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TEACHER PRAISE:  
A FUNCTIONAL ANALYSIS

Jere E. Brophy

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Abstract

Classroom process data indicate that teacher praise cannot be equated with reinforcement. Often it is not even intended as reinforcement, and when it is, it frequently has some other function. The meanings and functions of behaviors typically included under the category of teacher praise are determined by the degree of congruence between verbal and nonverbal components and by the context in which the interaction occurs. Much teacher praise is determined more by teachers' perceptions of student needs than by the quality of student conduct or performance.
TEACHER PRAISE: A FUNCTIONAL ANALYSIS

Jere E. Brophy

Most educational psychologists and other sources of advice to classroom teachers stress the value of reinforcement of good conduct or successful performance, and single out teacher praise as a particularly valuable and desirable form of such reinforcement. Until recently, my own thinking and research was no exception; I assumed that teachers' statements of praise were intended and received as reinforcing. However, in study after study, measures of teacher praise failed to correlate with other classroom process variables, or with outcome variables, in ways that would be expected if such praise were in fact functioning as reinforcement. This led me to study the matter more systematically, and to draw conclusions sharply at variance with the common view. In this paper, I argue that teacher praise typically does not function as a reinforcer, and that much of it is not even intended as reinforcement, at least not in the usual sense of the term. Further, I believe that much teacher praise is reactive to and under the control of student behavior rather than vice versa, and that when praise does have effects on student behavior, those effects must be understood using concepts from attribution theory in addition to concepts from social learning/reinforcement theory.

1 Portions of this paper constituted the author's presentations entitled "Teacher Praise: A Functional Analysis," delivered at the 1979 annual meeting of the American Psychological Association, and "Correlates of Teacher Praise," delivered as part of the symposium entitled "Teacher Praise Revisited" at the 1980 annual meeting of the American Educational Research Association. The author wishes to acknowledge and thank Linda Anderson, Ned Flanders, Bruce Joyce, Mary Rohrkeper, and Barak Rosenshine for their comments on an earlier draft, and June Smith for her assistance in manuscript preparation. This paper has been accepted for publication in Review of Educational Research.

2 Jere E. Brophy is the coordinator of IRT's Classroom Strategy Study and a professor of teacher education and educational psychology.
Definitions

In this paper, the term "praise" has the same meaning and connotation as it does in everyday natural language: "to commend the worth of" or "to express approval or admiration" (Webster's, 1958). It connotes a more intense or detailed teacher response to student behavior than terms like "feedback" or "affirmation of correct response" do. When teachers praise students, they do not merely tell them the degree of success they achieved (by nodding or repeating answers; saying "okay," "right," or "correct," or giving a letter grade or percentage score). In addition to such provision of feedback, praise statements express positive teacher affect (surprise, delight, excitement) and/or place the student's behavior in context by giving information about its value or its implications about the student's status.

Almost 100 years of research has established that knowledge of results facilitates learning, and usually is essential to it. This paper does not question the need for knowledge of results in classroom learning, but it does question the value of teacher praise (as defined above) which goes beyond whatever level of simple feedback may be needed to provide knowledge of results. (As an aside, it should be noted that overt feedback from the teacher is not always necessary. In social learning situations, learners tend to assume that they are correct unless explicitly informed otherwise (Barringer & Gholson, 1979). This tendency probably is reinforced in most classrooms by corresponding teacher behaviors during recitations.)

Thus, this paper is about teacher praise that goes beyond mere affirmation of correctness of response. Also, teacher criticism is mentioned occasionally, and it is defined in parallel fashion to praise. That is, criticism refers to negative teacher responses to student behavior that go beyond whatever level of simple feedback (negation) is needed
to indicate that behavior is inappropriate or answers are incorrect. Thus, in this paper, teacher "criticism" connotes expression of disapproval, disgust, or rejection.

Praise and criticism must be distinguished not only from simple (affectively neutral) feedback, but also from more global attributes such as warmth and hostility. The latter terms describe generalized attitudes or emotional states, although they may include praise and criticism as partial manifestations. Praise and criticism are specific teacher responses to specific student behaviors, however, and can be analyzed at that level. It is likely, of course, that the effects of praise or criticism of specific behaviors will vary with teachers' global attitudes and emotional states, but this issue is touched on only briefly here.

The present discussion, then, focuses on teacher praise (and to a small extent, criticism) of student behavior (including both classroom conduct and academic learning). Praise and criticism are defined to correspond with common language usage of these terms, which differs in some respects from how they have been used by educational theorists and researchers. Note in particular that praise and criticism are defined as teacher reactions that go beyond simple feedback about appropriateness or correctness of behavior, and that "praise" does not include use of students ideas (Flanders, 1970) or other teacher behaviors that are often associated with praise but do not fit the definition given above.

The Characteristics of Reinforcers

Reinforcement theorists (see Premack, 1965) apply the term "reinforcer" to any consequence that increases frequency of a behavior when performance of that behavior is made contingent upon presentation of the consequence. Individuals differ from one another, and even from themselves over time, in their responsiveness to potential reinforcers.
Consequences capable of controlling the behavior of most people will not work with certain individuals, and thus will not function as reinforcers for those individuals. Also, reinforcers are subject to satiation effects, losing their potency if used too often or too long.

If they are to control behavior, reinforcers must be delivered contingently; the reinforcer should not be delivered until the behavioral criterion has been met. In training animals, this contingency relationship is communicated primarily by minimizing the time between performance of behavior and the delivery of the reinforcement. With humans old enough to understand language, the contingency relationship can be communicated verbally, so that reinforcement need not be immediate. However, the contingency between performance of the behavior and presentation of the reinforcer must be clear if reinforcement is to be effective.

**Praise as Reinforcement**

Praise is widely recommended as a reinforcement method for use by teachers. One reason is that it does not have the disadvantages associated with concrete reinforcers. The latter can be expensive to purchase and time consuming to apply regularly in the classroom, and their use engenders objections ranging from nutritional fears to concerns about bribing students to learn. Praise is free, and is usually seen as desirable not only because it can be an effective reinforcer but because it is thought to provide encouragement to students, help build self esteem, help build a close teacher-student relationship, and more.

A more specific potential advantage is that praise allows a direct statement of the contingency between the behavior and the reinforcement.
That is, in the very act of praising, teachers can identify the specific behavior they are trying to reinforce.

Not everyone favors praise, however. Some oppose it on principle. Most of these are individuals who believe that learning is intrinsically worthwhile and rewarding, at least when learners are allowed to follow their own interests at their own pace (Montessori, 1964; Moore & Anderson, 1969; Piaget, 1952). Individuals who believe this look upon all attempts to control through extrinsic reinforcement as unnecessary, intrusive, and perhaps harmful.

This point of view has received support from research indicating that the introduction of extrinsic rewards (of which praise is one) can reduce rather than increase motivation, at least when the person has previously been performing the behavior in question for its intrinsic value (Deci, 1975; Lepper & Greene, 1978). Recent research in this area indicates that these undesirable effects of praise vary with several qualitative aspects of the praise itself, and can be minimized with appropriate praise. This point will be discussed in a later section. For now, let us note that praise is not necessarily desirable even in theory.

Others dislike praise because it implies differential status: the person distributing praise takes the role of expert or authority figure who is judging the behavior of the person being praised. Teachers who want a more egalitarian relationship with their students may minimize praise, especially contingent praise, for this reason. Similarly, some teachers avoid praise because they want to train their students to think for themselves rather than depend on them (the teachers) for guidance. Thus, there are philosophical objections to praise despite its popularity.

Even so, a great many studies have made it clear that praise can function as a reinforcer by increasing specific student behavior when
made contingent upon performance of that behavior (see Lipe & Jung, 1971; O'Leary & O'Leary, 1977). I do not dispute this. However, the fact that praise can function as a reinforcer does not necessarily mean that it always or even usually does. Nor does it mean that praise has inherent value (many students find it embarrassing or otherwise undesired) or that it is synonymous with encouragement (we all know about "damning with faint praise"). Thus praise is not always and necessarily reinforcing.

Studies of how typical teachers (who are not involved in a specially designed and monitored behavior modification program) use praise in the classroom will be reviewed in the following pages. They indicate that teacher praise is typically infrequent, non-contingent, global rather than specific, and determined more by students' personal qualities or teachers' perceptions of students' need for praise than by the quality of student conduct or achievement. This makes teacher praise ineffective from the perspective of reinforcement theory (although much teacher praise may be seen as effective from other perspectives—this will be discussed later in the paper.)

**Frequency of Classroom Praise**

The fact that teachers are not systematically trying to reinforce through praise can be seen by looking at its frequency, both in its own right and in its relationship to criticism or punishment. Classroom studies of praise indicate that it occurs relatively infrequently, although precise figures are elusive in the published literature (Thomas, Presland, Grant, & Glynn, 1978). Dunkin and Biddle (1974) could find only 10 studies, most of which used some version of the Flanders Interaction Analysis Categories system (Flanders, 1970), which included information on the rate of praise
observed. Dunkin and Riddle concluded that teachers use praise "no more than six percent of the total time on the average." That is, only an average of six percent of the total codes from a given study are likely to include teacher praise. Actually, this estimate is inflated, because Flanders' praise category includes not only praise as defined here but also encouragement, jokes that release tension, statements like "go on," and head nodding or other simple feedback.

Others have also concluded that praise is relatively infrequent in most classrooms (Luce & Hoge, 1978; Thomas et al., 1978), and some even found that praise (or approval) was less frequent than criticism (or disapproval), at least when teachers' responses to conduct were included along with their responses to academic performance (Heller & White, 1975; Luce & Hoge, 1978; Meyer & Thompson, 1956; Thomas et al., 1978; Meyer & Lindstrom, Note 1.). Other data (see below) dispute the generalization of the latter finding. Apparently, the rates of both praise and criticism are low in most classes, but their relative balance varies with student ability level and teacher managerial skills, among other factors. Effective classroom managers tend to criticize less frequently than ineffective classroom managers, at least in part because they minimize blameworthy behaviors in the first place (Brophy & Evertson, 1976; Good & Grouws, 1977; McDonald & Elias, Note 2; Stallings & Kaskowitz, Note 3). Also, there tends to be more criticism in low ability classrooms than in high ability classrooms, even when taught by the same teacher (Heller & White, 1975; Evertson, Note 4). In any case, it seems clear that typical classrooms do not show the high rates of praise and low rates of criticism that would be expected if teachers were implementing behavior modifiers' advice that they reinforce
appropriate behavior and extinguish inappropriate behavior.

Table 1 presents data from six studies that used the Brophy-Good dyadic interaction coding system (Brophy & Good, 1970a). This system defines praise and criticism as defined in this paper, and allows separate coding of teachers' responses to academic performance versus classroom conduct. Data from the original studies were converted to a common metric of mean rate per teacher per hour (assuming an average of 25 students per class for data organized by student rather than by teacher). The data consistently indicate that teachers are more likely to praise good answers or good work than to criticize poor answers or poor work, but are more likely to criticize poor conduct than to praise good conduct. The absolute rates of praise and criticism are low, however. Except for the nine fourth-grade teachers who were selected by Good and Grouws (Note 5) because they were ineffective at teaching mathematics (and who were observed when attempting to do so), even praise of good answers or good work occurred less than five times per hour. Praise of good conduct was rare, appearing only once every 2 – 10 hours in the early grades and virtually dropping out of sight thereafter.

In percentage terms, Anderson, Evertson, and Brophy (1979) reported that first-grade teachers praised about 11% of their students' correct answers given during reading group recitations, and gave praise following 18% of the students' reading turns. Evertson, Anderson, Anderson, & Brophy (1980) observed teachers praise during about 10% of public response opportunities and about 3% of private academic contacts with individual students. Rates of praise of good conduct are not so easily converted into percentages (what counts as a unit of praiseworthy behavior?), but it is clear that they
Table 1.

Mean rates of teacher praise and criticism of student behavior (per teacher per hour) in six studies.

<table>
<thead>
<tr>
<th>Reference</th>
<th>Description of the Research Context</th>
<th>Praise of Good Answers</th>
<th>Criticism of Good Work</th>
<th>Praise of Poor Answers</th>
<th>Criticism of Poor Work</th>
<th>Praise of Good Conduct</th>
<th>Criticism of Poor Conduct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evertson, Brophy, &amp; Good, 1973</td>
<td>9 first grade classes observed for 40 hours each in a naturalistic study of teacher expectations as related to teacher-student interaction.</td>
<td>4.38</td>
<td>1.19</td>
<td>0.05</td>
<td>2.19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anderson, Evertson, &amp; Brophy, 1979</td>
<td>10 experimental and 10 control first-grade classrooms observed 15 to 20 times each during reading instruction as part of a treatment study of the effects of several small group organization and questioning/feedback variables.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Control 3.25</td>
<td>0.15</td>
</tr>
<tr>
<td>Brophy, Evertson, Anderson, &amp; Crawford, in press, Note 7</td>
<td>27 classes in grades 2-5 observed for 20 hours each in a naturalistic study of teachers' attitudes and students' attributes as related to teacher-student interaction.</td>
<td>3.18</td>
<td>0.80</td>
<td>0.55</td>
<td>0.95</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good &amp; Grouws, Note 5</td>
<td>9 high effective and 9 low effective fourth grade teachers observed 5 - 7 times each during mathematics instruction, in a naturalistic process-product study of teachers selected as high or low in effectiveness in producing student learning gains in mathematics.</td>
<td>4.16</td>
<td>1.01</td>
<td>0.05</td>
<td>0.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brophy, Evertson, Martina, &amp; Good, 1973</td>
<td>9 fifth grade classes observed for 15 hours each in a naturalistic study of teacher expectations as related to teacher-student interaction.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Highs 16.08</td>
<td>1.13</td>
</tr>
<tr>
<td>Evertson, Anderson, &amp; Brophy, 1980</td>
<td>58 mathematics and 78 English classes in grades 7 and 8 observed for 16 - 22 hours each in a naturalistic process-product study.</td>
<td>3.25</td>
<td>0.25</td>
<td>0.01</td>
<td>1.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math</td>
<td></td>
<td>2.09</td>
<td>0.58</td>
<td>0.01</td>
<td>0.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>English</td>
<td></td>
<td>2.16</td>
<td>0.54</td>
<td>0.01</td>
<td>0.85</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
were very low in the first grade study and virtually nonexistent in the junior high school study.

Data from other recent research on teaching cannot be equated with the data in Table 1, because different investigators use different coding definitions and analysis procedures. The contrasts with the Flanders system have already been mentioned. As another example, Stallings and Kaskowitz (Note 3) included provision of material rewards in the same category with praise, and sometimes combined this category with an "acknowledgement" category that corresponded to my term "feedback" as defined earlier. On the other hand, they had a category called "control by praising" for those teacher praise statements intended not so much to reinforce the good conduct of the student being praised as to cue imitation by onlookers. These differences prevent direct comparisons, but inspection of Stallings and Kaskowitz's data suggests that the data in Table 1 are typical for all teachers except those in special programs designed to apply behavior modification principles (such as DISTAN). That is, the typical teacher seldom praises good answers or good work, and rarely praises good conduct.

These low rates of praise make it clear that teachers are not relying heavily on praise as a reinforcement technique. Note that the figures are for the class as a whole. Thus, even in a classroom where a teacher praises once every five minutes, the rate of praise for the average student would be something like once every two hours. Furthermore, the bulk of these praise statements would be responses to good answers made by the students in public discussions or recitations. Thus,
even if all teacher praise were contingent and otherwise effective as reinforcement (which as we will see, is not the case), there does not seem to be enough of it to go very far.

**Distribution of Praise**

If teachers were using their praise in an attempt to modify student behavior (improve academic performance or classroom conduct), we would expect to see praise concentrated on those students whose behavior needs modification. This is only partly the case at best. First, the absolute rate of praise in the classroom seems to depend not only on student behavior but on the teacher's personality and style. Some teachers praise much more frequently than others. Within these general praise rates, the likelihood of particular students receiving praise depends on the students' general personality characteristics, not just their specific behaviors. Certain students (most of whom are boys) seem to get both more praise and more criticism simply because they are more initiatory and active within the classroom: They have more of every kind of interaction with the teacher (see review by Brophy & Good, 1974).

To address questions about the distribution of praise within classrooms, it is necessary to collect and analyze data using the individual student (not the class mean) as the unit of analysis. In addition, it is important to collect data not merely on the rates and targets of praise, but on antecedent events that create the contexts within which praise is delivered (see methodological discussion by Brophy, 1979). This can yield relative frequency data allowing the investigator not only to compare the rates of praise directed at various students, but to compare the students using these rates expressed as proportions of the rates.
at which they performed praiseworthy behaviors.

Simple rate measures might reveal, for example, that Mary was praised for good answers 10 times, and John only five times. However, if it is known that Mary gave 100 good answers during the observation periods, and that John gave only 25, it can be stated that the teacher praised only 10% of Mary's good answers, but 20% of John's. The rate data indicate that Mary was praised more often in the absolute sense, but the proportion data reveal that John was praised more often in the relative sense (in parallel situations). It is the proportion measures that are most revealing about how teachers use praise in the classroom.

Sometimes, such data suggest that teachers are using praise for behavior modification. Silberman (1969) and Evertson, Brophy, and Good (1973b) found that teachers praised students about whom they were concerned (because they were working hard but having trouble mastering the material) or whom they rejected (because of unacceptable disruptive behavior) more often than they praised students toward whom they were indifferent (quiet, conforming, non-initiatory students) or whom they especially liked (well adjusted, high achieving students). This is the pattern that would be expected if teachers were making special efforts to reinforce the desirable behavior of those students whose behavior most needed modification.

On the other hand, several studies have found that teachers give more academic praise to high expectation students than to low expectation students, even when opportunities to praise are taken into account (Brophy & Good, 1970b; Cooper & Baron, 1977; Heines & Hawthorne, Note 6).
One would think that teachers would go out of their way to reinforce success from the low expectation students, who do not succeed as frequently and who presumably need more encouragement. Yet, these studies reveal the opposite pattern, and most studies reveal no significant differences between expectation groups (cf. Brophy & Good, 1974). This suggests that teacher praise often is not deliberate reinforcement but instead is spontaneous reaction to student behavior, elicited by the quality of student performance or by student bids for praise.

Studies of student effects on teachers have indicated that certain individuals and certain types of students predictably pull much more praise from teachers than others (Hunt, Joyce, Greenwood, Noy, Reid, & Weil, 1974; Yarrow, Waxler, & Scott, 1971; Brophy, Evertson, Anderson, Baum, & Crawford, Note 7, in press). In particular, Brophy et al. found differences in praise rates between student initiated academic contacts, in which students brought incomplete work to the teacher in order to get help, and student initiated approval-seeking contacts, in which students brought up completed work to "show off" to the teacher in order to get praise or permission to do something else. The students who did the latter most often and successfully were those who not only could complete their assignments successfully, but also had personal qualities such as confidence, sociability, and extroversion that made them socially attractive as individuals and effective at "pulling" teacher praise.

The same kinds of students also tended to reward teachers for their praise by responding very positively to it—smiling, beaming proudly, and the like. In effect, they were conditioning the teachers to praise them.
Yarrow, Waxler, and Scott (1971) observed the same phenomena. In their study, teachers were trained to treat students either positively or neutrally according to a prearranged schedule. However, certain students got much more positive treatment than others, and even succeeded in getting positive treatment during times when the teachers were supposed to be acting neutrally. Observation revealed that these students were rewarding the teachers with positive affect during their interactions with them, causing the teachers to become even more positive with them and to return to them for additional contacts sooner than to other students.

More recently, Stokes, Fowler, and Baer (1978) trained preschool children to "recruit natural communities of reinforcement." The children were trained to judge the quality of their work and to prompt their teachers to comment about it. This training enabled the students to "recruit" an increased rate of praise from the teachers. These studies make it clear that some teacher praise not only is not a deliberate reinforcement technique controlled by the teacher, but instead is conditioned operant behavior elicited and reinforced by students (some much more than others). Also, the distribution of praise across different students in the class may sometimes depend more on the behavior of those students eliciting such praise than it does on attempts by the teacher to systematically reinforce excellence.

**Quality of Teacher Praise**

O'Leary and O'Leary (1977) indicate that teacher praise must have the following qualities to function effectively as reinforcement:
1. Contingency: The praise must be contingent upon performance of the behavior to be reinforced.

2. Specificity: The praise should specify the particulars of the behavior being reinforced.

3. Sincerity/variety/credibility: The praise should sound sincere. Among other things, this will mean that the content will be varied according to the situation and the preferences of the student being praised.

Continuency

It may be that teachers specially trained in behavior modification praise this way, but observational data indicate that most ordinary teachers do not. Harris and Kapche (1978) list failure to praise contingently as one of the most common problems they encounter in trying to train teachers to use behavior modification in the classroom. Meyer and Lindstrom (Note 1), observing in Head Start classrooms, concluded that most praise was not contingent on the child's prior behavior.

Anderson, Evertson, and Brophy (1979) found that first-grade teachers praised about 11% of correct answers but also praised about 1% of incorrect answers. Also, the rates of praise following reading turns that contained mistakes were very similar to (actually slightly higher than) the rates of praise following errorless reading turns. Others have also noted that teachers may shift their criteria for "success" in praising students (Mehan, 1974), and more generally, that they are prone to occasionally praise incorrect answers (Bellack, Kliebard, Hyman, & Smith, 1966; MacLure & French, Note 8).
Furthermore, the distribution of this inappropriate praise is predictable: It is found most often among teachers who have low expectations for student learning (Brookover, Schweitzer, Schneider, Beady, Flood, & Wisenbaker 1978), and within any given class, it is most likely to be directed toward the lowest achievers (Brookover et al., 1978; Kleinfeld, 1975; Weinstein, 1976; Amato, Note 9; Cooper, Note 10; Fernandez, Espinosa, & Dornbusch, Note 11; Rowe, Note 12). No doubt, such praise is given in an attempt to encourage the student. However, it seems likely that, to the extent that the students recognize what the teacher is doing, the result will be embarrassment, discouragement, and other undesirable outcomes.

**Specificity**

Lack of contingency or inappropriate contengency is not the only problem in the quality of typical classroom praise. Specificity is remarkably low. Anderson, Evertson, and Brophy (1979) found that teachers were specific in only 5% of their praise statements following good work or good answers by the students. This is not as bad as it seems, because in many of these situations it was clear to the student (or to all concerned) what was being praised. Even so, 5% seems unacceptably low.

In the same study, the rate of specificity for praise for good conduct or other classroom behavior was 40%. This is much higher than the 5% figure seen in academic situations, but still unacceptably low, especially when it is considered that behavior praise is usually intended by the teacher as a way to motivate conformity by the other students through vicarious reinforcement effects.
Credibility

Teacher praise often lacks credibility, as well. Sometimes, this is because of the problems of lack of contingency or specificity mentioned above. Also, the verbal content frequently is not backed by, or is even contradicted by, non-verbal expressive behavior (Feldman & Donohoe, 1978; Feldman & Orchowsky, 1979; Friedman, 1976).

Data on praise from the Brophy et al. (in press, Note 7) study illustrate several of these points. This study focused on student attributes and their effects on the frequency and quality of teacher-student interaction in 27 classrooms in grades two through five. Students had been rated by their previous and present teachers on personal attributes (calm, careful, happy, achieving, mature, cooperative, creative, attractive, persistent, object of teacher attachment, object of teacher concern, noticeable, and makes eye contact). The interaction between these 27 teachers and 362 of their students then was observed for 10 half-days using an adaptation of the Brophy-Good Dyadic Interaction Coding System. The adaptation (Brophy, King, Evertson, Baum, Crawford, Mahaffey & Sherman, Note 13) retained a focus on dyadic teacher-student interactions, but reduced emphasis on the cognitive aspects in favor of affective aspects (smiling and other non-verbal indicators of positive affect by either the teacher or the student, teacher frowning, student acting cowed or sullen).

Analyses of the teachers' patterns of interaction according to each of the 13 student attributes indicated that troublesome students usually got as much verbal praise and access to classroom rewards as more conforming and successful students, but that non-verbal measures often indicated negative affect in the teacher, the student, or both. With
successful, well-liked students, on the other hand, the verbal and non-verbal indicators were congruent. Thus, the quality, and probably the credibility and effectiveness of teacher praise varied with student attributes and teacher attitudes.

In addition, it was clear that teachers' attempts to reinforce desirable behavior in troublesome students were determined not only by the need for such reinforcement but by the students' personal qualities and affective responses to the teachers. Students whose patterns of problem behavior were non-threatening (those described as careless, unhappy, tending to give up easily, or so quiet and passive as to be not easily noticeable) were praised relatively often. This was not true, however, for those who were described as uncooperative or nominated as students that the teacher would like to be rid of (especially if these students were sullen or defiant in addition to being disruptive). Praise was not used as a systematic reinforcement technique with these students, because the teachers wished to minimize their interactions with them or because it was not effective in the first place (most of these students probably did not value teacher praise).

There also were interesting context differences in the quality of teacher praise. Sometimes such praise appeared to be a (not very credible) attempt to reinforce student behavior, and sometimes it appeared to be a (generally credible) spontaneous reaction to student behavior, depending on the type of student and the context in which the interaction occurred. Praise during student initiated approval-seeking contacts was likely to go to mature, high achieving, confident students who showed positive affect toward the teacher and elicited a generally positive
pattern of treatment from the teacher. In contrast, teacher praise occurring during student initiated work contacts was usually directed to the more immature and teacher dependent students, particularly students lacking in self-confidence that the teachers were trying to encourage. Such praise correlated positively with a broad pattern of positive teacher treatment: Other measures of praise, making a good example of the student in front of the class, physical affection toward the student, and flattery of the student. On the other hand, the teachers were more likely than usual to refuse the requests of these students for permission to do classroom housekeeping tasks, and the teachers were likely to show negative non-verbal reactions during personal and social contacts with these students. Thus, their reinforcement of these students was more deliberate and less spontaneous, and it did not carry over from academic contacts to personal and social contacts.

In contrast to both of these patterns for student initiated contacts, praise occurring in teacher initiated work contacts was likely to be directed toward students with whom the teacher shared an unusually intense emotional relationship. High rates of praise in this context were correlated with criticism in teacher initiated work contacts, positive student reactions during such contacts, teacher smiling, teacher frowning, frequent criticism or punishment for misbehavior, teacher physical affection, and general rate of positive contacts with the teacher. This pattern indicates that teachers had a "set" to respond emotionally and evaluatively to certain students. The result was a more intensive type of praise of their desirable behavior than occurred
normally. This praise was more likely to be initiated by the teacher than to be in response to something done by the student, and it was more likely to be accompanied by non-verbal evidence of positive affect.

Analyses of the proportion scores for praise of students' good answers during public response opportunities plus praise of good work during private interactions revealed that high scores were associated with students described as unhappy, unattractive, uncreative, lacking in persistence, unlikely to look you in the eye, and rejected by the teacher. It is of interest that this pattern of student unhappiness and self-concept problems was not accompanied by indications of frequent misbehavior: These were not the disruptive, aggressive, or defiant students. Correlates were confined to other measures of teacher praise and positive treatment of the students, along with indications that the students responded positively to this treatment by smiling and rewarding the teacher.

Thus the highest praise proportions went not to the high achievers or best adjusted students, but to rather unattractive and unhappy students that teachers disliked but were continually trying to motivate or reassure through positive treatment. Apparently the teachers could sustain this kind of interaction with these students despite dislike for them, partly because the students did not overwhelm them with continuous misbehavior, and partly because the students responded positively to this teacher treatment. Students who frequently and continuously misbehaved, especially those who responded sullenly to the teacher, were unlikely to receive this kind of consistent positive treatment and praise.
Praise of students for good behavior was rare but did occur frequently enough to analyze, and the patterns of correlation make it clear that teachers were using this praise in an attempt to motivate other students by vicarious reinforcement effects rather than to directly reinforce the students being praised. Behavioral praise of this kind went to students described as high achieving, quiet, conforming, and hard working, clearly those least in need of reinforcement for such behavior. Unfortunately for the teachers, the admirable qualities of these students did not extend to include peer leadership and popularity. That is, the teachers might have been successful to a degree in using the vicarious reinforcement principle if they had praised students who were looked up to by their peers, but instead they tended to praise "teacher's pet" types.

Taken together, the data on praise from this and other studies suggest that (1) much teacher praise is not even intended as reinforcement, but instead is reactive behavior elicited and reinforced by students themselves; and (2) most of the teacher praise that apparently is intended as reinforcement probably does not function very effectively as such, because it is not systematically contingent upon desirable behavior, lacks specification of the behavioral elements to be reinforced, and/or lacks credibility.

Praise and Student Achievement Gains

Given what has been said so far, it should not be surprising that praise does not correlate with student achievement gains as it would if it were functioning as reinforcement. In analyses based on class means (comparing teachers), correlations between praise and student achievement gains are weak and mixed in direction (Dunkin & Biddle, 1974; Rosenshine & Furst, 1973). Analyses within class, using
the individual student as the unit, reveal that rate measures (frequency of praise per unit time) usually correlate positively with achievement gains but percentage measures expressing the rate of praise of good answers or good work relative to the opportunity to praise such good answers or good work usually do not correlate significantly one way or the other.

Several studies using class means have suggested that, in the early elementary grades, praise rates correlate weakly but positively with student achievement in low-SES or low-ability classes (Brophy & Evertson, 1976; Cantrell, Stenner, & Katzenmeyer, 1977; Good, Ebmeier, & Beckerman, 1978; Stallings & Kaskowitz, Note 3), but do not correlate at all or correlate weakly but negatively in high-SES or high-ability classes (Anderson, Evertson, & Brophy, 1979; Brophy & Evertson, 1976; Good, Ebmeier, & Beckerman, 1978; Martin & Veldman, in press; Eggert, Note 14).

These recent findings make sense, for several reasons. First, low-SES/low-ability students experience failure frequently and thus are likely to be discouraged, perhaps even alienated, learners. Teacher praise and encouragement for academic progress probably is much more meaningful and motivating to them than it is for high-ability students accustomed to consistent success. Second, young students in the early grades, especially those who are low in ability, may not clearly perceive the distinctions between praise that is or is not contingent, specific, or credible. To the extent that this is true, even non-contingent praise might have beneficial effects (in this connection, see Cormier, Note 15), and at the same time might not have the negative effects to be expected later (student embarrassment, discouragement). Third, to the extent that low
ability students are less cognitively advanced than other students, they may retain an orientation toward pleasing adults and taking what adults say at face value longer, and thus may be responsive to teacher praise for an extra grade or two in school.

In any case, it is only with low-SES/low-ability students in the early grades that praise seems to have genuine reinforcing effects on student learning. It is true that rates of praise of good student answers tend to correlate weakly but positively with student learning in the upper elementary grades and in the junior high and high school grades (Flanders, 1970; Evertson, Anderson, Anderson, & Brophy, 1980). However, it appears that these correlations appear simply because praise of good student answers is part of a more fundamental teaching pattern involving concentration on classroom recitation and group discussion. Measures of time spent in these activities tend to correlate with achievement more strongly than praise rates do, and in general, process-product data suggest that structuring the classroom in order to elicit good student answers in the first place is far more important for producing achievement than praising those answers after they have been elicited. Teacher praise appears to have little or no causal role in its own right, at least in typical everyday classroom interactions (cf. Brophy, 1979).

**Functions of Teacher Praise**

If praise typically is not part of a systematic reinforcement effort, what are its functions? I have no direct data on the matter, but I can draw inferences from several observational studies and numerous
discussions with teachers. In addition to its deliberate use as reinforcement, praise can have the following meanings and functions.

**Praise as Spontaneous Expression of Surprise or Admiration**

Occasionally, students' responses are surprisingly (at least to the teacher) insightful, or their assignments surprisingly well done. This may cause the teacher to praise their accomplishments by expressing surprise or admiration. Ironically, this kind of praise, which is given spontaneously rather than as part of a systematic effort to reinforce, probably is the most reinforcing in its effects on students.

**Praise as Balance for Criticism or Vindication of Predictions or Expectations**

Regularly in dealing with habitual underachievers, and occasionally in dealing with other students when they perform below their potential, teachers criticize students for sloppiness or poor effort, or state that they are capable of doing (and expected to do) better work. Then, if performance improves, they praise the improved work. In a sense, this is just another example of teachers' efforts to reinforce systematically. However, it often has a special connotation: The teacher is not only praising the students but also justifying his or her own previous behavior. Such praise often communicates "See, you deserved my earlier criticism," or "See, I said that you could do better, and I was right!" To the extent that teacher praise includes such messages, its effectiveness as a reinforcer probably is reduced.

**Praise as Attempted Vicarious Reinforcement**

The teacher's intention here is not so much to praise the desired behavior of the student to whom the message is ostensibly directed, but instead to change or control the behavior of other *students* ("I like the
way Susie has cleaned up her desk."). Unless the students singled out for such "praise" are very immature and teacher dependent, they are likely to feel manipulated or punished rather than rewarded by it.

**Praise as Positive Guidance or Avoidance of Criticism**

A related form of pseudopraise is used by teachers who realize that singling out a student's good conduct is not likely to reinforce that student, but who do so nevertheless because they want to avoid nagging, criticism, or even just the sheer monotony of repeated behavioral demands. Such teachers use "I like the way..." in order to provide guidance in positive language. Often this is part of a larger attempt to create a friendly, cooperative classroom atmosphere.

**Praise as Ice Breaker or Peace Offering**

Praise may be used to establish communication with alienated, uncommunicative students or with disruptive students whom the teacher has had to criticize or punish. With the latter, it often is a way of letting the students know indirectly that they are "out of the doghouse." Flattery and compliments regarding grooming or clothing often serve similar functions.

**Praise as Student-Elicited Stroking**

The Brophy et al. (in press, Note 7) study revealed that the students who got the highest rates of praise for good academic work received much such praise because they elicited it directly from the teacher. Usually, they were cheerful and extroverted types who brought completed work up to the teacher and showed it off proudly, communicating implicitly or even explicitly that positive responses were expected.
Praise as a Transition Ritual

Much classroom praise occurred in situations where students were expected to show the teacher that they had finished an assignment, whereupon they could begin some other activity. Certain students came up and showed off their work proudly at these times, and elicited the kind of praise described above. However, most students simply indicated that they had finished the assignment, and they wanted the teacher to certify that they were in fact finished and thus eligible to begin self-chosen activities. In these situations, the verbal praise tended to be perfunctory, and the teachers' non-verbal behavior, in the context of the situation, communicated official recognition that the student had finished the assignment and could make a transition into a new activity. There was no sustained attention to the quality of the student's performance or communication that the performance had been particularly outstanding or otherwise praiseworthy.

Praise as Consolation Prize or Encouragement

In general, and increasingly in the higher grades, teachers deal with students rather impersonally, concentrating on the tasks of teaching and learning. When things go well, they keep moving along at a good pace, stopping to praise the student or introduce other, more personal, considerations. Most interactions with the best students are entirely academic in focus, although the students will occasionally be praised in public when they make an unusually creative or impressive contribution to a class discussion, or in private through complimentary remarks in addition to grades given for unusually good individual work assignments. Slower students, however, are often praised, both publicly and privately. This
is especially likely to be the case if these students are basically cooperative and teacher dependent but slow and plodding, so that the teacher takes the role of a patient, helpful, or even protective tutor and resource person (alienated and hostile students who threaten the teacher do not get this kind of kid-glove treatment). The timing and quality of this praise make it clear that teachers are not so much trying to reinforce specific behavior as to provide general encouragement and reaffirmation of the teacher-student relationship. Such praise appears grossly deficient, in fact, from a narrow reinforcement purview. Some of it even follows incorrect answers or generally poor performance, suggesting that the teacher is reinforcing error or failure rather than success. This sometimes may be the case. However, given that such praise is directed toward certain kinds of students whom the teachers believe need encouragement, it may well be effective in the long run. This possibility will be investigated by the author in an ongoing study of student motivation in the classroom.

Research Implications

There are other subtypes of praise in addition to these commonly observed ones. The larger conclusion here is that the meaning and function of teacher praise will depend not only on the verbal content, but on non-verbal accompanying behavior that can either reinforce or contradict it, and on situation and context factors that condition student expectations about and perceptions of teacher behavior. Because of these factors, very similar teacher praise statements can be perceived as sincere and experienced as reinforcing by certain students in certain situations, but perceived as manipulation or condescension and experienced as punishing by other students in other situations. This under-
scores the importance of taking into account the classroom ecology in interpreting classroom process data, especially the need to think about the meanings of teacher behavior to the students. The same can be said about many other teacher process behaviors, as well. For example, just as praise cannot be equated with reinforcement, neither can ignoring be equated with extinction nor criticizing with punishment. Functional analyses of most of the classroom process variables commonly used in classroom research will reveal that existing coding categories are too broad, explicitly including (and implicitly defining as synonymous) several different behaviors that have contrasting meanings and functions, even though they share surface similarities. If such analyses are performed, and if the results lead to more differentiated and elaborated classroom coding systems, we can expect to see richer and more coherent findings.

Teaching Implications

Teachers typically do not systematically use praise as a reinforcer. Should they? If so, how, and with whom? I find these questions difficult to answer, because I believe that praise has been seriously oversold.

Potency of Praise as a Reinforcer

Teacher praise is a weak reinforcer (Walker, 1979), at least after the first few grades of school. Until they are age seven or eight, children are very oriented toward pleasing adults, and have what Kohlberg (1969) calls a "good boy" or "good girl" sense of morality. For these children, praise constitutes guidance from an authority figure and feedback indicating that one is pleasing that authority figure.
Once this childish concern about pleasing adult authority figures recedes in favor of peer orientation or other motives, however, teacher praise usually becomes a very weak reinforcer for most students. This is especially true with respect to its potential for controlling disruptive behavior or other unacceptable classroom conduct (in contrast to its potential for reinforcing achievement), because students who were concerned about pleasing the teacher would not be behaving disruptively in the first place. Ironically, then, teacher praise is likely to be least useful for the kinds of students and behavior problems that teachers are most concerned about (Walker, 1979).

Teachers seem to be aware of this. Ware (1978) had high school students and their teachers rate a list of 15 potential rewards drawn up on the basis of previous pilot work. Students asked to rank the rewards for desirability and effectiveness ranked the opportunity to reach a personal goal first, followed by school scholarships; compliments and encouragement from friends; being accepted as a person or having their opinion sought; trophies, certificates, medals, and ribbons; job-related rewards such as raises and vacations; special privileges or responsibilities; formal letters of recognition or appreciation; having their names printed in the newspapers or repeated on a loud speaker; teacher or employer compliments and encouragement; money for specific accomplishments; parties, picnics, trips, or banquets; election to office; being chosen to be on special programs; or being a winner in a contest. Thus, students ranked teacher praise and encouragement only tenth out of the 15 potential reinforcements listed. Interestingly, teachers ranked it even lower, almost at the bottom. Thus, it appears that teachers are aware that their praise is not very reinforcing to
most students even though it is stressed so widely.

Feasibility of Praise as a Reinforcer

Even if teachers were convinced of the value of praise as a reinforcer and tried to use it as such, it is questionable whether they could do so successfully in anything other than one-to-one situations. The complexities of trying to reinforce the specific behaviors of the different students in the class would quickly exceed the teacher's time and ingenuity, even if compromise methods like contract systems or token economies were used. Teachers dealing with classes of 25 or 30 students are not even going to notice all of the relevant specific behaviors that students perform, let alone be able to reinforce them effectively.

Reinforcement of specific behaviors in an ongoing class situation simply is not feasible, even with praise as the reinforcer (assuming its effectiveness). At most, the teacher can concentrate on a few specific behaviors for the class as a whole, or on a larger number of specific behaviors for a few individuals. Beyond this, however, the teacher must function by obtaining the general cooperation of the students rather than by continually reinforcing their specific behaviors.

Student Response to Praise

Student response to teacher praise can be expected to vary from highly positive through neutral to highly negative. That is, praise will act as a reinforcer for some students, but other students will be indifferent to it and still other students will actually experience it as punishment (perhaps to the point that they will become less likely to repeat the behavior that was praised). The latter outcome is especially likely in the case of a student who is fighting a "teacher's pet" image who gets singled out publicly as an example to the rest of the class.
Rather than just assume the effectiveness of praise, teachers should monitor students for their apparent reaction to it, and respond accordingly. Classroom interaction data suggest that most teachers do this to at least some degree, although not necessarily consciously and systematically. Existing theory and data provide some clues to the kinds of students who will respond positively to praise. In general, it appears that young students in the early grades are likely to find praise reinforcing, particularly those who are most oriented toward pleasing adult authority figures rather than toward impressing their peers. Also, at any grade level, but perhaps especially in the earlier grades, students who are low in ability, who came from low SES backgrounds, or who come from minority groups may be especially responsive to praise and encouragement from teachers. Finally, introverts apparently are more responsive than extroverts (Kennedy & Willcutt, 1964; Leith & Davis, 1969), individuals with external loci of control are more responsive than individuals with internal loci of control (Hammer, 1972; Henry, Medway, & Scarbro, 1979), and field dependent individuals are more responsive than field independent individuals (Witkin, Moore, Goodenough, & Cox, 1977).

With students who have the opposite traits, and especially with field independent students who also happen to be high achievers accustomed to success, praise may be not only ineffective but actually counter-productive, at least if overused. Eden (1975) provides a theoretical explanation of how this can be. He notes that rewards can be classified according to whether or not they are commensurate with the desires or preferences of the person to be rewarded. If one receives the kind of reward that one expects and desires following performance of some behavior, one is likely to experience reinforcement and an increment in motivation. However, this will not occur if the expected and desired rewards are not obtained, even if performance of the behavior results
in some consequence that other individuals would find rewarding.

Reviewing many studies, Eden offers evidence that providing the individual with the "wrong" reward not only fails to bring about an increment in motivation, but actually results in a decrease. The decrease attributable to presentation of the "wrong" reward is considerably smaller than the increase likely to result if the individual is presented with the "right" reward, but it is a decrement nevertheless (this apparently is the reason why overall motivation apparently decreases when individuals who have been operating on the basis of intrinsic motivation are presented with extrinsic rewards). Thus, praise delivered to the wrong person, or in the wrong way, or under the wrong circumstances may be not only ineffective but counterproductive. Of course, the danger here is not nearly as great as it might be for something like publicly ridiculing a student. Even so, there appears to be good reason to urge teachers not to be indiscriminately positive in their evaluative remarks toward students, but instead to pick their spots and choose their words carefully.

Perspective on Praise as Used in the Typical Classroom

Taken together, what has been said so far suggests to me that teachers (who are not specially trained to praise effectively) are intuitively praising effectively in some respects and ineffectively in others. In particular, the low rates of praise generally observed in classrooms are probably appropriate, but not the low levels of specificity about praiseworthy aspects of student behavior or the low credibility that stems from lack of contingency or non-verbal behavior that belies the verbal content.
Low rates of praise are appropriate because praise is unnecessary (and sometimes intrusive) in most teacher-student exchanges. It is essential that students get feedback about their academic progress and classroom conduct, but this does not require the more intensive and evaluative reactions implied by "praise." Indeed, I see no strict necessity for any praise (as defined here) at all. Students do not actually need praise in order to master the curriculum, to acquire acceptable student role behaviors, or even to develop healthy self-concepts.

On the other hand, most students enjoy receiving genuine praise, and most teachers enjoy praising. Effective praise can provide encouragement and support when made contingent on effort, can be informative as well as reinforcing when it directs students' attention to genuine progress or accomplishment, and can help teachers establish friendly personal relationships with students. Despite its general weakness as a reinforcer, it is effective with many students, and for them, it has several advantages over material rewards (Forness, 1973; Schultz & Sherman, 1976).

Thus, from a social learning/reinforcement point of view, praise can be an effective technique for teachers who "pick their spots" by praising sparingly, concentrating on those students who respond well to it (it reinforces their desirable behavior) and making sure to meet the criteria of contingency, specificity, and sincerity/variety/credibility (O'Leary & O'Leary, 1977). There are other points of view, however, that suggest additional guidelines. One of these is attribution theory, which I find especially helpful in understanding the gulf between the functions of praise suggested by social learning/reinforcement theory and research and the functions of praise I perceive in the classroom.
Praise from the Standpoint of Attribution Theory

Preoperational children typically introject the evaluative and moralistic statements of parents, teachers, and other authority figures (Kohlberg, 1969). That is, they tend to internalize these statements directly, construing them in a literal and concrete way (to the extent that they understand them), and failing to analyze them carefully to determine whether or not they make sense. With children at this level, even praise that is noncontingent or otherwise defective as specific reinforcement may still function reasonably well as encouragement or more general reinforcement.

However, as children develop reversibility and other concrete operations (Piaget, 1970), and as they come to expect more orderly cause and effect relationships, they come to realize that praise is expected only after certain kinds of behavior (conformity, success), and not others (disobedience, failure). This cognitive development, along with related changes in social-emotional development dealing with the transfer of primary concerns from pleasing authority figures to coping with developmental tasks and handling peer relationships, gradually enables them to begin to reflect on and analyze adults' evaluational and moralistic statements, rather than to simply internalize them as they did in the past.

These principles are illustrated in a series of studies by Meyer, Bachmann, Biermann, Hempelmann, Plöger, & Spiller, 1979), who asked people of various ages about the implications of praise, neutral feedback, and criticism following success or failure depicted in vignettes. Adults and high school students attributed

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3 Piaget describes as "preoperational," children aged (approximately) two through seven, who possess a variety of cognitive abilities but have not yet coordinated them into concrete operations (systematic concepts and strategies, such as negation or reversibility, which can be used for logical thinking and problem solving).
low ability to depicted individuals who were praised after success but
given neutral feedback after failure, but they attributed high ability
to individuals who received neutral feedback after success but criticism
after failure. Thus, to the extent that teachers' differential response
to different students' performance is noticeable, there is a tendency
to infer low ability in students who are "overpraised" and high ability in
students of whom teachers are demanding. Meyer et al. showed that the
same inferences were drawn when people were asked to imagine that the
students in the vignettes were themselves, as well. Their findings did
not hold up for elementary school students, however, especially those
in the early grades.

Many of these students inferred higher ability in individuals that
teachers praised more, even when information about actual accomplishments
did not support such inferences.

Other recent data also indicate that children in the early grades
are not very knowledgeable about either their absolute levels of achieve-
ment or how they compare with peers (Nicholls, 1978, 1979a).
Thus the danger that inappropriate praise will backfire is reduced in
these grades. Still, it probably is important for even teachers in these
grades to learn to praise appropriately, especially when long-run effects
stretching across the school year are considered.

With older and more sophisticated students, effects of praise will
depend on individuals' mediation of the meanings and implications of
praise statements. Even identical teacher statements made under the same
circumstances and with the same intent (to provide encouragement or rein-
forcement) may be experienced very differently and may have very different
effects in different individuals. Attribution theory (Weiner, 1979; Dweck,
provides a useful framework for analyzing some of these effects of individual mediation of praise statements.

Dweck, Davidson, Nelson, and Enna (1978) note that the meaning of praise will be determined by the base rates of frequency of praise following particular behaviors or events, the contingency that is communicated between the praise and some prior behavior or event, and the specific attribution statements made by the teacher (if any). Outcomes (including praise) that simply repeat existing base rates typically are not considered to have important meanings for the individual, compared to outcomes that counter the prevailing trends. Thus, students who are praised under circumstances in which they know everyone gets praised are not likely to attribute the praise to anything special about themselves (the praise is due to the teacher's proclivity for praising certain kinds of behavior). On the other hand, praise that is unexpected is more likely to lead students to conclude that they have done something genuinely praiseworthy.

Praise that is consistently contingent upon success will be taken as feedback that success has been achieved. However, if praise is frequently used indiscriminantly in reference to behaviors unrelated to the correctness or quality of the students' responses, the praise becomes ambiguous. Thus, praise from a teacher who consistently praises contingently will cause students to infer that they have done something genuinely praiseworthy (at least in this teacher's eyes), but similar praise from a teacher who does not typically praise contingently may carry no information at all about the objective quality of the students' performance.
Finally, the meaning of evaluative feedback can be influenced by the attribution that the teacher makes when delivering it. Thus, a teacher who praises students' success and tells them that they are smart may teach them to attribute their success to a stable ability factor, but teachers who praise students for working hard enough to succeed will train the students to attribute their success to unstable effort factors.

Dweck, Davidson, Nelson, and Enna (1978) reported interesting sex differences in the kinds of praise and criticism that teachers directed to boys versus girls. The teachers they observed were relatively more likely to praise boys only for objectively successful performance, but to praise girls also for neatness, following instructions to the letter, speaking clearly in addition to merely giving the correct answer, or for other matters of form rather than substance. When making negative evaluations, however, the teachers were likely to criticize girls only for unacceptable performance, but relatively more likely to criticize boys for sloppy handwriting, calling out answers, or other failures to follow the approved form of responding, even when the intellectual quality of the response was acceptable. These differences in teacher treatment of the two sexes are not particularly surprising, in view of well known differences between the sexes in adherence to the student role, and they can be defended as appropriate teacher attempts to train the students (particularly the boys) to follow the formal demands of the student role. This training includes in part the reinforcement of girls for doing so, which also presumably has the effect of motivating the boys, according to the vicarious reinforcement principle.
However, an attribution analysis revealed that these were not the effects at all. As a result of this differential teacher behavior, the students had learned to make differential attributions concerning the meaning of teacher evaluations. The boys paid serious attention to and apparently were reinforced by teacher praise of their success (the teachers tended to praise them only when they were objectively successful, so that this praise was credible). On the other hand, boys minimized attention to and generally discounted teacher criticism (because too often this criticism was for matters of form rather than substance, and the boys recognized this, at least at some level). One result of this was that the boys attributed their successes to stable, internal ability factors and their failures to stable but external factors (inappropriate teacher attitudes) or internal but unstable factors (their own degree of effort). As a result, they were buoyed up by praise and undisturbed by criticism, and maintained generally positive expectations and self-concepts.

On the other hand, the girls were not particularly reinforced nor encouraged by teacher praise (too much of it was for matters of form rather than substance), but were very discouraged by teacher criticism (the teachers only criticized them when their performance had been inadequate). They tended to attribute their success to external factors (the teachers' inappropriate attitudes or behavior) or to internal factors other than ability (their tendency to follow the formal demands of the teacher and thus to receive praise even when they had not attained objective success). Failures, however, were attributed to stable, internal factors (lack of ability). Thus, despite ostensibly more positive and "reinforcing" treatment, girls were not particularly encouraged by
praise, were overly discouraged by criticism, and in general, were less likely to develop positive self-concepts and expectations for achievement.

Finally, the authors also noted that girls occasionally gave clearly incorrect answers and received no feedback about the correctness of their answers but were praised for answering according to the correct form. This was never observed for boys, although boys occasionally got no feedback following a correct answer but were criticized for matters of form. Taken together, these differences in treatment enabled boys to shrug off the effects of failure by attributing it to external factors or to internal factors under their own control (effort), and thus to emerge with high hopes for the future. For girls, however, failure suggested inadequacy: they tried their best (the teacher did not criticize their effort) but they still failed (therefore, the task must be too difficult for them). This soon led to negative attributions about ability and reduced expectations for future achievement on similar tasks.

This line of research reveals how teachers can undermine their own efforts to encourage or reinforce if they do so inappropriately. The work of Dweck et al. (1978) stressed the role of attributions and related internal mediations in causing students to discount teacher praise (and criticism). It also is likely that other mediations could cause students to overreact negatively to praise, at least once their thinking becomes operational. That is, when teachers praise certain students too effusively or otherwise inappropriately, especially in response to performance that is not praised in other students, the recipients of the praise may suffer humiliation if they believe that the praise was honestly intended for their own good ("She must really
think I'm hopeless if she praises me for that"). Or, they may question
the teacher's credibility ("What's the matter with her? How could she
think that that was good work?"). Alternatively, the students might
reject the praise as overdetermined and manipulative ("He's trying to
embarrass me by killing me with kindness while calling attention to
my poor work.").

The specific findings of Dweck et al. (1978) concerning student
sex differences in attribution patterns and types of evaluative feedback
received from teachers do not generalize (Cooper, Burger, & Good, Note 16),
but they nicely illustrate how praise can foster counter-productive
attributions and behavior. They also suggest guidelines for effective
praising, as does other recent attributional research (Bates, 1979; Lepper
& Dafoe, 1979; Pittman, Davey, Alafat, Wetherill, & Wirsu, 1980; Blanck,
Reis, & Jackson, Note 17; Nicholls, 1979b, Ruble, Boggiano, & Pittman,
Note 19).

These and other investigators have established that even though praise
is a form of extrinsic reinforcement, it can be delivered in ways that do
not reduce (and may even increase) intrinsic motivation. This involves
following not only the principles derived from social learning/reinforce-
ment theory, but also several other principles designed to see that stu-
dents maintain a task orientation (Nicholls, Note 18) while actually work-
ing on the task, and then make endogenous attributions (Kruglanski, 1978)
later when reflecting on their experiences. These principles are summarized
in Figure 1.

These guidelines indicate that praise must not be overused if it is to
be used effectively, and that some investment of time and attention to the
specifics of performance or conduct of the student is required. The rapid
Figure 1. Guidelines for Effective Praise

EFFECTIVE PRAISE

1. is delivered contingently.
2. specifies the particulars of the accomplishment
3. shows spontaneity, variety, and other signs of credibility; suggests clear attention to the student's accomplishment.
4. rewards attainment of specified performance criteria (which can include effort criteria, however).
5. provides information to students about their competence or the value of their accomplishments.
6. orients students toward better appreciation of their own task-related behavior and thinking about problem solving.
7. uses students' own prior accomplishments as the context for describing present accomplishments.
8. is given in recognition of noteworthy effort or success at difficult (for this student) tasks.
9. attributes success to effort and ability, implying that similar successes can be expected in the future.
10. fosters exogenous attributions (students believe that they expend effort on the task because they enjoy the task and/or want to develop task-relevant skills).
11. focuses students' attention on their own task-relevant behavior.
12. fosters appreciation of, and desirable attributions about, task relevant behavior after the process is completed.

INEFFECTIVE PRAISE

1. is delivered randomly or unsystematically.
2. is restricted to global positive reactions.
3. shows a bland uniformity which suggests a conditioned response made with minimal attention.
4. rewards mere participation, without consideration of performance processes or outcomes.
5. provides no information at all or gives students information about their status.
6. orients students toward comparing themselves with others and thinking about comparing.
7. uses the accomplishments of peers as the context for describing students' present accomplishments.
8. is given without regard to the effort expended or the meaning of the accomplishment (for this student).
9. attributes success to ability alone or to external factors such as luck or (easy) task difficulty.
10. fosters exogenous attributions (students believe that they expend effort on the task for external reasons -- to please the teacher, win a competition or reward, etc.).
11. focuses students' attention on the teacher as an external authority figure who is manipulating them.
12. intrudes into the ongoing process, distracting attention from task relevant behavior.
pace of classroom life and the many competing demands on the teacher minimize the availability of such time. To me at least, this seems to underscore the need for teachers to praise well, rather than necessarily often, at least after the early elementary grades.

Teachers can supplement their verbal praise in several ways, however. One is to take time to write specific, informative praise statements on the work they return to students, especially statements that take into account students' expectations for their own performance (Hammer, 1972; Stewart & White, 1976). Another is to help students learn to set appropriate goals (Rosswor, 1977) and to evaluate their own performance (Maehr & Stallings, 1972), supplying self-reinforcement rather than relying solely on the teacher (Glynn, Thomas, & Shee, 1973; McLaughlin, 1976). Attempts to use self-reinforcement with material rewards have not always succeeded (Winston, Torney, & Labbee, 1978), but teaching students to evaluate and (when appropriate) praise themselves for their accomplishments seems well worthwhile. Finally, teachers can teach students to attribute outcomes to their own efforts rather than to ability or to external causes (Andrews & Debus, 1978; Chapin & Dyck, 1976; Dweck, 1975).

Cautions and Qualifications

Several cautions and qualifications should be mentioned before concluding this analysis. First, most of the data reviewed are correlational, and inferences often were drawn about teachers' and students' thoughts and behavior from general trends rather than direct evidence. Thus, this has been essentially a logical analysis based on integration of a broad range of indirect data, and not an empirical functional analysis of the kind performed by applied behavior modifiers.
Second, most of the paper assumed a molecular level of analysis, considering specific praise statements as possible reinforcers of specific behaviors. The possibility of using praise to systematically reinforce larger clusters of behavior (in the same sense that sophisticated contract systems use other extrinsic rewards to systematically reinforce larger clusters of behavior) was not addressed. Elaboration of this possibility could make praise appear to be more theoretically feasible as a classroom reinforcer than I have given it credit for, although I still maintain that it would not be practically feasible (for the same reasons that token economies aren't).

Third, the section indicating that praise usually is uncorrelated or negatively correlated with student learning was confined to consideration of cognitive outcomes of teaching. The picture becomes more balanced when student attitudes or other affective outcomes are considered. Teachers who praise more often tend to be better liked than teachers who praise less often (Dunkin & Biddle, 1974; Evertson, Anderson, Anderson, & Brophy, 1980), although there are exceptions (Good & Grouws, 1977). Given what was said earlier about non-verbal behavior tending to belie verbal statements (when there are discrepancies), however, I suspect that factors like general warmth and personal interest in students are more important than praise.

This leads to a final point. This analysis has considered praise in the abstract, separate from teachers' personal qualities and other classroom behaviors. In reality, the effects of praise will be determined by these factors in addition to the other factors reviewed here.
The same statement seen as genuine praise by students who find their teacher generally credible may be seen as an insincere attempt at control by students in another classroom. Praise by a well organized and successful classroom manager is likely to be a spontaneous expression of admiration or a well-phrased attempt to encourage or reinforce, but praise by a poor classroom manager in danger of losing control may be a desperation attempt to "do something." Ultimately, then, the effects of praise will be affected by the context in which it occurs.

Conclusion

This analysis indicates that teacher praise may have a variety of intended and actual functions in addition to reinforcement of student conduct or academic performance. Classroom research on praise seems unlikely to reveal much unless these different types and meanings of praise are built into coding systems. In any case, it seems clear that praise cannot simply be equated with reinforcement.

Pending such improvements in research methodology, the data suggest qualifications on our enthusiasm in recommending praise to teachers (who seem to be intuitively aware of its limitations in any case). Infrequent but contingent, specific, and credible praise seems more likely to be encouraging (and perhaps reinforcing, although more with respect to general effort than to specific behaviors) than frequent but trivial or inappropriate praise. Rather than just assume its effectiveness, teachers who wish to praise effectively will have to assess how individual students respond to praise, and in particular, how they mediate its meanings and use it to make attributions about their abilities and about the linkages between their efforts and the outcomes of those efforts.
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