This study is an examination of teacher and student behavior in 48 violin and cello lessons taught by 12 expert Suzuki string teachers. One representative excerpt of work on a repertoire piece that had been introduced in a preceding lesson was extracted from each lesson videotape and analyzed in detail. Each excerpt was divided into segments (labeled “rehearsal frames”) that encompassed the instructional activities devoted to proximal performance goals (labeled “targets”) identified by the teacher. Targets were recorded for each rehearsal frame and categorized according to the teacher’s description of the target and according to the aspect of performance to which the target pertained. Instructional activities within 338 rehearsal frames were examined in terms of the rates, durations, and proportions of time devoted to aspects of teacher and student behavior. Across all rehearsal frames (N = 338), approximately 45% of the total time was devoted to teacher verbalizations, 20% to teacher modeling, and 41% to student performance. Episodes of teacher and student activity were frequent and brief, indicating a rapid pace of instruction. Lessons were characterized by high rates of approvals and a clear focus on one aspect of performance at a time.

Elaine J. Colprit, Bowling Green State University

Observation and Analysis of Suzuki String Teaching

A number of investigators have examined the effects of teaching methodologies on student performance achievement in beginning string classes. Independent variables in previously published studies of string instruction include: (a) first-versus third-position instruction (Cowden, 1975); (b) pentatonic versus diatonic scales (Maag, 1974); (c) finger placement tapes versus no finger tapes (Smith, 1985, 1987); (d) beginning bow hold at the balance point versus beginning bow hold at the frog (Gillespie, 1988; Jensen, 1990); (e) homogeneous versus heterogeneous class instruction (Kantorski & Ellsworth, 1988); and (f) video instruction versus teacher instruction (Gillespie, 1989). In all studies, the results indicate no significant difference in student performance achievement. If teaching methodologies are not responsible for student performance achievement, than what are the variables that effect positive change in the performance of string students? Review of the extant literature in music education and observation of the behaviors of expert teachers and
the behaviors of their students in the context of a lesson or rehearsal may afford a different view of string instruction.

The complexity of the teaching-learning process makes it difficult to describe precisely. Although it is possible to identify individual components of teaching, no single component retains all of the characteristics of the whole; therefore, an adequate description of teaching must include not only descriptions of individual components but their interactions as well. In studies of prelesson planning (Morine-Dershimer, 1978/1979), pacing (Duke, Prickett, & Jellison, 1998), teacher feedback (Duke, 1987; Duke & Blackman, 1991; Madsen & Duke, 1985), time use (Forsythe, 1977; Goolsby, 1996; Kostka, 1984; Moore, 1982; Witt, 1986), and presentation of instruction (Duke & Madsen, 1991; Price, 1983; Speer, 1994; Yarbrough, Price, & Hendel, 1994), researchers have examined individual components of effective teaching. Several factors are thought to influence effective teaching, such as the ability to make inferences from classroom observations (Berliner, 1986; Standley & Madsen, 1991), teacher personality traits, music competencies, diagnostic skills, error-correction skills, modeling skills, classroom management skills, the ability to choose appropriate lesson objectives (Brand, 1985), decision-making skills, communication skills, and the ability to evaluate student performance (Saunders, 1990). Identification of individual components of effective teaching and understanding of the interrelationships among them as they function together across time are essential to provide an accurate description of the teaching-learning process. Timing and sequence of events may also influence teacher effectiveness.

Expert teaching may share some of the characteristics of expert improvisation. What seems to be spontaneous may, in fact, be planned and purposeful. The course of a lesson is determined by multiple teacher decisions (McNair, 1978–79). Shavelson (1973) considered decision making to be the primary teaching skill, based on the premise that any teaching act is the result of a decision. Teacher planning involves prelesson decision making, and teachers make interactive decisions throughout a lesson as they refine instruction. Results of research suggest a relationship between teacher “prelesson” planning and teacher “in-class” decision making (Morine-Dershimer, 1978/1979). Interviews with expert teachers reveal that, during prelesson planning, teachers often create mental images of a lesson. By imagining how a lesson will be realized, teachers are able to predict potential problems and plan solutions and contingencies that can be implemented during instruction. The process of refinement and decision making continues in the classroom as teachers make interactive or “in-flight” decisions in order to correct perceived discrepancies between mental images and classroom reality (Westerman, 1991). Decisions made by music teachers may influence the content and quality of lessons and rehearsals.

Systematic observations of music teaching suggest that there is recognizable organization in lessons and rehearsals of effective teachers.
Expert piano, trumpet, and guitar teachers present instruction in hierarchical sequences composed of small, attainable steps that lead toward accomplishment of clearly defined goals, and episodes of teacher activity are brief and efficient (Buckner, 1997; Duke & Colprit, 1996; Siebenaler, 1997). Teacher-student interactions in lessons of experienced instrumental, choral, and piano teachers are often characterized by sequential patterns of instruction, which consist of (1) teacher task presentation, (2) student response (verbal or music performance), and (3) teacher consequence (Arnold, 1995; Hendel, 1995; Speer, 1994; Yarbrough & Price, 1989). Evaluations of overall teacher effectiveness may be associated with teacher control of the student-teacher interaction, teacher efficiency and accuracy of presentation, and teacher affect and pacing (Madsen, 1990; Madsen & Geringer, 1989).

Music lessons and rehearsals are structured in time, and how music teachers spend that time may affect the quality of instruction. Results of investigations of teacher time use reveal no difference in the use of class time by string specialists and nonstring specialists in beginning string classes (Allard, 1992) and no difference in the durations of conductor talk and student performance time in the rehearsals of lower-rated versus higher-rated orchestra directors (Ellsworth, 1985). Orchestra directors talk less frequently than do band directors during rehearsals, but verbalizations of orchestra directors are of longer duration (Witt, 1986). In a study of band rehearsals, Goolsby (1996) found more time devoted to student performance and shorter episodes of teacher talk in rehearsals of experienced teachers than in rehearsals of novice or student teachers.

Examinations of the content of teacher talk suggest that the quality of teacher verbalizations may distinguish expert instrumental teachers from novice and student instrumental teachers. Expert band directors choose to correct rhythm and tempo problems most frequently, address multiple performance variables in a single interval of instruction, and talk to a greater extent about tone quality, intonation, expression/phrasing, articulation, and guided listening than do novice teachers or student teachers (Goolsby, 1997, 1999).

Examination of the content of expert string teacher verbalizations and the sequence of instruction that follows identification of a performance problem and leads to successful resolution may reveal much of what is effective string teaching. I found no published investigations in string education that document events in the student-teacher interaction in relationship to identification and achievement of performance goals. For researchers and teacher educators hoping to facilitate the development of string teaching expertise, the primary tasks are to identify the behaviors of expert teachers and to clearly define what novice teachers must learn to do. Examination of expert string teaching in small increments, segmented by topic of instruction, may reveal what aspects of student performance expert string teachers choose to address and what they do to facilitate positive change in student performance.
Duke (1994) proposed the “rehearsal frame” as a unit of analysis for performance instruction in music. The rehearsal frame is designed to focus observation on what the teacher does to accomplish positive change in student performance. Rehearsal frames are segments of instructional time devoted to the accomplishment of identifiable instructional goals. A rehearsal frame begins when a teacher identifies an aspect of student performance that needs improvement and ends when the specified goal is accomplished, or when the teacher initiates work on a new goal. In a typical rehearsal frame, a teacher directs the student through a series of performance trials leading toward achievement of a predetermined performance goal. Analysis of teaching by rehearsal frames may yield information regarding the relationships between aspects of student performance that teachers attempt to change (“targets”) and the procedures teachers use to effect change.

In the present study, expert string teaching was described using systematic observation procedures for the purpose of revealing what excellent string teachers do to accomplish positive change in student performance. The rehearsal frame served as the unit of analysis. In this research, I attempted to (a) describe the activities of teacher and student as they worked toward achievement of performance goals and (b) identify and categorize teacher-selected targets, or goals for change in student performance.

METHOD

Twelve studio teachers of violin or cello whose teaching is predicated on the principles and philosophy of Shinichi Suzuki participated in the present study. All participants had been identified for a previous investigation (Duke, D’Ercole, Burton, Hersh, Jackson, Partee, Scott, Zeller, & Colprit, 1996) as successful string educators who had been recognized nationally or regionally for excellence in teaching. The 12 Suzuki teachers resided in seven states representative of five regions within the United States. Each teacher submitted names of students who, with parental consent, had agreed to participate in the study. From a list of 273 students, three from each studio were randomly selected, for a total of 36 students. Students ranged in age from 5–17 years old and had studied a stringed instrument for 1–13 years. From this student pool, two students from each teacher’s studio were selected. Whenever possible, I chose the youngest and oldest students from each studio. If three students from a single studio were the same or nearly the same age, I selected two students who varied in experience with a stringed instrument or in level of music performance. A total of 24 students, two from each studio, were selected for inclusion in this investigation.

Three consecutive lessons with each student were videotaped between November 1994 and January 1995—a total of 72 lessons. Lessons were 30 minutes, 45 minutes, or 60 minutes in duration. All lessons were videotaped on VHS recorders set on stationary tripods.
within the normal studio setting. The camera was positioned to provide a clear view of both teacher and student. The camera was set in place at the beginning of each lesson and remained in position throughout the lesson. Teachers were asked to carry out their usual lesson procedures.

From each teacher’s studio, two videotapes of lessons with each of two students were reviewed to identify segments that depicted teacher and student working on a piece in progress (i.e., a piece that had been introduced in a prior lesson). Excerpts from the first and third recorded lessons were selected for analysis. The focus of this investigation was to analyze teacher-student interactions as string teachers attempted to accomplish positive change in student performance. It was thought that this could best be accomplished by observing work on a piece that was already familiar to the student. Excerpts were selected on the basis of three criteria: (1) representation of a piece in progress, (2) appearance of the same piece in at least two lessons, and (3) minimum excerpt duration of 7 minutes. Forty-seven of the 48 selected excerpts ranged from 7–17 minutes in duration. One excerpt was 5 minutes in duration.

After I identified excerpts from 48 lessons, I divided each of the 48 lesson excerpts into rehearsal frames. During multiple viewings, I recorded the time when a teacher identified an aspect of student performance that needed improvement (target), recorded the name of the target, and made note of the student and teacher activities that followed. When a teacher identified a new target, or when teacher and student began work on a new target, I recorded the time. I continued the process throughout the duration of each excerpt. After viewing an entire excerpt, I created a chronology of targets and outlines of events that had occurred during work on these targets. What remained was for me to describe more precisely the teacher and student behaviors occurring during each rehearsal frame.

I recorded the timing and durations of selected teacher and student behaviors using Scribe (Duke & Farra, 1997), a computerized observation program designed to record frequencies and durations of selected events or behaviors. Scribe presents data in three forms: (1) a graphic timeline, a visual representation of the sequence and durations of recorded events, (2) a summary table that displays the frequencies, durations, rates per minute, total durations, and mean episode durations (and corresponding standard deviations) of recorded events, and (3) a chronology of recorded events. Within each rehearsal frame, I recorded durations of teacher performance on a stringed instrument, teacher verbalizations, teacher performance approximations (any performance of rhythms or pitches that was not performed on a stringed instrument, including singing, clapping, chanting rhythms, or dancing), student performance on a string instrument, student verbalizations, and student performance approximations. Teacher and student performance approximations were categorized by type (e.g., sing, chant, clap, or dance). After printing the timeline generated by Scribe, I reviewed each frame.
and categorized the content of teacher verbalizations as (a) information statements—verbalizations by the teacher that convey information about the subject matter, but do not direct the student to perform a specific action; (b) questions posed by the teacher to which the teacher expects the student to respond; (c) directives—statements that indicate to the student that he or she should do something; (d) approvals—specific or general comments that indicate positive evaluations of what the student has done; (e) disapprovals—specific or general comments that indicate negative evaluations of what the student has done; or (f) off-task statements—verbalizations that do not pertain to the task at hand. I noted the category of each teacher verbalization on the printed timeline.

Each student performance trial was evaluated as successful or unsuccessful using criteria defined by Buckner (1997). If a student performance trial was accurate according to the goal defined by the teacher for that trial, or the performance trial was a closer approximation of the goal defined by the teacher than was the preceding performance trial, then it was evaluated as successful. Student performance trials were judged to be unsuccessful if the performance was not accurate according to the goal defined by the teacher for that trial and the performance trial was no closer an approximation of the goal defined by the teacher than was the preceding performance trial. If the target was unclear or the student could no be heard or seen sufficiently for the observer to make a judgment, the performance was labeled “unevaluated.” A mean number of consecutive successful student performance trials and a mean number of consecutive unsuccessful performance trials were calculated for each rehearsal frame.

Rehearsal frames were categorized according to teacher-selected performance goals. Goals, or targets, were articulated by the teacher or inferred from teacher modeling. Targets included any aspect of student performance that the teacher sought to improve. Each target was identified, and the words that the teachers used to describe the target in each rehearsal frame were recorded, analyzed, and grouped into one of three topic groups: (a) Left-Hand Behavior—left-hand position, shifting, fingering, spacing, or vibrato; (b) Right-Hand Behavior—bow hold, bow direction, bow distribution, bowing style, or bow contact; or (c) Musical Results—tone, note accuracy, tempo, dynamics, style, rhythm, or intonation. An “Other” category was included to include frames with no target, frames with unclear targets, and types of targets that occurred infrequently.

Two independent reliability observers, one of whom was a string teacher with 8 years of professional experience and one of whom was an experienced piano teacher with advanced training in systematic observation and evaluation, analyzed 12 randomly selected lesson excerpts, one of four excerpts from each studio. The reliability observers evaluated each of 407 student performance trials as successful (+) or unsuccessful (−), according to the goal defined by the teacher. Interobserver reliability results between my evaluations and
the evaluations of the string teacher and the piano teacher were .76 and .74, respectively.

RESULTS

Teacher and Student Behaviors

Instances of teacher and student behaviors are shown in Table 1 in terms of the mean proportion of rehearsal frame duration, the mean rate per minute, and the mean episode duration. The contents of teacher verbalizations are expressed only in terms of rates per minute.

The results indicate that, across all rehearsal frames (N = 338), the mean percentage of time devoted to teacher verbalization was 45%. Episodes of teacher talk were brief (mean duration 5.35 seconds) and rapid (6.45 mean rate per minute). The content of teacher talk was primarily in the form of teacher directives—"do it" statements (4.34 per minute), followed by information statements (2.16 per minute), approvals (1.79 per minute), questions (.83 per minute), and disapprovals (.71 per minute).

The mean percentage of rehearsal frame time devoted to teacher performance on a string instrument was 20%. Episodes of teacher performance were brief (mean duration = 5.13 seconds), occurring at a mean rate of 2.21 per minute. Teacher approximations of performance occurred at a mean rate of .55 per minute with a mean episode duration of 1.04 seconds. Teacher approximations accounted for less than 3% of total rehearsal frame duration.

The major activity of students in rehearsal frames was performance. Students performed on a stringed instrument during approximately 41% of rehearsal frame duration. Episodes of student performance occurred rapidly at a mean rate of 3.62 per minute. The mean episode duration of student performance was 10.71 seconds. Student verbalizations accounted for approximately 3% of rehearsal frame duration and student approximations of performance for less than 1%.

Students performed a total of 1,748 performance trials in the 338 rehearsal frames analyzed. Forty-two percent of the 1,748 performance trials were labeled successful, in that students successfully accomplished the goal or a close approximation of the goal identified by the teacher for those trials. In 47% of the performance trials, students were unsuccessful in accomplishing the goal or a close approximation of the goal identified by the teacher. The mean number of consecutive successful student performance trials within a rehearsal frame was 1.20, and the mean number of consecutive unsuccessful student performance trials was 1.25, indicating that students did not often repeat successful or unsuccessful performances in succession within rehearsal frames. In 61% of 338 rehearsal frames, the final student performance trial was successful.

The words that teachers used to describe the target in each
### Table 1
**Mean Proportions of Total Frame Duration, Rates per Minute, Mean Episode Durations, and Standard Deviations for Observed Teacher and Student Behaviors within Rehearsal Frames (N = 338)**

<table>
<thead>
<tr>
<th>Behavioral Category</th>
<th>Percentage of Total Frame Duration</th>
<th>Rate per Minute</th>
<th>Mean Episode Duration (in seconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
</tr>
<tr>
<td>Teacher Verbalizations</td>
<td>45.08</td>
<td>20.63</td>
<td>6.45</td>
</tr>
<tr>
<td>Directives</td>
<td>4.34</td>
<td>3.00</td>
<td></td>
</tr>
<tr>
<td>Information</td>
<td>2.16</td>
<td>1.99</td>
<td></td>
</tr>
<tr>
<td>Questions</td>
<td>0.83</td>
<td>1.34</td>
<td></td>
</tr>
<tr>
<td>Approvals</td>
<td>1.79</td>
<td>2.16</td>
<td></td>
</tr>
<tr>
<td>Disapprovals</td>
<td>.71</td>
<td>1.20</td>
<td></td>
</tr>
<tr>
<td>Off Task</td>
<td>.09</td>
<td>.41</td>
<td></td>
</tr>
<tr>
<td>Teacher Performance</td>
<td>19.79</td>
<td>21.04</td>
<td>2.21</td>
</tr>
<tr>
<td>Teacher Approximations</td>
<td>2.95</td>
<td>7.79</td>
<td>.55</td>
</tr>
<tr>
<td>Student Verbalizations</td>
<td>3.34</td>
<td>5.59</td>
<td>1.20</td>
</tr>
<tr>
<td>Student Performance</td>
<td>40.62</td>
<td>24.66</td>
<td>3.62</td>
</tr>
<tr>
<td>Student Approximations</td>
<td>.47</td>
<td>3.40</td>
<td>.04</td>
</tr>
</tbody>
</table>

Rehearsal frame were recorded, analyzed, and grouped into three main groups: (a) Left-Hand Behavior, (b) Right-Hand Behavior, and (c) Musical Results. Specific target types and target categories were selected in an effort to accurately represent the way in which teachers verbally expressed performance goals.

Table 2 presents the frequency of targets within target types and target categories for all rehearsal frames. Teachers articulated approximately 16% of targets in terms of left-hand physical behaviors and 24% of targets in terms of right-hand physical behaviors. Teachers stated 46% of targets in terms of musical results. Teachers selected intonation as a goal for improvement most frequently (38), followed by note accuracy (31), bow distribution (30), and bow contact (25). Within categories grouped as left-hand behavior, teachers addressed left-hand position (18) most frequently; within target cat-
Table 2

*Frequency of Target Types*

<table>
<thead>
<tr>
<th>Target Category</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Left-Hand Behavior</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Position</td>
<td>18</td>
<td>5.3</td>
</tr>
<tr>
<td>Shifting</td>
<td>12</td>
<td>3.5</td>
</tr>
<tr>
<td>Fingering</td>
<td>9</td>
<td>2.6</td>
</tr>
<tr>
<td>Spacing</td>
<td>7</td>
<td>2.1</td>
</tr>
<tr>
<td>Vibrato</td>
<td>9</td>
<td>2.6</td>
</tr>
<tr>
<td><strong>Right-Hand Behavior</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bow Hold</td>
<td>6</td>
<td>1.8</td>
</tr>
<tr>
<td>Bow Distribution</td>
<td>30</td>
<td>8.9</td>
</tr>
<tr>
<td>Bow Style</td>
<td>6</td>
<td>1.8</td>
</tr>
<tr>
<td>Bow Contact</td>
<td>25</td>
<td>7.4</td>
</tr>
<tr>
<td><strong>Musical Results</strong></td>
<td>157</td>
<td>46</td>
</tr>
<tr>
<td>Tone</td>
<td>12</td>
<td>3.5</td>
</tr>
<tr>
<td>Note Accuracy</td>
<td>31</td>
<td>9.2</td>
</tr>
<tr>
<td>Tempo</td>
<td>22</td>
<td>6.5</td>
</tr>
<tr>
<td>Dynamics</td>
<td>10</td>
<td>2.9</td>
</tr>
<tr>
<td>Style/Articulation</td>
<td>22</td>
<td>6.5</td>
</tr>
<tr>
<td>Rhythm</td>
<td>22</td>
<td>6.5</td>
</tr>
<tr>
<td>Intonation</td>
<td>38</td>
<td>11.5</td>
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<tr>
<td><strong>Other</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unclear Target</td>
<td>22</td>
<td>6.5</td>
</tr>
<tr>
<td>No Target</td>
<td>15</td>
<td>4.4</td>
</tr>
<tr>
<td>Physical Position</td>
<td>1</td>
<td>.3</td>
</tr>
<tr>
<td>Multiple Targets</td>
<td>2</td>
<td>.6</td>
</tr>
<tr>
<td>Overview</td>
<td>5</td>
<td>1.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>338</td>
<td></td>
</tr>
</tbody>
</table>

egories grouped as right-hand behavior, teachers addressed bow distribution (30) most frequently; and within target categories grouped as musical results, teachers addressed targets related to intonation (38) most frequently.
DISCUSSION

The results suggest that across all rehearsal frames, approximately 45% of the total time was devoted to teacher talk, 20% was devoted to teacher modeling, and 41% was devoted to student performance. Episodes of teacher and student activity were frequent and brief. Directives were the most frequent among all categories of teacher verbalization, and the mean rate of approvals was more than twice the rate of disapprovals. Teachers more frequently described targets in terms of a musical result (e.g., tone) than in terms of a physical behavior (e.g., motion of the bow), and in only 42% of the 1,748 performance trials observed did students successfully accomplish the goal or a close approximation of the goal identified by the teacher. Rarely did students perform multiple accurate trials in succession. In 61% of rehearsal frames, the final student performance trial was successful, suggesting that teachers preferred successful student performance trials to unsuccessful performance trials before ending work on an old target and beginning work on a new one or continuing to new musical material. The last two performance trials were successful in only 15% of rehearsal frames.

The value of repeated, accurate repetition is embedded in the Suzuki philosophy, so it is surprising that in a study of Suzuki string teaching, consecutive repetitions of successful student performance occurred infrequently. This raises several questions regarding the development of performance skills. Is a single successful performance trial evidence that a new skill has been learned? Or must a student demonstrate multiple accurate repetitions before a skill or target is learned? What influences a teacher's decision to stop work on a target and move to a new target?

Not evident from the data are the teachers' expectations regarding the timing of student progress. Do teachers expect to accomplish goals immediately, or do they expect to continue working on a goal over a longer term, which may include independent student practice and revisiting a target in several lessons? If teachers depend on student practice for development of performance skills, then the quality of student practice warrants investigation. If students practice as they are taught, with few correct repetitions, then they may not perform multiple correct repetitions in practice sessions. The quality of student practice in this study may have been influenced by parental supervision. Parents of Suzuki students are generally expected to attend lessons, note teacher instructions, and supervise student practice at home. Suzuki string teachers may rely on parent-supervised repetitive practice to support accomplishment of performance goals identified in lessons.

Teachers trained in the Suzuki philosophy are committed to creating positive interactions between teacher and student during instruction, and the results indicate that teachers delivered approvals at more than twice the rate of disapprovals across all rehearsal frames. This is surprising, since less than 50% of student perfor-
mance trials were successful according to the evaluative criteria used in this study. Teachers may modify targets and expectations of student achievement as they evaluate student performance trials. They may postpone achievement of a specific target if a student experiences difficulty. Teachers may give approvals for reasons other than improved student performance, such as student effort. Definitions of teacher feedback in this study limited approvals and disapprovals to specific or general evaluations of student performance.

One of the purposes of this investigation was to record the types of performance goals selected by teachers and to examine how teachers described the goals. Target types and target categories were selected in an effort to represent as accurately as possible teachers’ verbal expressions of targets. Teachers articulated more targets as Musical Results than as Left-Hand or Right-Hand Behavior; that is, teachers more often expressed performance goals in terms of a musical or acoustical effect than in terms of a physical gesture on the part of the performer. Across target categories, teachers addressed intonation most frequently, followed by bow distribution (frog, middle, tip), bow contact (weight, angle), tempo, rhythm, and style/articulation. Teachers addressed more than one aspect of string playing simultaneously in only two of the 338 rehearsal frames analyzed.

Achievement of one goal at a time is a tenet of the Suzuki philosophy, and the results appear to be consistent with that philosophy. But while targets categorized as musical results were articulated by teachers as single goals, many of the targets in that category require correct execution of several tasks to accomplish the goal. “Crescendo,” for example, is stated as a single target, but performance of a crescendo requires adjustments in bow speed, bow weight, bow contact point, and alterations in the left hand. Specific physical gestures are necessary to realize each of the skills that contribute to the creation of a crescendo. It may be appropriate to describe targets in terms of ideas with advanced students who recognize all of the physical gestures associated with creating musical ideas, but the low rate of successful student performance trials in the category of musical results and higher rates of disapprovals may indicate that students need more specific descriptions of exactly what they need to do to create a musical result. The appropriateness of teacher presentation of instruction for specific student levels may influence students’ ability to perform to the standard of the teacher. If the clarity of teacher information and directives affects the quality of student performance, then it may also determine the quality of teacher response.

Interobserver reliability figures for evaluations of student performance trials were, as previously stated, .76 and .74 for the two reliability observers. According to the definitions of successful and unsuccessful student performance used in this study, observers evaluated student performance according to the target identified by the teacher and compared each student performance with the preceding goal. Even though I identified the target for each rehearsal frame
viewed by the reliability observers, the task required multiple decisions to reach a judgment on the quality of a single performance. String students often played very brief trials of fewer than three pitches without directives from the teacher to do so. They stopped and started trials frequently to correct errors sometimes not related to the target, making comparisons of consecutive performance trials difficult.

Certain characteristic behaviors of teachers were observed during the viewing of the videotapes, and some of these behaviors warrant discussion. Organization of instruction varied among teachers. Of particular interest was the ordering of targets within lesson excerpts. Some lesson excerpts began immediately after an extended student performance. Teachers critiqued student performance, stated strengths and weakness, and directed the students to repeat the passage or section of the piece. During the second performance, teachers stopped students and worked on trouble spots. After a successful student performance trial, students resumed performance of the piece until the teacher directed them to stop again to make corrections. This process of “editing” student performance continued until the end of the movement or the end of the piece. When teachers used this procedure, selection of targets was determined by the occurrence of student performance errors and by the sequence of musical and technical events within the piece. The role of the teacher, under these conditions, seems to be reactive.

In other lesson excerpts, teachers listened to an initial student performance, gave approvals regarding areas of performance that showed evidence of improvement, and then proceeded to work on selected targets. Teachers seemed to have a plan for these lesson excerpts, and there appeared to be a relationship between the targets of consecutive frames. For example, if a teacher attempted to change an aspect of bowing in the first frame, then in subsequent frames the teacher directed the student to work on the same type of bowing in different contexts within the piece. In these excerpts, the ordering of targets seemed to be determined by a teacher’s analysis of student performance, and the teacher appeared to have a plan or agenda for the lesson. Musical material was used in service to the accomplishment of goals, and the order of target selection was independent of the ordering of events within a musical work.

It was the intent of this research to examine the behaviors of expert string teachers and their students in relation to the accomplishment of performance goals. Consistent patterns of teacher and student behaviors emerged across rehearsal frames, irrespective of the goals addressed. Systematic analysis of excerpts from lessons taught by expert Suzuki string teachers indicates that the principal mode of communication is teacher talk (information, directives, questions, approvals and disapprovals), followed by teacher modeling. The primary activity of students is music performance. The data suggest a relationship between the clarity of teacher communication with students, student performance success, and the quality of
teacher feedback. The results raise additional questions regarding the teaching practices of expert string teachers. It is important to remember that observations in this study were limited to brief lesson excerpts of work on a piece “in progress.” Observations of entire lessons may be needed in order to understand more about the complexity of the teacher-student interaction and its relationship to successful student performance. The roles of prelesson planning, evaluation of student performance, and selection and articulation of goals in the accomplishment of positive change in student performance need to be examined further. Investigations of these aspects of string teaching using systematic observation may yield more information regarding the component skills of excellent string teaching.

REFERENCES


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