

The present study was designed to compare the effects of negative feedback statements and specific directives in music performance instruction. Twenty-five college undergraduates and 25 fifth- and sixth-grade students were taught by rote to play on soprano recorder an accompaniment part to the theme to Sesame Street. All subjects were taught in individual lessons by the same teacher. In approximately half the lessons at each age level, the teacher communicated corrective information through negative feedback statements. In the remaining lessons, the teacher communicated corrective information through specific directives. Results indicate that subjects' attitudes and performance achievement were unaffected by the experimental conditions. All subjects expressed positive attitudes about the experience, and the time required to reach the final performance goal and the quality of student performance were not different between the group receiving negative feedback and the group receiving directives.

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Effects of Verbal Corrections on Student Attitude and Performance

Teacher feedback is perhaps the most widely studied component of teacher behavior. Although most experts agree that teacher feedback is important and that students' knowledge acquisition, performance skills, and social behavior are affected by teacher feedback (Brophy & Good, 1986; Madsen & Madsen, 1983), questions remain regarding the precise nature and effects of feedback (Cameron & Pierce, 1994), and optimal rates of positive and negative feedback in music settings have yet to be identified. Much of the research literature in music education expresses the conclusion that the ratio of positive to negative feedback should be high and that a preponderance of negative feedback may lead to students' discouragement, lack of achievement, and off-task behavior (Byo, 1994; Madsen & Duke, 1993; Price, 1992). Interestingly, however, observation of the teaching of experts *in situ* has revealed that

excellent teachers communicate both positive and negative academic feedback at comparably high rates, although their students' individual performance trials are more often successful than unsuccessful (Buckner, 1997; Cavitt, 1998; Siebenaler, 1997).

High ratios of positive to negative feedback have been identified as correlates of student attentiveness across many disciplines. But, somewhat paradoxically, systematic observation of teaching in music performance settings has revealed that, despite high rates of negative feedback (and corresponding low to moderate positive feedback ratios), students seem to work hard and remain on-task even though the relative proportion of positive feedback is lower than would have been expected based on observations of classroom instruction in other disciplines (Madsen & Alley, 1979; Yarbrough & Price, 1981, 1989).

Third-party observers' perceptions of teaching quality may also be influenced by perceived rates of positive and negative feedback, but observers' perceptions are often inconsistent with actual events (Duke, 1987; Madsen & Duke, 1985a). Some research concerning observers' evaluations of music teaching has shown no relationship between the rate of positive feedback and evaluations of teaching quality by experts in the discipline (Madsen, Standley, Byo, & Cassidy, 1992; Siebenaler, 1997) and by preservice teachers (Duke & Blackman, 1991). Yet, many practicing and prospective teachers, when observing the teaching of others, seem particularly sensitive to negative teacher feedback (Madsen & Duke, 1985b). This sensitivity is manifested in observers' tendency to overestimate the proportion of negative feedback in instructional interactions and to evaluate teaching effectiveness in inverse proportion to the amount of negative feedback perceived (Duke, 1987; Duke & Prickett, 1987).

Recent investigations in which researchers have examined the precise content of teacher verbalizations throughout an instructional interaction have revealed that excellent teachers' verbalizations include rates of negative feedback that are equal to or greater than the rates of positive feedback. This has been observed in a variety of music settings, including instrumental ensemble rehearsals (Cavitt, 1998; Younger, 1998; Younger-Flores, 1995) and private keyboard lessons (Buckner, 1997; Siebenaler, 1997). In addition, a number of investigators have found that experienced and expert teachers often give no verbal feedback following student performance trials (Cavitt, 1998; Colprit, 1998; Goolsby, 1997; Hendel, 1995; Price, 1983; Yarbrough & Price, 1981).

In an effort to explain the fact that relatively high proportions of negative feedback have been observed in the teaching of experts and that high levels of student attention have been associated with higher rates of negative feedback than are recommended in pedagogical literature, some authors have suggested that this seeming contradiction between theory and practice (i.e., the high proportions of on-task student behavior and positive student attitudes in the presence of low rates of positive feedback) may result from music's inherent reinforcing qualities and that students who are engaged in music performance

activities are reinforced by the activities themselves, rendering additional reinforcement from the teacher unnecessary to maintain student attention and appropriate behavior (Forsythe 1977; Madsen & Alley, 1979; Madsen & Duke, 1985b). It may be, however, that the nature of music *instruction*, and not necessarily the music itself, helps explain the fact that higher rates of negative verbal feedback are observed among successful teachers and conductors.

Unlike some academic classroom instruction, during which students may respond either infrequently or not at all during the course of an instructional presentation, music performance instruction necessarily involves the active, overt participation of all students throughout the learning process. Music instruction, by its very nature, embodies an ongoing alternation between teacher instructions, feedback, and student performance trials, and this alternation of teacher and student activity has been studied extensively in recent years (e.g., Goolsby, 1996; Hendel, 1995; Price & Yarbrough, 1991). Because music performance instruction affords students frequent opportunities to demonstrate their levels of skill acquisition moment-to-moment, it seems logical that the function of teacher verbalizations, particularly negative feedback, may be different than in situations in which there are fewer response opportunities.

Seldom has the effect of the ratio of positive to negative feedback been investigated with regard to student performance achievement. In a recent review of 81 research investigations published during the last quarter-century that included systematic observation and evaluation of teacher behavior in music (Duke, 1997), only 11 studies were identified that included student performance achievement as a dependent measure. In those instances when positive teacher feedback was measured in relation to student achievement, the relationship between these two variables was found to be weak (Price, 1983) and statistically nonsignificant (Kuhn, 1975; Murray, 1975; Yarbrough, 1975).

This is not to suggest that students who do not hear positive verbalizations from the teacher receive no positive feedback. Rather, instructional settings in music performance provide numerous opportunities for students to receive feedback about their progress and accomplishment. This feedback emanates not from the teacher directly, but from students' perceptions of their own accomplishment of proximal performance goals. This is not a trivial point. If it is true that teachers control the probability of students' success on any given performance trial, then excellent teachers do, in fact, control the rate and proportion of positive and negative feedback communicated to students by selecting and ordering performance tasks in such a way as to increase the likelihood that students will be successful (Duke & Madsen, 1991). The feedback students receive comes not only in the form of verbalizations and nonverbal communication from the teacher, but also, and perhaps more importantly, in the form of accomplishment or failure to achieve the proximal goals determined by the teacher (Duke, 1994).

In detailed analyses of one-to-one piano instruction, for example, timing measurements of excellent teachers were characterized by high-

er rates of teacher verbalizations, especially directives and feedback, and correspondingly higher rates of student performance opportunities than were observed among less skilled teachers. Teachers identified as the most skilled, either through expert observers' evaluations (Siebenaler, 1997) or through evaluations of student accomplishment (Buckner, 1997), also demonstrated consistently higher rates of negative feedback (Buckner, 1997; Siebenaler, 1997). These same results were obtained in observations of expert high school and middle school band directors (Cavitt, 1998).

There are several issues regarding the definition of teacher verbalizations and the function of verbalizations with regard to student behavior that must be clarified for the purposes of discussion. Most authors define negative feedback as a negative evaluation of a student's behavior or performance, but the degree of specificity of negative feedback may vary widely. Negative feedback following a student performance may communicate little other than the fact that the student's performance was below expectations or incorrect (e.g., "That sounded terrible") or may be so specific as to suggest a course of action for the student in a subsequent performance trial (e.g., "The C-natural was very sharp that time"). Interestingly, in most published research in music education, both of these statements are categorized as negative feedback or disapproval, even though the latter contains more information and, because of its specificity, implies a course of action that the student may undertake to remediate the error or problem identified.

Directive statements (i.e., commands that indicate to a student that he or she should do something) also vary in specificity, and, as is the case with negative feedback, the degree of specificity may affect the potential function of the verbalization. Specific directive statements following a student performance trial may indicate to the student that something should be done differently than was done on the preceding trial. For example, directing a student to play again and change some aspect of the preceding performance trial implies that the preceding trial was below expectations or was incorrect (e.g., "Try again, and see if you can bring down the pitch of the C-natural").

When students have frequent opportunities to respond in a learning procedure, the distinction between specific negative feedback statements and specific directives is blurred and the intended purposes of these statements overlap. When there are frequent alternations between student performance trials and teacher verbalizations, as is the case in most music performance settings, each negative feedback statement may imply a direction to change some aspect of the performance. In other words, each specific negative feedback statement may imply a directive. Similarly, each specific directive to change some aspect of the performance may imply a negative feedback statement about the preceding trial.

Thus, in the course of music instruction, specific directives and specific negative feedback statements may serve similar functions (i.e., to communicate to the student that something about his or her performance needs to change), and, if this is true, then it may not be appro-

private to categorize teacher verbalizations in a way that implies that all negative feedback statements are similar, that all directive statements are similar, or that all negative feedback statements are functionally different from all directive statements. It may be that the lack of distinction among negative feedback statements explains the high rates of negative feedback observed among excellent teachers.

As a basis for this investigation, we propose that students' successful accomplishment of musical goals is a primary source of positive feedback and that students may describe a learning experience positively, irrespective of the rate of negative verbal feedback from the teacher. In the present study, we compared two procedures for communicating corrective information to students learning a music performance skill. Specifically, we attempted to determine whether a teacher's expressions of corrective information (i.e., the content of teacher verbalizations that are intended to elicit change in student performance) affect students' attitudes about a learning experience and the time required to learn a target performance task.

METHOD

Subjects were 25 college undergraduates who were enrolled in music courses for nonmusic majors at the University of Texas at Austin and 25 fifth- and sixth-grade students enrolled in a public elementary school in Austin, Texas. Although drawn from a number of different classes, subjects were not selected randomly, but participated on a voluntary basis. College subjects' ages ranged from 19 to 29 years; their mean age was 22. Levels of music experience varied widely among the elementary subjects and among the college subjects, but music experience did not differ significantly between the subjects assigned to the two experimental conditions, $F(1, 44) = 3.47, p > .06$. One college subject in each experimental condition had played the recorder prior to their participation in the study; no subject from the elementary school had had experience playing the recorder.

Each subject was taught by rote to play a one-line accompaniment for the theme to *Sesame Street* on soprano recorder. All subjects were taught in individual lessons by the same teacher (the second author), with whom subjects were unacquainted prior to the study. Throughout the learning procedure, the teacher explained and demonstrated each part of the task, and performed together with the subject until he or she was able to perform independently. When the subject had learned to play the part correctly, the lesson culminated with the target performance task—a duet performance in which the teacher played the melody while the subject played the single-line accompaniment. The duration of each lesson was not predetermined; rather, each lesson continued until the predetermined performance goal had been accomplished successfully. Lessons taught to the college students ranged in duration from 10.0 to 24.3 minutes; the mean lesson duration was 17.4 minutes. Lessons taught to the elementary students ranged in duration from 14.9 to 40.9 minutes; the mean lesson duration was 25.5 minutes.

College students' lessons were taught in a large music classroom and were videotaped from behind a one-way mirror situated on one wall of the classroom. The teacher and student sat facing one another and were positioned so that both were clearly in view of the camera. A microphone mounted in the ceiling of the classroom directly above the teacher and student was used to record the audio signal. Elementary students' lessons were taught in a typical elementary classroom with a stationary videocamera on a tripod in full view.

Subjects in each age-group were taught under one of two experimental conditions. In the Directive Condition, the teacher made corrections in students' performances primarily by stating specific directives, which were defined as commands describing how the student should perform in a subsequent performance trial. In response to a student's playing too loudly, for example, the teacher directed the student to play again and identified what should be done differently in the subsequent trial (e.g., "Try that again, and play a little softer this time"). The teacher attempted to avoid negative feedback during the lessons in this condition; that is, the teacher avoided negative, evaluative statements regarding individual student performance trials.

In the Negative Feedback Condition, the teacher corrected subjects' performance errors by identifying what was wrong with the subject's performance in a preceding trial. In response to a student's playing too loudly in this condition, for example, the teacher first identified the error in the preceding trial and directed the student to play again (e.g., "You played a little too loudly that time; try it again").

Thus, in the Directive Condition, teacher verbalizations that were intended to correct aspects of the student's performance were expressed as specific directives to do something differently in a subsequent trial. In the Negative Feedback Condition, teacher verbalizations intended to correct aspects of the student's performance were expressed as specific negative feedback (i.e., negative evaluations of student performance in a preceding trial), followed by a command to "try it again." The teacher made no conscious attempt to change her personal demeanor between the two experimental conditions and there were no obvious differences in the teacher's emotional tone when delivering negative feedback statements and when delivering directives.

Although the teacher taught using a planned sequence of activities leading toward the culminating duet performance, the sequence was adapted ad hoc in accordance with the needs of each student. We made no attempts to control other categories of teacher verbalizations during the learning procedure. Thus, the teacher's directions about what to play during each performance trial and the teacher's positive feedback statements varied among lessons. We had anticipated that the frequencies and rates of these other aspects of the instructional interactions would distribute evenly between the two experimental conditions, and this, in fact, was the case (data are reported in the Results section below).

Experimental conditions were assigned randomly to subjects prior to the first subject's lesson. Each subject arrived at the classroom at a

scheduled appointment time, was given a soprano recorder, and the lesson commenced. At the conclusion of the lesson, each subject completed a brief questionnaire that gathered demographic data and posed 11 statements to which subjects responded using four-point Likert-type scales ("strongly disagree," "disagree," "agree," "strongly agree"). We purposely chose four-point scales to obviate a neutral response and create a forced choice between agreement and disagreement. The 11 statements were:

- I enjoyed learning to play the recorder today.
- I found playing the recorder difficult to learn.
- I would like to continue learning to play the recorder.
- This lesson was a negative experience.
- Playing the recorder is easy.
- I got bored learning to play the recorder today.
- I now feel confident about playing the song I learned today.
- The teacher was helpful.
- I was frustrated during the lesson.
- Playing the recorder is fun.
- The teacher was encouraging and positive.

Following the learning procedure, the teacher thanked the subjects for their participation and handed them the questionnaire. Subjects completed the questionnaires outside the classroom and outside the presence of the teacher, with whom they had no further contact. They were instructed to place their completed questionnaires in an envelope outside the classroom.

We analyzed the content of all videotapes in order to record the frequencies of teacher directives, positive and negative feedback statements, and student performance trials, and to record the time required to reach the target performance goal.¹ Recall that all lessons continued until the subject had successfully accomplished the goal of performing the accompaniment part in duet with the teacher playing the melody, so lesson durations varied according to the speed with which subjects mastered each assigned task.

RESULTS

The mean rates of teacher verbalizations, student performance trials, and the mean lesson durations for each age group and each experimental condition are shown in Table 1. There were no significant differences between the two treatment conditions in terms of the number of positive feedback statements, $F(1, 46) = 1.1, p > .30$, the number of student performance trials, $F(1, 46) = 0.5, p > .47$, or the time required to reach the target performance goal, $F(1, 46) = 1.2, p > .28$. Of course, in keeping with the design of the research, the mean number of negative feedback statements in the Directive Condition was low compared to the mean number of negative feedback statements in the Negative

Table 1
Positive Feedback Frequency, Negative Feedback Frequency, Directive Frequency, and Time (in Minutes) to Reach Performance Goal for the Directive and Negative Feedback (fb) Conditions

Condition	n of positive feedback statements		n of negative feedback statements		n of specific directives		n of performance trials		Time (in mins) to reach performance criterion	
	M	SD	M	SD	M	SD	M	SD	M	SD
<i>College subjects</i>										
Directive	36.8	7.3	2.5	1.8	25.4	9.2	63.8	17.4	17.8	1.3
Negative fb	34.4	12.7	19.7	9.4	6.2	3.3	62.4	20.1	17.1	5.2
<i>Fifth- and sixth-grade subjects</i>										
Directive	55.1	16.1	7.6	3.7	47.8	16.4	97.9	32.5	27.1	7.6
Negative fb	49.8	15.1	29.8	12.6	13.0	6.8	88.8	28.5	24.1	6.4

Feedback Condition (see Table 1). Complementarily, the mean number of directive statements in the Directive Condition was high compared to the mean number of directive statements in the Negative Feedback Condition. Although the teacher found it impossible to avoid all negative feedback statements in the Directive Condition and to avoid all specific directives in the Negative Feedback Condition, the rates of negative feedback statements and directive statements seemed adequately differentiated between the two treatments. These data indicate that there were no systematic differences between experimental conditions except with regard to the independent variable, namely, the content of teacher verbalizations that were intended to elicit change in student performance.

There were unsurprising differences between age levels. Compared to lessons taught to the college subjects, lessons taught to the elementary students were longer in duration, $F(1, 46) = 22.8, p < .001$, comprised a greater number of performance trials, $F(1, 46) = 17.9, p < .001$, and included a higher frequency of positive feedback from the teacher, $F(1, 46) = 20.1, p < .001$. There was no significant interaction between age level and treatment condition in any of these comparisons.

The mean subject responses to the 11 statements on the questionnaire are shown in Figure 1. Note that four of the statements were worded negatively, such that a subject's "disagreement" with these statements indicates a positive response. It is clear from the figure that the responses of subjects in both treatment conditions were nearly identical; there were no significant differences between the Directive and

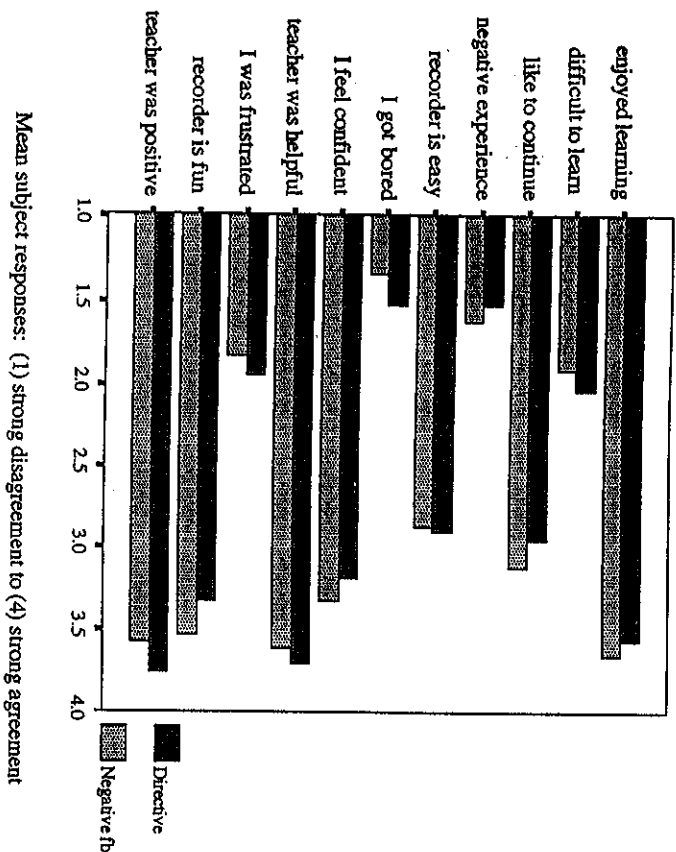


Figure 1. Subjects' ($N = 50$) mean responses to 11 statements concerning their experience.

Negative Feedback treatment group means for any of the 11 statements, $F(1, 46) < 1.9, p > .17$. The mean responses of both age-groups were positive on all 11 questionnaire items, and the mean responses of elementary subjects and college subjects were not significantly different on 7 of the 11 items. Elementary subjects responded more positively than the college subjects on four items, however ("I enjoyed learning to play the recorder," "I would like to continue," "This lesson was a negative experience," and "I was frustrated"), $F(1, 46) > 4.6, p < .03$. There was no significant interaction between age level and experimental con-

dition on any of the 11 items. The mean responses concerning subjects' enjoyment of the activity ("I enjoyed learning to play the recorder"), and the teacher's helpfulness ("The teacher was helpful") and positive approach ("The teacher was encouraging and positive") were particularly high in both treatment conditions and in both age groups—this despite the substantial differences in the frequencies and rates of negative feedback statements between the two conditions.

DISCUSSION

The results of this investigation indicate that subjects' successful accomplishment of music performance goals led to positive attitudes and feelings of self-efficacy and that subjects' attitudes and learning efficiency were unaffected by the different verbalizations used by the teacher to communicate corrective information (i.e., the need to make changes in performance). The finding that subjects could successfully achieve a music goal and view the experience as highly positive, irrespective of the rates of negative verbal feedback from the teacher, highlights the importance of student performance achievement as a primary factor influencing students' attitudes and perceptions of self-efficacy.

The results of this investigation must be considered carefully and in light of the fact that the rates of positive feedback from the teacher were high in both experimental conditions and that students received frequent confirmation from the teacher that they had successfully performed the tasks assigned during the learning sequence. In fact, even in the Negative Feedback Condition, there were more positive feedback statements than negative feedback statements. Among the elementary students, the mean positive to negative feedback ratio was approximately 5:2 in the Negative Feedback Condition and 7:1 in the Directive Condition. Among the college students, the mean positive to negative feedback ratio was also approximately 3:2 in the Negative Feedback Condition, compared to 15:1 in the Directive Condition.

These results demonstrate that the precise language used by teachers to identify performance errors and communicate corrective information may be inconsequential in situations in which students have frequent performance opportunities (opportunities to respond) and are often successful in accomplishing proximal goals. But it is important to emphasize that the negative feedback statements presented in this investigation were delivered dispassionately and matter-of-factly by the teacher. Although it is certainly, and perhaps unfortunately, true that many individuals' conceptualizations of negative feedback include concomitant expressions of negative emotions (e.g., impatience, annoyance, anger), we made no attempt to vary systematically the teacher's facial expressions, gestures, or tone of voice in a way that would convey negative emotional reactions to the students' performances in either condition.

Some authors have given much attention to distinguishing among various types of feedback statements and have suggested that their functional outcomes, in terms of their effects on student attitude and

behavior, are dissimilar, but it is important to note that the data collection procedures in these and similar investigations most often have assessed third-party observers' perceptions of feedback given to others (e.g., Deci & Ryan, 1985; Koestner, Zuckerman, & Koestner, 1987; Ryan, Mims, & Koestner, 1983; Schmidt, 1989, 1995) or have used as a dependent measure subjects' willingness to continue a limited task over very short time periods (Cameron & Pierce, 1994). Seldom have the students who are the recipients of the feedback been questioned or observed to determine the functional outcome(s) that the feedback may elicit in authentic learning settings. The apparently countervailing data from the present study suggest that such close attention to the precise language used to communicate feedback may be unjustified and that the effects of feedback statements should be considered only in relation to their function in the instructional interactions in which they reside.

Teacher preparation programs understandably emphasize the importance of feedback as an essential component of quality instruction. This seems appropriate, since feedback is such a large part of a teacher's verbal repertoire. It seems equally important, however, to focus novice teachers' attention on the extent to which their students are able to accomplish the implicit and explicit proximal goals that teachers define for them throughout a lesson or rehearsal. There is ample evidence that demonstrates that students' attitudes and self-perceptions are greatly affected by their accomplishment of proximal goals (Bandura, 1994; Bandura & Schunk, 1989; Schunk, 1991), and the results of this research illustrate the primacy of successful performance in engendering positive attitudes and developing skills.

Classroom interactions in music are multifaceted and complex, which makes the task of systematic assessment of music teaching difficult at best. The search for appropriate dependent measures that may serve not only as evaluative assessments but also as sources of prescriptive information remains one of the most important challenges for research in music education. Perhaps the most important implication of the present research is that the primary factor in students' attitudes about music experiences and perceptions of self-efficacy seems to be students' successful accomplishment of music goals and that the variable of student accomplishment may outweigh the positive/negative feedback ratio as a determinant of student attitudes and self-perceptions.

NOTE

1. In this analysis, we defined directive statements as commands indicating that the student take some specific action in a subsequent performance trial (e.g., "Make this more smooth" or "Try to blow a steady stream of air"). Indications of where to begin playing (e.g., "Start at the beginning") or other nonspecific commands regarding what to play (e.g., "Try that again") were not included in this verbalization category. Positive and negative feedback statements were defined as any evaluative statements that describe the performance of the student in a preceding performance trial (e.g., "That

was terrific" or "You're still a little behind"). Each discrete subject performance, either alone or together with the teacher, was counted as a performance trial. The performance trial total includes false starts and other trials in which the subject was unable to complete the assigned task. The time to reach the performance goal was measured from the teacher's first instruction to the end of the final duet performance. Introductory comments and social greetings at the beginning of the lesson and closing statements and instructions about completing the questionnaire were not included in the time measurement.

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