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POWER IN THE CLASSROOM II: POWER AND LEARNING

Research in the field of Education over the past half-century has produced conclusive evidence that the primary factors which influence the level of cognitive learning of students are basic ability to learn and, to a lesser extent, personality. Nevertheless, research continues to explore other elements in the learning environment in an attempt to identify and control elements in that environment which can enhance student learning.

Although some learning systems have been devised which greatly reduce, if not eliminate, the variability in learning attributable to differences among teachers (i.e. PSI), most systems still are highly subject to teacher generated variation. It probably is safe to say that as long as we have live teachers in the classroom students will learn more from some teachers than they will from others.

This study is part of a series of studies designed to explore the role of the teacher's use of power in the classroom with respect to cognitive and affective learning. Power is an individual's capacity to influence another person to do something he/she would not have done had he/she not been influenced. If a teacher does not exert influence in a classroom, that teacher cannot enhance student learning. Thus, power is seen as central to potential teacher effectiveness.

The presence and use of power in the classroom does not guarantee enhanced student learning. The use of some types of power may even reduce student learning. Hence, the present series of studies has sought to identify types of power that can be employed in the classroom and to investigate their impacts on learning.

POWER AND COMMUNICATION

In the usual classroom environment communication between teacher and student, both verbal and nonverbal, is a constant, ongoing process. Communication is the central element in teaching. As Hurt, Scott, and McCroskey have stated, there is "a difference between knowing and teaching, and that difference is communication in the classroom."[1]

The use of power in the classroom requires communication. It must be recognized, however, that the generation of teacher power in the classroom may be even more dependent on communication. When children first enter school they seldom question their teachers' power. The teacher is seen as a surrogate parent, and her/his power is taken for granted. As children become older, this automatic granting of power is reduced. More and more teachers must earn their power with each new group of students.

Teacher power (previously defined as the capacity for influencing others) exists only in so far as students perceive it to exist and accept it. If the student perceives the teacher to have one or more types of power, that teacher indeed does have those types

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of power—with that student. If the perception is absent, the power is absent, no matter what the teacher may think.

The present paper reports the second in a series of studies investigating the role of teacher power in student learning.[2] The ultimate purpose of this research program is to determine how teacher power impacts student learning and how teachers may modify their communication behavior and use of power to enhance learning in the classroom. The implicit assumption in this research is that a teacher cannot avoid using power in the classroom, that use of power is an inherent part of the teaching process. However, it is also assumed that use of some bases of power will result in more positive learning than use of other bases. A primary goal of this series of studies is to test and refine this latter assumption.

THE PREVIOUS STUDY

The initial study in this series was directed toward developing appropriate methods of measuring perceptions of power usage in the classroom and determining the degree to which teachers and students have shared perceptions of the use of power. The conceptualization of power advanced by French and Raven was chosen as the foundation for this series of studies.[3] This conceptualization includes five bases of power: coercive, reward, legitimate, referent, and expert.

In the initial study two instruments were developed to measure these bases of power. The first, the Perceived Power Measure (PPM), was based on the earlier work of Student and on that of Richmond, McCroskey, Davis, and Koontz.[4] This instrument is designed to measure power perceptions in an absolute manner, with perceptions for each power base recorded without required reference to other bases. The reliability estimates for this measure were extremely high (above .96) for each power base when completed by either teachers or students. In addition to strong face validity, the results of studies employing very similar instruments are suggestive of predictive validity.[5]

The second instrument, the Relative Power Measure (RPM), was designed as a supplementary measure. It asks the respondent to estimate the percentage of power from each base the individual employs, with the total required to be 100 percent across the five bases.

The results of the first study indicated significant correlations between teacher and student perceptions of the teacher's power use on all five of the bases of power as measured by the PPM and on all but legitimate power as measured by the RPM. Although the observed associations were found to be significant, most were not large, .46 being the highest. Examination of the PPM means scores indicated that the teachers saw significantly greater use of reward, referent, and expert power than was seen by the students. On the RPM measure, students reported significantly more use of coercive power and significantly less use of expert power than did the teachers.

PURPOSE OF THE STUDY

The initial study yielded instruments which were deemed acceptable for measuring perceptions of power in the classroom and provided an indication of the degree to which teachers and students share perceptions of teacher use of power in the classroom. The present study sought to advance their research program by determining the degree to which these perceptions of power use are related to student learning. Specifically, two research questions were addressed: 1) Are teacher and/or student perceptions of teachers use of power associated with student cognitive learning? 2) Are teacher and/or student perceptions of teachers use of power associated with student affective learning?

On the basis of previous writings in the field of education, it was believed that increased use of coercive power would negatively impact learning while increased use of reward, referent, and expert power would be likely to enhance learning. However, since the only previous research that would support our beliefs was at best tangential, we did not advance formal hypotheses reflecting our expectations.

METHOD

Measurement

Power Use. The Perceived Power Measure (PPM) and Relative Power Measure (RPM) developed in the previous study were employed in this study. Alpha reliability estimates for each of the five power bases for both teachers and students on the PPM were above .96. Because of the nature of the instrument, no reliability estimates could be made for the RPM measures.

Cognitive Learning. The subjects in this study were selected to maximize generalizability of the results. Students from seventh grade through college from a wide variety of subject matter areas were employed. This procedure made it impossible to use a consistent cognitive learning test for all subjects.

As a crude measure of cognitive learning, we asked the students in the study to record the grade they expected to receive in the class on an 8-step continuum: A; A−/B+; B; B−/C+; C; C−/D+; D; D−/F. Since the students completed the study very near the end of the semester, it was hoped that their reports would be very close to the actual grades they would receive. In a pilot test of this measure, 86 students completed the instrument. Unlike the present study, these students did not complete the form anonymously. Their reports were compared to the actual reports of their teachers. The resulting correlation was .89.

While the pilot test suggests the student reports are a valid indication of the grades awarded by teachers, we caution that this does not speak to a more critical validity question. Grades in a course are, at best, a crude indication of student learning. Thus, it should be recognized that our measure of cognitive learning, while the best we could develop for this study, is highly subject to error. Thus, any observed correlations should be considered very conservative estimates of the true association between cognitive learning and our predictor variables.

Affective Learning. Affective learning was conceived as positive attitudes toward the course, its content, and the instructor as well as increased likelihood of engaging in behaviors taught in the class and taking additional classes in the subject matter. Attitudes toward the content of the course, behaviors recommended in the course and the course instructor were measured by four, seven-step bipolar scales: good/bad; worthless/valuable; fair/unfair; and positive/negative. To measure behavioral intention, the subjects were asked to respond to two statements on four bipolar, seven-step scales. The statements were 1) "In real-life situations, your likelihood of actually attempting to engage in the behaviors recommended in the course," and 2) "Your likelihood of actually enrolling in another course of related content if your schedule so permits." The scales were likely/unlikely, impossible/possible, probable/improbable, would not/would. Alpha reliabilities for each of the measures for the student sample were above .90.

Samples

Data for this study were drawn from paired samples of teachers and classes of students. A total of 151 teachers and 2603 of their students provided usable data. An additional 9 teachers and 258 students provided incomplete data and were excluded from the data analyses.

To insure as much generalizability as possible, teachers and students were selected from diverse educational levels and academic disciplines. All levels from seventh grade through college were included. Similarly, teachers and classes from sciences, humanities, social sciences, and arts were included. At the college level, both regular faculty and graduate assistants were included. The only restriction placed on selection of a class for inclusion was enrollment. No large classes (over 35) were chosen. Because the method of data collection provided strong guarantees of anonymity, we are unable to specify the exact number of respondents in each category. The original sample included 200 teachers selected in a systematic, non-random manner. Forty, or 20 percent, did not return the data collection instruments. However, on the basis of the legible postmarks and return addresses of the materials returned, no systematic bias was suspected.

Procedure

Because of the sensitive nature of the data being collected and the obvious potential for providing socially desirable responses, it was deemed essential that anonymity of responses be absolutely assured. Consequently, no personal information was requested from either the teachers or the students. However, it was necessary to be able to pair student responses with those of their teacher. Thus, each teacher was asked to select a five-digit number at random and record it on their response form. They were asked to request that each of their students place the same number on their forms.

Teachers were selected and asked to participate. Those that agreed were sent the appropriate forms with instructions for their completion and return. No follow-up correspondence to increase return rate was employed because the anonymous responses did not permit knowledge of who had returned materials and who had not.

Data Analyses

All data analyses were performed with the assistance of the SAS statistical package. Data for individual subjects were punched separately and teacher and student data paired by means of the MERGE procedure available in this statistical package.

The first step in the data analysis was computation of single and multiple correlations between each of the measures of power use, as perceived by teachers and students, and the measures of cognitive and affective learning. These correlational analyses provided the basic information to answer our research questions. The second step in the data analysis was computation of multiple correlations between each group of power use perceptions, for both teachers and students, and the affective learning measures. These analyses were employed to determine whether there were more complex relationships between perceived power use and affective learning than could be observed with the simple correlational analyses.

RESULTS

Cognitive Learning

Teacher Perceptions. The results of the simple and multiple correlations of power use with cognitive learning are reported in Table 1. As can be seen in that table, only one simple correlation for the teacher sample was significant, that for the RPM measure of referent power. Higher referent power was associated with higher cognitive learning. With regard to the multiple correlations, neither was significant at the alpha = .05 levels, although both approached significance ($p < .10$).

Student Perceptions. The results of the simple and multiple correlations of power use with cognitive learning are reported in Table 1. Six of the simple correlations for the student sample were significant, those for both the PPM and RPM measures of coercive, legitimate, and referent power. Lower coercive and legitimate power and higher referent power were associated with higher cognitive learning. With regard to the multiple correlations, both were significant and they were identical, $r = .43$.

Combined Perceptions. Multiple correlation analyses involving various combinations of teacher and student PPM and RPM measures were computed and the results are presented in Table 4. Teacher PPM and RPM alone, as noted above, did not generate significant multiple correlations, although the nonsignificant relationships accounted for between 6 and 7 percent of the variance in cognitive learning. When combined, the two measures accounted for approximately 11 percent of the variance, but the multiple correlation was still not significant. Student PPM and RPM alone, as noted above, both generated significant correlations. Each measure predicted approximately 19 percent of the variance in cognitive learning. When combined, the two measures generated a significant multiple correlation accounting for 20 percent of the variance in cognitive learning.

Little colinearity in prediction was found between the teacher and student measures. When the teacher and student PPM measures were employed, the resulting significant multiple correlation accounted for approximately 22 percent of the variance in cognitive learning. When the RPM measures were employed, the predictable variance was approximately 24 percent. The analysis employing all four power measures resulted in approximately 30 percent of the variance in cognitive learning being predicted.

TABLE 1

CORRELATIONS BETWEEN POWER USE AND COGNITIVE LEARNING

	Power Measure			
	PPM		RPM	
Power Dimension	Teacher	Student	Teacher	Student
Coercive	−.15	−.33*	−.10	−.31*
Reward	.02	.07	.10	.08
Legitimate	−.14	−.25*	−.07	−.21*
Referent	.11	.33*	.20*	.36*
Expert	.12	.04	.06	.02
Multiple r	.26**	.43*	.25**	.43*

*p < .05
**p < .10

Affective Learning

Teacher Perceptions. The results of the simple and multiple correlations of power use, as perceived by the teacher sample, with each of the five measures of affective learning are reported in Table 2. As can be seen in that table, none of the simple correlations between affect and either reward power or expert power were significant, and a mixed pattern of results was obtained for associations between affect and both legitimate and referent power. Legitimate power was negatively associated with affect, but only in the data generated by the PPM measure. Similarly, referent power was postively associated with affect, but only in the data generated by the RPM measure.

The results relating to coercive power and affect were much more consistent. Eight of the 10 simple correlations were significant, and all of the relationships indicated a negative association between use of coercive power and student affect.

Seven of the 10 obtained multiple correlations were significant, accounting for from 7 to 19 percent of the variance in student affect. Associations were strongest with affect toward instructor and weakest (actually nonsignificant) with intent to use behaviors taught in the class in future life.

Student Perceptions. The results of the simple and multiple correlations of power use, as perceived by the student sample, with each of the five measure of affective learning are reported in Table 3. All of the obtained simple correlations between affect and both coercive and referent power were significant. For both legitimate power and expert power 8 of the 10 obtained correlations with affect were significant. For reward power, on the other hand, only 2 of the 10 obtained correlations with affect were significant. Coercive and legitimate power were

TABLE 2

CORRELATIONS BETWEEN POWER USE AND AFFECTIVE LEARNING: TEACHER SAMPLE

Power Dimension	Affect Measure				
	Recommended Behaviors	Instructor	Course Content	Behavioral Intent	Course Enrollment
Coercive					
PPM	−.38*	−.41*	−.31*	−.17*	−.20*
RPM	−.21*	−.32*	−.23*	−.14	−.12
Reward					
PPM	−.03	−.08	−.12	−.06	−.04
RPM	−.09	−.09	−.06	−.06	−.01
Legitimate					
PPM	−.19*	−.14	−.25*	−.18*	−.21*
RPM	.07	.11	.09	.07	.04
Referent					
PPM	.03	.09	.05	.06	−.01
RPM	.19*	.35*	.25*	.18*	.15
Expert					
PPM	−.02	−.05	−.12	−.12	−.11
RPM	.07	.00	−.02	.01	−.01
Multiple Correlation					
PPM	.40*	.41*	.37*	.23	.27*
RPM	.27*	.44*	.31*	.24	.19

*$p < .05$

TABLE 3
CORRELATIONS BETWEEN POWER USE AND AFFECTIVE LEARNING: STUDENT SAMPLE

Power Dimension	Affect Measure				
	Recommended Behaviors	Instructor	Course Content	Behavioral Intent	Course Enrollment
Coercive					
PPM	−.45*	−.51*	−.46*	−.27*	−.32*
RPM	−.50*	−.62*	−.57*	−.39*	−.33*
Reward					
PPM	.04	.23*	.04	.19*	.11
RPM	−.15	.02	−.13	−.09	−.06
Legitimate					
PPM	−.24*	−.26*	−.22*	−.02	−.30*
RPM	−.22*	−.22*	−.18*	−.09	−.34*
Referent					
PPM	.41*	.65*	.49*	.48*	.50*
RPM	.36*	.56*	.40*	.38*	.40*
Expert					
PPM	.29*	.28*	.40*	.38*	.18*
RPM	.28*	.12	.30*	.19*	.12
Multiple Correlation					
PPM	.61*	.78*	.66*	.54*	.59*
RPM	.59*	.71*	.64*	.48*	.54*

*$p < .05$

negatively associated with affect while referent and expert power were positively associated.

All of the obtained multiple correlations were significant, accounting for from 23 to 61 percent of the variance in student affect. As was the case with the results based on the data supplied from teachers, associations were strongest with affect toward instructor and weakest with intent to use behaviors taught in the class in future life.

Combined Perceptions. Multiple correlation analyses involving various combinations of teacher and student PPM and RPM measures were computer and the results are presented in Table 4. Teacher PPM and RPM alone generated significant multiple correlations in 7 of 10 cases, with predictable variance ranging to a high of 19 percent. When combined, three of the five obtained multiple correlations were significant with predictable variance ranging between 18 and 25 percent. The relationships between power and behavioral intent and course enrollment, however, were not significant, although accounting for between 9 and 19 percent of the variance.

All of the multiple correlations which employed student PPM and RPM alone generated significant results, with predictable variance ranging between 23 and 61 percent. When combined, all five obtained multiple correlations were significant with predictable variance ranging between 35 and 65 percent.

Unlike the results reported above concerning cognitive learning, substantial colinearity in prediction was found between the teacher and student measures with regard to affective learning. When the teacher and student PPM measures were employed, the resulting significant multiple correlations accounted for from 31 to 63 percent of the variance in affect. When the teacher and student RPM measures were

TABLE 4
PREDICTABLE VARIANCE IN DEPENDENT VARIABLES

Predictors(s)	Grade	Recommended Behaviors	Instructor	Course Content	Behavioral Intent	Course Enrollment
	Dependent Variable					
(A) Grade	—	.058	.072	.084	.060	.087
(B) Teacher PPM	.068*	.160	.168	.135	.053*	.073
(C) Teacher RPM	.063*	.073	.194	.096	.058*	.036*
(D) Student PPM	.185	.372	.608	.436	.292	.348
(E) Student RPM	.185	.348	.504	.410	.230	.292
AB	—	.247	.281	.233	.135	.261
AC	—	.182	.317	.222	.157	.246
AD	—	.390	.623	.455	.313	.418
AE	—	.368	.517	.434	.256	.372
BC	.109*	.214	.248	.177	.091*	.095*
BD	.215	.402	.631	.464	.305	.376
CE	.235	.368	.518	.418	.226	.292
DE	.200	.438	.652	.500	.352	.388
ABC	—	.290	.360	.276	.172	.276
ABD	—	.417	.638	.476	.325	.438
ACE	—	.391	.535	.450	.260	.377
ADE	—	.453	.661	.520	.381	.458
BCDE	.295	.492	.685	.543	.378	.428
ABCDE	—	.504	.694	.557	.403	.485

*$p > .05$

employed, the predictable variance ranged form 23 to 52 percent. When all four measures were employed, the predictable variance ranged from 38 to 69 percent. The extent of the colinearity is best illustrated by the fact that the teacher measures alone could account for 25 percent of affect toward instructor and the student measures alone could account for 65 percent of that variance, but the combined predictability of teacher and student measures only increased to 69 percent.

LIMITATIONS

Before we discuss the results presented above and attempt to draw some conclusions, it is important that several limitations of this study be emphasized. In particular, we wish to address 1) the limitations of the cognitive learning variable, 2) the limitations of the method of analyzing the student-generated data, and 3) the potential confounding of cognitive learning, as measured in this study, with affective learning.

Cognitive Learning. Although we have addressed this issue previously, we wish to reemphasize the fact that our measure of cognitive learning was a student's report of an anticipated teacher-assigned grade. Even presuming the validity of our measure as an accurate estimate of the grade to be assigned, which our pilot data suggests is appropriate, a course grade may not be highly reflective of actual cognitive learning. Grades often are influenced by such potentially irrelevant elements as attendance, class participation, and teacher affect toward the student. Thus, our measure of cognitive learning is, at best, a crude estimate of such learning. However, we believe the error introduced by such a measure is much more likely to be random error, leading to Type II error, than it is to be systematic error, leading to Type I error, particularly with regard to relationships between power perceptions of teachers and the student grade reports. Thus, obtained relationships with cognitive learning, where significant, probably represent real relationships, but it is very likely that the magnitude of those relationships is substantially under estimated. Similarly, the absence of a significant relationship should not be taken as convincing proof that no such relationship actually exists.

Analyses of Student Data. All of the analyses of student generated data reported above were computed in aggregate form. That is, the student data from each teacher's class was reduced to mean responses prior to analysis. This method was selected for a number of reasons. First, this method increases the comparability of teacher and student data in that both represent general perceptions of power use. While teachers do not, in all likelihood, use power in precisely the same ways with all students, their reports of power use must of necessity be generalized responses. Aggregating the student responses permits an approximation of a similar generalized response. Second, aggregating student responses increases the reliability of the resulting score, since reliability is partially a function of number of respondents. This, of course, is a mixed blessing, since the teacher responses represented a single respondent per case. Thus, the student responses may be more reliable than the teacher responses and consequently may artifactually generate higher correlations. Finally, this method was chosen because it was required for all analyses which involved teacher data. The only alternative was to enter the same teacher's score for multiple students and, thus, artificially inflate the sample size.

In order to estimate the potential impact of this choice for analytical method, simple and multiple correlations were computed for the student data between the PPM measure and the dependent variables employing both the raw and the aggregated data. The results are reported in Table 5. As indicated in that table, approximately the same number of correlations were significant, whether computed

TABLE 5

RAW- AND AGGREGATED-DATA CORRELATIONS OF STUDENT PPM WITH DEPENDENT VARIABLES

	Dependent Variable					
PPM Dimension	Cognitive Learning	Recommended Behaviors	Instructor	Course Content	Behavioral Intent	Course Enrollment
Coercive						
Raw (R)	−.16*	−.13*	−.22*	−.16*	−.08*	−.09*
Aggregated (A)	−.33*	−.45*	−.51*	−.46*	−.27*	−.32*
Reward						
R	.03	.11*	.14*	.11*	.14*	.10*
A	.07	.04	.23*	.04	.19*	.11
Legitimate						
R	−.06*	−.01	−.06*	−.02	−.01	−.04
A	−.25*	−.24*	−.26*	−.22*	−.02	−.30*
Referent						
R	.15*	.25*	.35*	.27*	.25*	.23*
A	.33*	.41*	.65*	.49*	.48*	.50*
Expert						
R	.04	.17*	.23*	.18*	.13*	.10*
A	.04	.29*	.28*	.40*	.38*	.18*
Multiple Correlation						
R	.22*	.29*	.41*	.31*	.28*	.25*
A	.43*	.61*	.78*	.66*	.54*	.59*

*p < .05; Raw, N = 151; Aggregated, N = 2603.

with raw or aggregated data. However, the magnitude of the raw correlations was, in many instances, much smaller than correlations based on aggregated data.

The results of the raw and aggregated data analyses suggest two important conclusions. First, the aggregated data procedure employed in this study generated substantially higher correlations than would have been the case had raw data been used for the student analyses. Competing interpretations of this finding cannot be discounted: 1) the aggregated analyses are correct because they reflect a generalized student reaction that has higher reliability than single student reactions would have, and 2) the raw data analyses are correct because they reflect the face that individual students are not treated in the same ways by teachers and this differential treatment is reflected in the individual student's responses but lost when the data are aggregated for analysis.

Second, the smaller correlations obtained in the raw data analyses are much more comparable to those obtained with the teacher data. This suggests that comparisons between teacher responses and student responses in terms of predictive power must be drawn with extreme caution. In addition, this suggests that a major threat to the internal validity of this study does not appear to have been a problem. What we are referring to is the potential for inflating correlations as a function of obtaining data from the same subjects at the same time which are to be used as both predictor and criterion variables. Since the raw data correlations between the student-generated predictor variables and the student-generated criterion variables are very similar to those of the teacher-generated predictor variables which were taken from different people at a different time, this potentially biasing factor does not seem to have been troublesome.

Confounding of Cognitive and Affective Learning. While many teachers and educational scholars have argued that elements which would improve one type of learning (eg. cognitive) may be expected to have a similar impact on another type of learning (eg. affective), research data generally have failed to show any strong positive association between effects on any two types. On average affect toward instructor and cognitive learning have been found to share 18 percent of the variance in previous research while affect toward the course and cognitive learning have been found to share 22 percent of the variance.[6] However, in many studies variables that have been found to enhance one type of learning have been found not to be associated with another type, and some studies even have found negative associations. Nevertheless, in this study the potential for confounding of cognitive and affective learning needs to be considered because the cognitive learning data are anticipated teacher grades.

It is often argued that teachers who give higher grades are more positively evaluated by their students on the usual teacher evaluation forms. Early research indicated the grade the student receives and student evaluation of the teacher are not meaningfully related.[7] The more recent research of Cooper, Stewart, and Gudykunst helps to explain this absence of relationship. While they found the actual grade to be unrelated to teacher evaluation, they found that the level of perceived accuracy of grading was strongly associated with teacher evaluation.[8] Since differential use of power (eg. using grades as punishments or rewards) may well communicate relevant information concerning grading accuracy, we were concerned that true effects on affect might be masked by colinear effects on our measure of cognitive learning.

Data relevant to this concern are reported in Table 4. As is indicated in that table, only 6 to 9 percent of the variance in affect was predictable by grades alone. The largest impact was on whether a student would be likely to take another course in the same subject area. Higher grades were associated with greater likelihood of taking another course, a result that we feel is intuitively correct from our own experience, in both the student and teacher role.

While the amount of variance predictable by grade assigned may not have major social significance (its significance clearly is debatable), this amount of variance is a concern in this study. We believe, however, that no meaningful confounding was present in this study. Comparing the multiple correlations including grade with those not including grade, reported in Table 4, indicates the predictive power of grade is almost entirely colinear with the power predictions. In almost every case the increase in predictive power for grade is less than 2 percent (with the exception of probable future course enrollment). Since power was found to be a significant predictor of grade, such colinearity clearly should be expected.

DISCUSSION

Within the bounds of the limitations discussed above, the results of this study permit several strongly data-based conclusions. The first, and probably most important, is that the communication of power in the classroom has a major association with student learning, both cognitive and affective. In this study perceived use of power could account for approximately 30 percent of the variance in cognitive learning. In addition, from 38 to 69 percent of affective learning, depending on dimension of affect, could be predicted by perceptions of power.

Establishing casuation in a study such as this is problematic at best. Correlation does not prove the existence of a causal relationship but only suggests such a relationship may exist. Reverse and reciprocal causation, as well as causation from an unmeasured factor(s), are always competing explanations that cannot be absolutely discounted. With this careat, we believe a causal explanation of these results in tenable. Since these data were collected near the end of the course involved, at least one necessary (but not sufficient) element to establish causation was present, the presumed cause (use of power) occurred prior to the presumed effect (learning). Simply then, we argue that teachers' use of power has a causal impact on student cognitive and affective learning.

Presuming we are correct in concluding that causality is present, it is important to consider the nature of that causality. In short, which kind(s) of power help, and which kind(s) hurt? To answer this question, we will refer to the simple correlation analyses, since the multiple-correlation (regression) analysis yielded beta weights (not reported here to conserve space) entirely consistent with the simple correlation results and canonical correlational analyses (not reported here for the same reason) uncovered no higher order or more complex relationships.

The results reported in Tables 1–3 present a fairly clear and consistent picture. The use of coercive power, and to a lesser extent the use of legitimate power, serve to retard both cognitive and affective learning. Clearly, teachers should strive to avoid use of these power bases. It is encouraging to note that in the first phase of this research program it was found that, in fact, both teachers and students perceive these two power bases as being used substantially less than the remaining bases.

The results also clearly indicate that use of referent power, and to a lesser extent use of expert power, serve to enhance learning. Obviously, then, teachers should strive to employ these power bases whenever possible. Again, it is encouraging to note that in the first phase of this research teachers and students were found to perceive that these two power bases were the two most commonly employed by teachers.

A possibly nonintuitive conclusion may be drawn from the results relating to use of reward power. For the most part, use of reward power was found to be unrelated to either cognitive or affective learning. This lack of relationship raises a significant challenge to those who argue that rewards should be employed to motivate students. Such an approach does not seem to be effective, if the results of this study are to be believed. What then can be recommended with regard to reward power? The answer does not seem to be either a simple "use it" or "don't use it."

While referent and expert power clearly are the power options to be preferred, both rest on a foundation of a good relationship between the student and teacher. The student must see the teacher as a referent and/or an expert for these bases of power to exist. The importance of reward power, it would appear, arises when the teacher lacks referent or expert power. At this point, one of the three remaining bases must be chosen. Since use of coercive and legitimate power clearly leads to negative outcomes, reward power becomes the option of choice. While it may not actually increase learning, at least it does not retard it, and using reward power for a while may permit the teacher sufficient time to build referent and/or expert power bases. Reward power, then, may not have the positive effects which have been claimed for it in the past, but it may be a valuable tool as a substitute for negative approaches when more positive approaches are not possible.

NOTES

[1]H. T. Hurt, M. D. Scott, and J. C. McCroskey, *Communication in the Classroom* (Reading, Mass.: Addison-Wesley, 1978), p. 3.

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