on frequency of BAT use as well as correlations between such use/nonuse and our learning measures.

Study 2 sought to generate data related to more "normal" teachers and classes. Approximately half ($n = 176$) of the students were asked to respond to a teacher and class they had taken the previous semester which was in their major or intended major. The other half ($n = 184$) were asked to respond to a teacher and class they had taken the previous semester which was *not* in their major or intended major. While these data permitted comparisons of BAT use in major versus nonmajor classes, these instructions were employed primarily to ensure a broad sample of teachers and classes from across the University to increase generalizability of results.

Measures

Two measures were necessary for this research. The first involved student perceptions of their teachers' use of behavior alteration techniques. The second centered on student perceptions of their own learning in the class taught by the teacher.

Behavior Alteration Techniques. The students were provided a categorized list of behavior alteration messages (BAMs) for the 22 BAT categories generated in the Kearney, et al. (1984) study (see Table 1). BAT labels were not included. The students were directed to recall a certain teacher they had taken a class with (see procedures above) and asked to "Indicate by circling YES or NO whether you ever observed this teacher doing what is described in the item." This dichotomized response option was chosen over the five-point, never-very often format used in previous research. In a post-hoc analysis of data from earlier research it was found that by scoring the "never" response as "1" and all other responses as "2," the same results obtained as when using the 5-point scoring system. Thus, the dichotomized response option was chosen for the sake of simplicity.

Cognitive learning. The study of variables which impact on cognitive learning has long been impeded by the difficulty in establishing valid measures. While standardized measures of cognitive learning within many specific content areas have been developed, comparisons across content areas, particularly across content areas in

TABLE 1
BEHAVIOR ALTERATION TECHNIQUES AND MESSAGES

BATs	BAMs
1. Immediate Reward from Behavior	You will enjoy it. It will make you happy. Because it's fun. You'll find it rewarding/interesting. It's a good experience.
2. Deferred Reward from Behavior	It will help you later on in life. It will prepare you getting a job (or going to graduate school). It will prepare you for your achievement tests (or the final exam). It will help you with upcoming assignments.
3. Reward from Teacher	I will give you a reward if you do. I will make it beneficial to you. I will give you a good grade (or extra credit) if you do.
4. Reward from Others	Others will respect you if you do. Others will be proud of you. Your friends will like you if you do. Your parents will be pleased.
5. Self-Esteem	You will feel good about yourself if you do. You are the best person to do it. You always do such a good job.
6. Punishment from Behavior	You will lose if you don't. You will be unhappy if you don't. You will be hurt if you don't. It's your loss. You'll feel bad if you don't.
7. Punishment from Teacher	I will punish you if you don't. I will make it miserable for you. I'll give you an "F" if you don't. If you don't do it now, it will be homework tonight.
8. Punishment from Others	No one will like you. Your friends will make fun of you. Your parents will punish you if you don't. Your classmates will reject you.
9. Guilt	If you don't, others will be hurt. You'll make others unhappy if you don't. Your parents will feel bad if you don't. Others will be punished if you don't.
10. Teacher/Student Relationship: Positive	I will like you better if you do. I will respect you. I will think more highly of you. I will appreciate you more if you do. I will be proud of you.
11. Teacher/Student Relationship: Negative	I will dislike you if you don't. I will lose respect for you. I will think less of you if you don't. I won't be proud of you. I'll be disappointed in you.
12. Legitimate-Higher Authority	Do it. I'm just telling you what I was told. It is a rule. I have to do it and so do you. It's school policy.
13. Legitimate-Teacher Authority	Because I told you to. You don't have a choice. You're here to work! I'm the teacher, you're the student. I'm in charge, not you. Don't ask, just do it.
14. Personal (Student) Responsibility	It is your obligation. It is your turn. Everyone has to do his/her share. It's your job. Everyone has to pull his/her own weight.
15. Responsibility to Class	Your group needs it done. The class depends on you. All your friends are counting on you. Don't let your group down. You'll ruin it for the rest of the class (team).
16. Normative Rules	We voted, and the majority rules. All of your friends are doing it. Everyone else has to do it. The rest of the class is doing it. It's part of growing up.
17. Debt	You owe me one. Pay your debt. You promised to do it. I did it the last time. You said you'd try this time.
18. Altruism	If you do this, it will help others. Others will benefit if you do. It will make others happy if you do. I'm not asking you to do it for yourself; do it for the good of the class.
19. Peer Modeling	Your friends do it. Classmates you respect do it. The friends you admire do it. Other students you like do it. All your friends are doing it.
20. Teacher Modeling	This is the way I always do it. When I was your age, I did it. People who are like me do it. I had to do this when I was in school. Teachers you respect do it.
21. Expert Teacher	From my experience, it is a good idea. From what I have learned, it is what you should do. This has always worked for me. Trust me—I know what I'm doing. I had to do this before I became a teacher.
22. Teacher Feedback	Because I need to know how well you understand this. To see how well I've taught you. To see how well you can do it. It will help me know your problem areas.

disparate fields (such as art and chemistry), suffer from lack of comparability of the cognitive learning measures. Use of standard scores only partially compensates for these differences.

In some research teacher-assigned grades have been used as measures of cognitive learning. Unfortunately such measures are very crude estimates of cognitive learning since they often are heavily influenced by student attendance, grades generated by group projects, and teacher affect toward the student. Student-estimated grades, which were used in the second study in this series, are one step further removed from a direct measure of cognitive learning. The instructional literature provides no solution to this problem of validity in the assessment of cognitive learning when learning is to be assessed across disparate content areas in a single study. Consequently, we designed a method to assess cognitive learning on the basis of student perceptions of their own learning.

The students were asked to respond to two questions related to their learning on a 0-9 scale. The first asked "How much did you learn in this class?" The second asked "How much do you think you could have learned in the class had you had an ideal instructor?" In both cases the students were told that "0" meant nothing and "9" meant more than any other class they had ever had. The responses to the first scale were used as a direct indicator of cognitive learning. A new score, called "learning loss," was generated by subtracting the response to the first scale from the response to the second scale. This was used as a second indicator of cognitive learning. This score essentially adjusted the reported amount of learning for what the student perceived could be learned in a given type of course. This adjustment was important because students in some classes (i.e., particularly in required courses) do not perceive anything worthwhile can be learned in the course.

Recognizing that these two scores do not represent perfectly valid measures of cognitive learning, at least two limitations should be noted. First, students may respond to the measures based on grades they receive in a class (e.g., final or exam grades), rather than providing estimates of their actual learning. Secondly, it is quite possible that students learn more than, or less than, they think they do because their estimated *value* of the learning may mediate their perception of amount of learning. To the extent that such influences reduce the validity of the measures and introduce random error, any observed correlation between BAT use and cognitive learning should be considered conservative and possibly an underestimate of the true relationship between the variables.

Data analyses

The data from Study 1 were analyzed in three ways. First, Chi-squares were computed for each BAT on the basis of good teacher/poor teacher versus use/nonuse of the technique. Second, simple correlations between use/nonuse of each technique and our learning measures were computed, disregarding teaching category. Finally, multiple-correlations between use/nonuse of all 22 BATs and the learning measures were computed, again ignoring teacher category. These correlational analyses were assumed to provide upper estimates of the possible relationship between BAT use and cognitive learning.

Although distinctions in BAT use between courses in one's major and in courses not in one's major was not an important concern in Study 2, Chi-squares were computed for each BAT on the basis of major/nonmajor versus use/nonuse of the technique. Simple correlations between use/nonuse of each technique, disregarding

course category, and the learning measures were computed. Similarly, multiple-correlations between use/nonuse of all 22 BATs and the learning measures were obtained. For the final analyses of the data from Study 2, the subjects scoring one standard deviation above and below the mean on the first learning scale were classified as high and low learners, respectively. Chi-squares were then computed for each BAT on the basis of learner level versus use/nonuse of the technique.

RESULTS

In Study 1 the Chi-square analyses indicated that 15 of the 22 BATs were perceived by students as being used significantly differently by good and bad teachers (See Table 2). The following BATs were perceived as being used by more good teachers than poor teachers: Immediate Reward from Behavior; Deferred Reward from Behavior; Reward from Teacher; Reward from Others; Self-Esteem; Personal (Student) Responsibility; Responsibility to Class; Debt; Altruism; Expert Teacher; and Teacher Feedback. The following BATs were perceived as being used by more poor teachers than good teachers: Punishment from Behavior; Punishment from Teacher; Legitimate-Teacher Authority; and Teacher Modeling. The following BATs were perceived as being used equally by both: Punishment from Others; Guilt; Teacher/Student Relationship: Positive; Teacher/Student Relationship: Negative; Legitimate-Higher Authority; Normative Rules; and Peer Modeling.

In Study 2 the Chi-square analyses indicated that 4 BATs were perceived by students as being used significantly differently by major and non-major course teachers (See Table 3). Deferred Reward from Behavior was the only BAT perceived by college students as being used more by major course teachers than

TABLE 2
PERCENTAGE OF BAT USE AND CORRELATIONS WITH LEARNING: GOOD AND POOR TEACHERS

BAT	x ²	Percentage of Teacher Use		Correlations	
		Good Teacher	Poor Teacher	Learning	Loss
1	17.1*	58	37	.21*	-.21*
2	25.8*	79	54	.32*	-.28*
3	10.4*	41	26	.14*	-.13*
4	10.8*	23	10	.13*	-.11*
5	44.8*	51	19	.29*	-.28*
6	7.4*	38	51	-.07	.06
7	13.9*	27	45	-.18*	.15*
8	0.0	6	6	.00	.01
9	0.3	11	13	-.02	.02
10	1.6	34	28	.05	-.07
11	2.5	16	22	-.12*	.12*
12	1.1	72	76	-.05	.05
13	49.5*	32	67	-.34*	.36*
14	8.4*	59	45	.11*	-.10*
15	13.4*	34	18	.13*	-.12*
16	1.5	35	29	.07	-.03
17	5.9*	10	4	.10*	-.10*
18	4.3*	34	24	.10*	-.09
19	2.4	18	13	.03	-.04
20	11.6*	46	63	-.14*	.13*
21	9.6*	80	66	.19*	-.17*
22	58.5*	89	54	.34*	-.32*
Multiple r				.60*	.57*

*p < .05. N = 397

TABLE 3
 PERCENTAGE OF BAT USE AND CORRELATIONS WITH LEARNING: MAJOR AND NON-MAJOR

BAT	χ^2	Percentage of Use		Correlation	
		Major	Non-Major	Learning	Loss
1	2.9	45	54	.14*	-.12*
2	13.5*	77	59	.12*	-.07
3	0.0	32	31	.08	-.10*
4	0.8	11	15	.13*	-.14*
5	2.8	28	33	.09	-.11*
6	1.6	45	39	.02	.06
7	0.1	34	32	-.12*	.14*
8	6.9*	1	7	.08	-.11*
9	4.5*	8	15	.06	-.06
10	1.9	29	33	.02	-.03
11	0.1	16	14	-.11*	.10*
12	0.1	72	74	-.01	.07
13	2.4	36	44	-.15*	.20*
14	0.4	48	51	-.06	.12*
15	0.5	26	29	-.05	.02
16	7.9*	19	32	.06	-.05
17	0.0	6	6	-.04	.03
18	0.5	25	29	.06	-.05
19	3.1	10	17	-.07	.02
20	0.0	48	49	-.07	.08
21	0.9	77	81	.07	-.09
22	0.1	84	85	.10*	-.08
Multiple r				.39*	.42*

* $p < .05$, $N = 360$

non-major course teachers. The following BATs were perceived by college students as being used by more non-major course teachers than major course teachers: Punishment from Others; Guilt; and Normative Rules. The remaining BATs were perceived as being used equally by teachers of both kinds of courses.

The results of the remaining analyses have direct bearing on our central research question: To what extent is differential use of behavioral alteration techniques by teachers related to student cognitive learning?

In Study 1, the simple correlational analyses generated significant correlations with learning for 15 of the 22 BATs (see Table 2). Punishment from Teacher, Teacher/Student Relationship: Negative, Legitimate-Teacher Authority, and Teacher Modeling were negatively associated with cognitive learning. Immediate Reward from Behavior, Deferred Reward from Behavior, Reward from Teacher, Reward from Others, Self-Esteem, Personal (Student) Responsibility, Responsibility to Class, Debt, Altruism, Expert Teacher, and Teacher Feedback were positively associated with cognitive learning. The following BATs were not related to cognitive learning: Punishment from Behavior; Punishment from Others; Guilt; Teacher/Student Relationship: Positive; Legitimate-Higher Authority; Normative Rules; and Peer Modeling. The multiple correlation in Study 1 between BATs and cognitive learning ($r = .60$) was significant and accounted for 36 percent of the learning variance.

Table 3 indicates 7 BATs that generated significant correlations with cognitive learning in Study 2. Punishment from Teacher, Teacher/Student Relationship: Negative, and Legitimate-Teacher Authority were negatively associated with cognitive learning. Immediate Reward from Behavior, Deferred Reward from Behavior,

Reward from Others, and Teacher Feedback were positively associated with cognitive learning. The remaining BATs were not related to cognitive learning. The multiple correlation in Study 2 between BATs and cognitive learning ($r = .39$) was significant and accounted for 15 percent of the learning variance.

As noted in Table 2, 14 BATs generated significant correlations with cognitive learning loss for Study 1. Immediate Reward from Behavior, Deferred Reward from Behavior, Reward from Teacher, Reward from Others, Self-Esteem, Personal (Student) Responsibility, Responsibility to Class, Debt, Expert Teacher, and Teacher Feedback were negatively associated with learning loss. Punishment from Teacher, Teacher/Student Relationship: Negative, Legitimate-Teacher Authority, and Teacher Modeling were positively associated with learning loss. The multiple correlation in Study 1 between BATs and cognitive learning loss, ($r = .57$) was significant and accounted for 33 percent of the variance.

Table 3 indicates 9 BATs that generated significant correlations with learning loss in Study 2. Immediate Reward from Behavior, Reward from Teacher, Reward from Others, Self-Esteem, and Punishment from Others were negatively associated with learning loss. Punishment from Teacher, Teacher/Student Relationship: Negative, Legitimate-Teacher Authority, and Personal (Student) Responsibility were positively associated with learning loss. The remaining BATs were not related to loss in cognitive learning. The multiple correlation in Study 2 between BATs and learning loss ($r = .42$) was significant and accounted for 17 percent of the variance.

Table 4 reports the Chi-squares analyses and percentage of teacher BAT use as perceived by high and low learners. High learners (those who reported learning a lot) and low learners (those who reported learning little) differed significantly on 7 of the BATs. High learners perceived teachers as using more Immediate Reward from Behavior, Deferred Reward from Behavior, Reward from Others, and Normative

TABLE 4
PERCENTAGE OF BAT USE: HIGH AND LOW LEARNERS

BAT	χ^2	High Learners	Low Learners
1	5.4*	55	33
2	3.9*	72	55
3	0.3	35	30
4	3.9*	16	3
5	1.0	33	24
6	0.2	45	50
7	5.1*	30	50
8	1.4	4	0
9	0.3	9	13
10	0.0	29	28
11	4.5*	11	25
12	0.2	73	70
13	3.9*	34	52
14	2.0	47	61
15	0.2	24	27
16	3.9*	27	12
17	0.1	4	3
18	0.6	28	21
19	1.4	11	19
20	2.0	47	61
21	0.5	84	79
22	1.8	90	82

* $p < .05$, $N = 229$

Rules. Low learners perceived teachers as using more Punishment from Teacher, Teacher/Student Relationship: Negative, and Legitimate-Teacher Authority.

DISCUSSION

The results of this investigation suggest that teachers' differential use of behavior alteration techniques may have a meaningful impact on students' cognitive learning. Focusing on best and worst teachers, the results of Study 1 indicate that the upper limit of that effect may be around 36 percent of the variance in cognitive learning. Focusing on more "normal" teachers in Study 2, the effect should be expected to be around 17 percent under normal conditions. Because BATs function primarily to maintain on-task student behavior, these results affirm the role of BATs in optimizing students' cognitive learning.

However, these results further indicate that particular BATs may be more or less effective at promoting those behaviors that increase cognitive learning. The BATs consistently and *positively* associated with learning across both studies were prosocial type BATs: Immediate Reward from Behavior, Deferred Reward from Behavior, Reward from Others, and Teacher Feedback. Although designed to elicit on-task behaviors as well, the use of particular antisocial BATs were found to be *negatively* associated with cognitive learning for both studies. An examination of both pro and antisocial BAT-types reveals that prosocial BATs spell out positive consequences to the student for being *on-task*, whereas antisocial BATs inform the student of negative consequences for being *off-task*. Note that these particular BAT types include not only differences in consequences, but also differences in teacher attention to particular student behavior. That is, teachers who employ BATs which focus on student behaviors of task engagement verbalize reasons or benefits to be gained from compliance. In contrast, teachers who emphasize off-task concerns direct student attention to reasons for not complying to teacher demands. Verbalizing consequences for non-compliance may serve either as reminders for students to remain off-task or worse, as threats which challenge students to actively resist. In support of this interpretation, Plax, Kearney, Downs, and Stewart (1985) found that college students reported greater likelihood of resistance when teachers employed these particular antisocial BATs, but reported least resistance to teacher use of prosocial type BATs.

With the exception of Reward from Others, prior research further indicates that those BATs positively related to cognitive learning were also positively associated with college students' affect (Plax, Kearney, McCroskey, & Richmond, 1986). Conversely, Punishment from Teacher and Legitimate Teacher Authority were negatively related to students' affect. While these results suggest some positive and negative alternatives open to teachers at the college level, the number of positive choices is limited. However, teachers may avail themselves of other BAT options. Even though such options are not expected to increase cognitive learning, at least these BATs can be expected not to reduce learning. For instance, Reward from Teacher, Self-Esteem, Teacher/Student Relationship: Positive and Expert Teacher have been found to be either unrelated or positively related to both student affect and willingness to comply (Plax et al., 1985, 1986). These additional alternatives, then, permit the instructor to exercise a variety of options for gaining student compliance without fear of impeding either cognitive or affective learning.

Specific to the designs of Study 1 and 2, differences in BAT use were attributed to good and poor teachers and to those who taught students in major or non-major

courses. Of the BATs with positive relationships with cognitive learning, all were seen as being more commonly employed by good than by poor teachers in Study 1. However, Reward from Others was reported to be used by relatively few of either. Of the BATs with negative relationships with learning, Punishment from Teacher and Legitimate-Teacher Authority were seen as fairly commonly used, but significantly more so by poor than by good teachers. Teacher/Student Relationship: Negative was reported to be used comparatively little and good and poor teachers did not differ in its use. In Study 2, results suggest that teachers of courses outside the students' major were perceived to employ more anti-social or punishment-oriented BATs (Punishment from Others, Guilt, and Normative Rules), whereas teachers of courses in students' major employed more Deferred Reward. Of these obtained differences only Deferred Reward was related to cognitive learning and this relationship was positive. Unlike teachers of courses outside the students' major, Deferred Reward may be employed in students' major courses in order to remind students that teacher on-task demands are necessary and relevant for their future career responsibilities.

Overall, the results of this investigation uncovered directions for further examination of this research program. Most pertinent to the role of BATs in optimizing students' cognitive learning is the need to cross-check the validity of the present findings. One approach to this problem would be to observe BAT use in the classroom in eliciting on-task behaviors requisite for learning. Also important to the explication of the BAT use/learning relationship is an investigation conducted in elementary and secondary classrooms. Given developmental differences in terms of students' ages and maturational levels, we may find that the same or other BATs are more or less effective in promoting cognitive learning. Finally, while previous research in this series has concentrated on more generalized student behaviors, future investigations should be designed to determine the impact of particular BATs on the management of specific in-class behaviors.

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12—COMMUNICATION EDUCATION

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