DEVELOPMENT OF A CURRICULUM FOR A FIRST-YEAR BEGINNING STRING CLASS

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ABSTRACT

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The purpose of this study was to develop a curriculum for a first-year heterogeneous (violin, viola, cello, and bass) beginning string class. Participants in this study were 19 undergraduate music education majors enrolled in a beginning string course at Bowling Green State University, a second-year graduate student in music education at Bowling Green State University, and the researcher, who was also a second-year graduate student in music education at Bowling Green State University. The curriculum was tested by the researcher (a string player) and the second graduate student teaching three lessons based on the curriculum. *SCRIBE 4.0.2* was used to (a) observe the effect of the lesson plans on instruction and student learning, (b) to compare performance results from teaching based on identical lesson plans delivered by two teachers, and (c) to identify which aspects of student performance the two teachers focused on during instruction. Rehearsal frames were categorized according to targets and analyzed to determine if they were successful or unsuccessful. Results indicated that Teacher I (the researcher) focused on problems with tone and intonation most frequently, while Teacher II (the second graduate student) focused on problems with fingering patterns and instrument position most frequently. Teacher I's students were able to successfully perform desired tasks in 87.18% of rehearsal frames, while Teacher II's students were able to successfully perform desired tasks in 80.65% of rehearsal frames. Students were more successful when teachers provided clear and concise directives and gave students a chance to have multiple correct repetitions of skills before moving on.

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CHAPTER I: INTRODUCTION

Teachers of beginning string classes are faced with many questions. Some of these questions may center on identifying what skills to teach, deciding in what order to teach them, and how to articulate instruction. In searching for guidance on what skills to teach and in what order to teach them, an educator can turn to the National Teaching Standards, individual state teaching standards (Education World, Inc., 1997), and standards created by professional groups such as MENC: The National Association for Music Education, who created their standards in 1994 (The National Association for Music Education, 2006). Academic Content Standards, whether state or national, may aid in helping a teacher decide what skills to teach and in what grade to teach them, but reviewing standards leaves the question of how to teach these skills unanswered.

Classroom method books, such as *Essential Elements 2000 for Strings: A Comprehensive String Method* (Allen, Gillespie, & Tellejohn Hayes, 2002), *Strictly Strings: A Comprehensive String Method* (Dillon, Kjelland, & O'Reilly, 1992), and *Muller Rusch String Method for Class or Individual Instruction* (Muller & Rusch, 1961), offer a sequence of performance skills and repertoire, but they, like the standards, leave teachers without guidance when it comes to articulating instruction. Books devoted to instrument technique (Dalton, 1988; Galamian, 1985; Green, 1971; Potter, 1964; Rolland, 1979; Suzuki,1980) present information on how to teach certain skills, but these books are geared toward private lessons or homogeneous class instruction, rather than heterogeneous class instruction. In searching for answers to the questions of what to teach, in what order to teach skills, and how to articulate instruction in a first-year heterogeneous class, a teacher should look at curricula devoted to first-year heterogeneous beginning string classes. A curriculum may include standards, method books, or instrument

technique books, but educational principles are a curriculum's foundation. In addition to providing repertoire, a curriculum should include a list of teaching and performance goals and ways for the teacher to get students to achieve these goals. A curriculum may also include ideas of how to assess and evaluate student performance, provide feedback, and sequence instruction. A curriculum provides a teacher with an end goal and with ways of reaching that goal through instruction.

The purpose of this study is to develop a curriculum for a first-year heterogeneous (violin, viola, cello, and bass) beginning string class. The curriculum is intended to assist in teaching posture, instrument position, left-hand position, bow hold, tone production, beginning bowing techniques, and note reading. The curriculum will be realized through ten written sample lesson plans, serving as examples to be used for the first three lessons of an academic year (early September), two lessons before winter break (December), the first two lessons after winter break (January), and the final three lessons of the academic year (June). The curriculum will be tested by the researcher and a non-string specialist in music education teaching three lessons based on the curriculum. The selected lessons were lesson plan one, four, and five. These lessons were selected to evaluate the effectiveness of instructions for physically setting up a beginning student to play a string instrument, teaching a new piece of music, and reviewing a piece of music.

Participants in this study will be students enrolled in the Spring 2007 semester beginning string class at Bowling Green State University (MuEd180). This course is taken by all undergraduate music education majors at Bowling Green State University. A total of six lessons (three taught by the researcher, three taught by the non-string specialist) will be videotaped, divided into rehearsal frames (Duke, 2005), and analyzed using *SCRIBE 4.0.2*,Simple Computer Recording Interface for Behavioral Evaluation (Duke & Stammen, 2006) to (a) observe the effect

of the lesson plans on instruction and student learning, (b) to compare performance results from teaching based on identical lesson plans delivered by two teachers, and (c) to identify which aspects of student performance the two teachers focused on during instruction. *SCRIBE 4.0.2* is a computer program that records frequencies and durations of selected events and behaviors. It presents data in the forms of (a) a graphic timeline, (b) a summary table, and (c) a chronology of recorded events. A rehearsal frame begins when a teacher identifies a performance goal. The teacher then takes students through a series of performances trials to reach that goal. The rehearsal frame is completed when students reach the goal or the teacher decides to move on to a new goal (Duke, 2005).

In preparation for developing the curriculum, I will review articles relevant to class string instruction and articles relating to assessment, evaluation, feedback, teaching for transfer, sequence of instruction, teacher effectiveness, and curriculum development in research journals and books. In addition, I will review individual instrument, homogeneous and heterogeneous class string method books.

The first year of instruction is defined in this study as a school year running from the beginning of September to the middle of June with a two-week break in December and a one-week break in April. The curriculum will be designed for a heterogeneous (violin, viola, cello, bass) beginning string class of fifth-grade students that meets twice a week for forty-five minutes per class period. Assessment, evaluation, feedback, teaching for transfer, sequencing instruction, review, and practice strategies will be the focus of the curriculum. Other materials used to support the curriculum will include recommended method books, pieces and exercises, checklists for performance skills, and evaluation forms. The majority of pieces and exercises used will be obtained from existing method books, but some exercises will be developed by the researcher.

The purpose of this study is to develop a curriculum for a first-year heterogeneous (violin, viola, cello, and bass) beginning string class. Lesson plans from the curriculum will be used with a beginning string class to evaluate the effect of the curriculum on student achievement. Revisions of the lesson plans and curriculum will be made based on data gathered through the *SCRIBE 4.0.2* analysis. Revisions in the curriculum will continue to be made throughout its use in order to make the curriculum stronger and more effective.

CHAPTER II: REVIEW OF LITERATURE

Curriculum Development

The word curriculum is defined as, "1**:** the courses offered by an educational institution 2: a set of courses constituting an area of specialization (*Merriam-Webster Online Dictionary*, 2007)." Therefore, a school music curriculum could be defined as the music courses offered by a school district. A section of this curriculum would be devoted to a school orchestra program. This section would be broken down further into curricula for beginning, intermediate, and advanced orchestra classes. A school orchestra curriculum can be more clearly defined as a document that describes the sequential learning outcomes of students involved in the program. The outcomes should include fundamental skills and concepts needed to play a string instrument (Hamann & Gillespie, 2004). In searching for guidance on what skills to teach and in what order to teach them, an educator can turn to the National Teaching Standards, individual state teaching standards (Education World, Inc., 1997), and standards created by professional groups such as MENC: The National Association for Music Education, who created their standards in 1994 (The National Association for Music Education, 2006). When searching for a sequence of performance skills and repertoire, teachers can turn to classroom method books. When looking for guidance on how to teach certain skills, educators can look to books devoted to instrument technique. When seeking guidance on how to create specific courses in a subject area, music teachers should look to books devoted to teaching and curriculum development.

Tyler (1949) begins planning curriculum and instruction by asking four questions; "(a) what educational purposes should the school seek to attain, (b) what educational experiences can be provided that are likely to attain these purposes, (c) how can these educational experiences be

effectively organized, and (d) how can we determine whether these purposes are being attained" (p. 1). In the early stages of curriculum development, a philosophy of education should be created to be used as part of the curriculum's foundation. A philosophy provides the framework for a curriculum, helps curriculum developers create and maintain the purpose and goals of the curriculum, and outlines how students will learn and what teaching methods will be used (Ornstein, 2003). To create a philosophy, curriculum developers should look to those working in the school district, living in the community, working in content areas outside of education, and the general philosophies of society (McClintock, 1970; Ornstein, 2003; Tyler, 1949).

The first question Tyler proposes, "what educational purposes should the school seek to attain," (p. 1) deals with goal setting. Authors who have written on curriculum development (Brandt & Tyler, 2003; Duke, 2005) also view goal setting as an important early stage. In setting goals, teachers should consider the nature of organized knowledge, the nature of society, and the nature of learners in order to give students a comprehensive education (Brandt & Tyler, 2003). Duke urges teachers to set "far-reaching" goals that will be the same from the first day of instruction to the last. In Duke's method of goal setting, the day-to-day activities change as students progress, not the ultimate goal of having students play at a highly skilled musical level (Duke, 2005).

The second question that Tyler proposes, "what educational experiences can be provided that are likely to attain these purposes," (p. 1) concerns what teachers will have students do to learn. Since learning happens through experience, students should be given many opportunities to practice skills in various contexts (Bransford, Brown, & Cocking, 2000; Duke, 2005; Tyler, 1949). Tyler points out five principles to consider when creating learning experiences. The first is that students must have opportunities to practice the behaviors implied by the objectives. Duke

(2005) and Bransford, Brown, and Cocking (2000) suggest that behaviors be practiced in real life situations.

When defining the second principle, “learning experiences must be such that the student obtains satisfaction from carrying on the kind of behavior implied by the objectives,” (p. 66) Tyler tells teachers that they should know the interests of their students and understand how to provide learning experiences that will be educational and enjoyable. The third principle, “the reactions desired in the experience are within the range of possibility for the students involved,” (p. 67) concerns sequencing of skills and instructions. When instructions are sequenced, each skill taught builds on previous knowledge and moves toward an end goal. When sequencing instructions, Duke asks music educators to think about six principles; (a) start from scratch each day, (b) use small approximations to reach an end goal, (c) only include essential information in instructions, (d) each step is an approximation of the end goal, (e) inch forward and leap back in instructions, and (f) give students multiple correct repetitions at each step.

The fourth principle Tyler asks educators to consider when developing learning experiences is; “there are many particular experiences that can be used to attain the same educational objectives” (p. 67). The curriculum should allow teachers to be creative when planning effective learning experiences. Thinking about the fifth and final principle, “the same learning experience will usually bring about several outcomes,” (p. 67) helps teachers plan experiences that will teach more than one skill at a time (Tyler, 1949).

Tyler’s third question in regard to curriculum development deals with organization of educational experiences. Educational experiences should be organized so that they reinforce one another. This idea is also related to sequencing instructional material. Learning experiences should be organized both vertically (experiences from one year building on experiences from

previous years) and horizontally (experiences in one class building on experiences from another). Three criteria must be met to have learning experiences effectively organized. First, there must be continuity (vertical organization of material). Over time the same types of skills will appear throughout the curriculum. Secondly, experiences must be sequenced so that they build on one another and build toward an end goal. The third criterion deals with horizontal organization. Students should have the ability to transfer information from one subject area to another. In order for transfer to take place; (a) students must have learned and understood the original concept, (b) students must be able to monitor and evaluate their learning, (c) material should be taught and tested in many situations, and (d) students must understand underlying themes and principles of concepts and understand how and when to put information to use (Bransford, et al., 2000).

The final question Tyler proposes concerns creating a way of evaluating if the educational objectives have been met. Since a change in student behavior is the goal of education, evaluations must assess student behavior. Assessments should also be made at varying points in the curriculum. When evaluating a curriculum, teachers should evaluate each behavior implied by the educational objectives. In order to do this, the objectives of the curriculum should be clearly stated as behavioral objectives.

Lesson Planning

Hamann and Gillespie (2004) state ten guidelines for lesson planning. The first guideline is to determine the goals and objectives of the lesson and state them in terms of what students will learn. After the goals and objectives have been decided, a teacher should research the topics defined by the goals and objectives. Next, a teacher should decide how to deliver information to students. When deciding how to deliver information, a teacher should consider that people learn by doing, discussing, listening, and observing. The fourth guideline is to develop a usable lesson

plan format. A lesson plan should be easy to follow with clearly stated goals and objectives. After a teacher has a lesson plan format, he should decide how the lesson will be organized. Careful consideration should be given to the topics that need to be reviewed, what new information will be presented, how information will be presented, what the function of warm-up exercises will be, and how the information will be organized. The sixth step is to choose supporting materials, such as supplementary method books and technology. Overall, supporting materials rely on a teacher's individual creativity. Materials used should be ones that will reach visual, aural, and kinesthetic learners. The seventh step is to create a beginning and an end to the lesson. A teacher should think about how he will get the students' attention, what will be summarized at the end of the lesson, and what assignments will be given. The eighth step in lesson plan development is planning and preparing assessments, while the ninth step involves preparing the final written plan. When writing a lesson plan, a teacher should find ways of highlighting the focus of the lesson, examples, materials, and other key elements. The tenth and final guideline is to rehearse the lesson plan (Hamann and Gillespie, 2004).

Dillon and Kriechbaum (1978) do not provide a lesson plan format, but they do provide their readers with ideas on how to run a successful rehearsal. They state that teachers must know what they want to accomplish for the day. When planning, a teacher should consider what was planned for previous rehearsals and whether the goals of that day were met. If goals were not met, time should be devoted for review. If previous goals were met, a teacher should decide what new goals should be presented. To give rehearsals direction and purpose, a teacher should think about what is most important, less important, and least important in a rehearsal. During a rehearsal, the objective should be to accomplish as much as possible as quickly as possible. Rehearsal tips that are most relevant to a heterogeneous beginning string class include; (a)

stopping infrequently and only for good reasons, (b) carrying over concepts from piece to piece, (c) making sure students understand how they can apply what they already know to a new piece, (d) providing drills and exercises, and (e) making sure students understand the goals of drills and exercises. When stopping a group, a teacher should only work on one problem at a time and only stop when students are not aware of the mistake or do not know how to fix the mistake on their own. When fixing mistakes, the authors suggest using the order of rhythm, tone quality, notes, intonation, dynamics, and expressive nuance. This explanation of good rehearsal strategies urges teachers to plan ahead (making sure they have clear goals in mind), to sequence instruction, and to keep instruction fast paced. Because the ideas of carry over concepts from piece to piece, making sure students understand how they can apply what they already know to a new piece, and making sure students understand the goals of drills and exercises are present, the authors have built metacognition and teaching for transfer into their rehearsal strategies.

Teacher Effectiveness

To study the effectiveness of music teachers, researchers have developed teacher evaluation instruments (Bergee, 1992; Duke & Stammen, 2006; Hamann & Gillespie, 2004). Bergee (1992) created a five-option (strongly agree, agree, neutral, disagree, and strongly disagree) Likert-type scale to assess rehearsal effectiveness of music student teachers. Using this tool, student teachers are rated on their conducting technique, teacher-student rapport, and instructional skills (Bergee, 1992).

Hamann and Baker developed the *Survey of Teaching Effectiveness (STE).* Using a semantic differential scale, with a rating of 1 as poor and a rating of 5 as excellent, this survey measures a teacher's lesson delivery skills (weighted 40 percent) and planning and presentation (weighted 60 percent). The form can be filled out by an observer or by the teacher after viewing

a tape of a lesson. For “Lesson Delivery Skills,” the teacher is rated on posture, gestures, facial expression, and vocal inflection. For “Planning and Presentation of Lesson,” the teacher is rated on evidence of lesson planning, subject matter competence, pacing, sequencing pattern/rehearsal cycle, and teaching style (Hamann & Gillespie, 2004).

Duke and Stammen (2006) developed a computer program to observe music teaching. *SCRIBE 4.0.2* (Simple Computer Recording Interface for Behavioral Evaluation) records frequencies and durations of selected events and behaviors. It presents data in the forms of; (a) a graphic timeline, (b) a summary table, and (c) a chronology of recorded events. *SCRIBE 4.0.2* is used to record durations of teacher performances and verbalizations, and student performances and verbalizations. Teacher verbalizations are categorized by information statements, questions, directives, approvals, disapprovals, and off-task statements (Duke, 2005).

Wolfe and Jellison (1990) asked 188 elementary education students and 99 music students to rate three teaching scripts. Each script contained a different teaching style. One style was “lecture” in which the teacher’s verbalizations were focused on defining concepts and providing analogies and examples. The second style was “questions” in which the teacher used the same verbalizations used in lecture style, but added related questions directed toward the entire class or individual students. The final teaching style used in this study was “positive feedback.” Positive feedback combined the same verbalizations and questions as the previous styles with the teacher providing feedback after correct responses. Overall, students rated the “positive feedback” script to be the most effective (Wolfe & Jellison, 1990).

Through studying teacher effectiveness, researchers have found that observers’ perceptions of effectiveness are not solely based on a teacher’s content knowledge (Hamann, Baker, McAllister & Bauer, 2000; Madsen, 2003). Hamann, Baker, McAllister & Bauer (2000)

studied the effect of teacher delivery skills or lesson content on university music students' perceptions of the lesson or teacher appeal. A total of 511 university music students, who were divided by class standing, viewed one of two videos. Each video contained 4 four-minute lessons; a lesson in which the teacher used good classroom delivery skills with good lesson content, a lesson in which the teacher used good skills and poor content, a lesson containing poor skills and good content, and a final lesson containing poor skills and poor content. Observers thought that teaching episodes with good teacher delivery skills were more interesting than lessons with poor teacher delivery skills, no matter what type of content quality (good or poor) was used. Observers also rated lessons with good delivery and poor content as more interesting than lessons with poor delivery and good content (Hamann, Baker, McAllister & Bauer, 2000).

Madsen (2003) found similar results when asking music students in grades six through twelve to evaluate teacher effectiveness. These students rated teaching segments containing high intensity higher than teaching segments containing low intensity, regardless of accuracy in instruction or student on-and-off-task behavior. Madsen also asked undergraduate music students and experienced music teachers to view and evaluate the same teaching segments. These participants rated the video that contained accurate instruction, high teacher intensity, and on-task student behavior the highest (Madsen, 2003).

Assessment

Assessment is the process of gathering information, which is used to measure student learning. Assessment should be aligned with the goals of instruction and provide opportunities for revision and feedback (Bransford, et al., 2000; Duke, 2005). To keep goals and assessment aligned, Duke (2005) begins thinking about assessment when planning instruction. When planning instruction, teachers should think about how students will demonstrate what was

learned and how feedback will be given to students. When giving feedback, both formative and summative assessments should be used. Formative assessments are ongoing in a lesson and provide teachers with many opportunities to give feedback. Summative assessments, for example final exams, are used at the end of a learning period (Bransford, et al., 2000).

Since the focus of assessment should be on student understanding, and assessment should be based on skills students demonstrate, one form of assessment that Duke suggests using is a "yes" or "no" checklist. When creating a checklist, a teacher envisions students as accomplished musicians and bases the checklist on traits that accomplished musicians possess. When making a checklist, Duke points out six principles a teacher should follow. The first is that, at the beginning of instruction, students should understand what is important about what they are learning, what is expected of them, and how meeting the goals will contribute to their grade. Because goals and assessments should be skill based, the second principle is that the criteria will always remain the same at every playing level. This principle is related to the next principle; assessments should focus on students' abilities to apply knowledge and skills in varying contexts. The fourth principle is that items in assessments should be weighted appropriately. Since the checklist is the same from the beginning to the end of instruction, students should demonstrate all skills on the list even during beginning stages. The last principle is that the checklist should illustrate what the teacher believes to be most important for students to learn from the experience.

Duke asks teachers to think about three difficulties they may encounter when planning assessments. The first, skills versus content, concerns how students will use what they have learned to accomplish goals. Students should be assessed in ways that demonstrate their knowledge and show how they are able to apply their knowledge in as close to real life situations

as possible. The second difficulty is balancing breadth and depth. Since Duke's form of assessment stresses the importance of students demonstrating skills in a variety of contexts, it is more important for students to fully understand a few concepts than for students to be exposed to many without fully understanding them. When using this method of assessment, the struggle between frequency and magnitude is diminished. Since teachers continuously assess students, students will have numerous opportunities to practice applying their knowledge in many situations, and errors will not be perceived as consequential. This makes assessment another part of the learning process (Duke, 2005).

Overall, teachers who continuously assess student performance trials are able to use the information they gather to discover if students understand directives and if students can demonstrate skills. Teachers also use this information to find out what skills need to be re-taught and to help students avoid problems (Duke, 2005).

Feedback

A large portion of time during music classes and private music lessons is devoted to teacher verbalizations (Cavitt, 2003; Colprit, 2000). Verbalizations are categorized as directives, information statements, approvals, disapprovals, and questions (Colprit, 2000). A large amount of teacher verbalizations are feedback, which Duke (2005) defines as "any stimulus occurring coincident with or subsequent to a given behavior that a learner associates with the behavior" (p. 122). In music classes, a stimulus usually centers on responses to student performance and error correction. Through analyzing rehearsal frames, Cavitt (2003) found that effective instances of error correction contained certain characteristics; (a) the teacher anticipated errors before the rehearsal and kept working until desired improvements were made, (b) multiple correct repetitions of problem areas were performed, (c) teacher talk and modeling of skills were brief,

(d) teacher or student modeling occurred frequently, (e) problem areas were practiced in varying contexts, and (f) there were many instances of specific positive and negative feedback. If error correction accounts for almost half of rehearsal time in a music classroom, then it is important for teachers to understand how to use corrective feedback effectively to advance students' playing.

One purpose of feedback is to help students monitor and advance their learning (Bransford, et al., 2000). Feedback is also used to provide information and motivate behavior (Duke, 2005). Feedback is most useful when students have the opportunity to use it to change their thinking and behavior (Bransford, et al., 2000). Verbal feedback can come in the form of positive and negative statements, information statements, and directives. Duke points out that teachers should not avoid negative feedback. Negative feedback can help students understand why they were not successful and can help students figure out how to fix problems. When providing feedback, teachers should not simply say that a performance trial was good or bad, they should provide specific examples followed by information statements regarding how to fix problem areas. Duke also points out that teachers are in control of the amount and type of feedback they give. When planning lessons, expert teachers think about the outcomes of their directives, what type of feedback they will use, and how often they will provide feedback (Duke, 2005).

In planning feedback, Duke points out some principles that should be considered. Verbal statements from teachers are just one type of feedback. Feedback can come from other students in the class and from sounds produced by the students' instruments. Feedback can also be provided in the forms of physical gestures, facial expressions, and sounds.

When providing feedback, teachers should remember that student behavior may change, even if that is not the intent. For instance, a child learns not to touch a hot stove after he burns his hand on it, even though the stove was not purposefully teaching. Teachers may also expect one change to happen when providing feedback, but something else may occur. Duke's next principle is that feedback functions differently for different people in different situations. The goal of providing feedback is to change behavior, but those receiving feedback do not always understand the message and they do not always change their behavior in the expected way. Therefore, teachers should observe how individual students respond to feedback and tailor their feedback so each student will respond appropriately.

The relationship between feedback and behavior does not need to be recognized for it to change behavior; feedback may change behavior without one knowing it, or in unintended ways. For instance, when a teacher urges a student to keep playing after making a mistake, yet stops the student after each mistake, the student will be conditioned to stop after each mistake (Duke, 2005).

Duke and Henninger (1998 & 2002) found that the type of verbal corrections students received (positive or negative) did not have an effect on students' perceptions of lessons or performances, or on third-party observers' perceptions of lessons. To study the effect of verbal corrections on student attitude and performance, Duke and Henninger (1998) divided participants (25 college undergraduate non-music majors and 25 fifth and sixth grade students) into two groups; Directive and Negative Feedback. Feedback for the Directive group was given in the form of specific directives, while the Negative Feedback group received feedback that identified what was wrong with a performance. All participants were taught by the same teacher in private lessons until they could play a one-line accompaniment. For both groups, positive feedback was

provided more often than corrective feedback and negative feedback was given dispassionately. Results indicated that when participants accomplished performance goals, they had a positive attitude about a lesson and their attitude and learning were not affected by the type of verbalizations (Duke & Henninger, 1998).

In a follow-up study, Duke and Henninger (2002) asked 51 undergraduate music education majors to view two of the lessons from the study described in the previous paragraph. One lesson was from the Directive group and one lesson was from the Negative Feedback group. Observers rated both lessons as highly positive and did not have many comments regarding the amount of positive and negative feedback used in each lesson (Duke & Henninger, 2002).

Salzberg and Salzberg (1981) also studied the effect of different types of feedback on student learning. Five fourth, fifth, and sixth grade violin and viola students who played with incorrect left-hand position were taught using three teaching procedures. In the first procedure, subjects received corrective (negative) verbal feedback and physical prompts (the teacher adjusting the student's hand) twice per minute for a duration of two minutes. During the second procedure, subjects received positive feedback and physical prompts twice per minute for two minutes. During the third teaching procedure, subjects received the same types of feedback as in situation two, but with an increase in feedback from twice per minute to four times per minute for ten minutes. Results indicated that praise and corrective feedback were equally as effective when correcting the left-hand position of the students (Salzberg and Salzberg, 1981).

Sequencing

In order to teach students how to successfully perform skills, teachers have to develop ordered sets of instructions. Each set of instructions builds on previous sets and moves students toward an end goal. Duke (2005) points out that learning complex skills first requires learning

simplified versions of skills. A teacher must determine the order in which students will learn these skills. When planning this order, Duke suggests first determining an end goal. Once a goal is determined a teacher needs to decide what skills are needed to reach that goal, in what order the skills should be learned, and how to incrementally move students toward the end goal. To sequence instruction so students are always moving toward an end goal, Duke asks music educators to think about six principles.

The first principle is to start students from scratch each day. For students to perform complex tasks they must first correctly demonstrate fundamental skills. The “scratch” that a teacher decides to start at is the most basic aspect of what is being taught. The second principle is to use many small approximations to reach an end goal. Teachers should break complex skills down into small accomplishable steps. Only when students can perform one step successfully several times should the teacher move to the next step. If this goal is not realized, the teacher should break the skill down even further to a task students will be able to perform successfully.

The third principle is to include only essential information in instructions. Since learning is a result of what teachers have students do, not what teachers say, teachers should give students many opportunities to perform tasks. When teachers verbalize instructions, they should be clear and concise. Providing unnecessary information may confuse students and will keep them from performing skills successfully.

The fourth principle in sequencing instruction is to remember that each step is an approximation of the end goal. When planning instruction, teachers should make each step in a sequence as close to the end goal as possible. The fifth principle is to inch forward and leap back. When students are unable to successfully perform a task, the teacher should leap back in instruction to a task they know students will be able to perform, then slowly move forward with

instruction. Since it takes many correct repetitions for skills to become habits, the sixth principle Duke describes is to make sure students achieve multiple correct repetitions at each step. Only when students can demonstrate the ability to perform simple tasks correctly multiple times will they be able to connect tasks to reach an end goal (Duke, 2005).

Transfer

Transfer is the ability to take information learned in one situation and apply it to a new situation (Bransford, Brown, & Cocking, 2000; Duke, 2005). Transfer is dependent on a student's ability to use metacognition to reflect on, understand, and apply learning in new situations. Metacognition involves the abilities to predict how well you will do on a task, monitor your own learning, decide when your learning is not adequate, and your ability to figure out how to relearn skills (Bransford, et al., 2000).

Bransford, Brown, and Cocking (2000) describe eight factors that need to be present in order to transfer previous learning to new situations. The first factor is people must have learned the original concept with understanding. The second factor is spending a large amount of time on a task is not enough. When spending time on a task, students must monitor and evaluate their learning to fully understand concepts. The third factor is learning with understanding is more likely than memorization alone to lead to transfer. The fourth factor is material should be taught and tested in multiple situations and contexts, which may help students understand underlying themes and principles of concepts. Understanding how and when to put information to use is the fifth factor, while the transfer of learning is an active process that needs to be practiced in many situations is the sixth. The seventh factor is all learning involves transfer from previous experience. Consequentially, teachers should build on previous learning and connect it to new situations. The final factor described by Bransford, Brown, and Cocking is that negative transfer

(generalizing across situations when it is not appropriate) can guide thinking in the wrong direction. To avoid such problems, teachers should change the original thinking of students, rather than let students use misguided thinking as the basis for understanding (Bransford, et al, 2000).

Duke (2005) presents four factors to consider when determining if transfer will occur. The first is that transfer is more likely to happen when situations are similar; the less similar the situation, the less likely transfer will take place. The second factor to consider is how much a student is able to recognize similarities in situations. The third factor is that even if similarities are recognized, students still may not be able to make transfers. The final factor to consider is that negative transfer may be present. To teach for transfer, Duke advises music teachers to begin with well defined goals and have a clear understanding of why a topic is important for students' development. For students to transfer information, they need many correct repetitions of skills. If students are able to perform a skill correctly multiple times, then they are more likely to take that skill to a new situation. To help students transfer skills to new situations on their own, students should be given many opportunities to perform skills in a variety of contexts. Finally, when teaching for transfer, Duke reminds music educators that they need to make transfer a goal of instruction (Duke, 2005).

Summary

To plan successful lessons, teachers should start with clearly stated behavioral objectives and goals. After the goals have been stated, teachers should research the topics defined by the goals, decide how the information will be delivered, and how the lesson will be organized. Teachers should then choose supporting material, create a beginning and end to the lesson, and plan and prepare assessments. After these steps have been followed, a teacher is ready to write

and practice the lesson plan. When creating lesson plans, teachers should use a consistent lesson plan format with the goals and objectives clearly stated.

When studying music teaching effectiveness, educators can use paper and pencil or computerized evaluation instruments. Researchers have found that perceived effective teaching is not solely based on content knowledge. Effective teaching is reliant on a teacher's content knowledge, delivery skills, and teaching style.

Planning assessments should be concurrent with planning instructions. The focus of assessment should be on student understanding and assessment should be based on skills students demonstrate. Formative assessments should be given often through varying forms of feedback. Information gained from assessments can be used to discover if students understand directives and if students can demonstrate skills. This information can also be used by teachers to discover what skills need to be re-taught and to help students avoid problems. Since feedback is used to help students monitor and advance learning, it should be provided often in music classes. Verbal feedback can come in the form of positive and negative (corrective) statements. Feedback can also come from other students in the class and from the sounds produced by students' instruments.

In order to teach students how to successfully perform skills, teachers have to develop ordered sets of instructions that build on previous sets and move students toward an end goal. When sequencing instructions teachers should; (a) start from scratch each day, (b) use small approximations to reach an end goal, (c) only include essential information in instructions, (d) remember that each step is an approximation of the end goal, (e) inch forward and leap back in instructions, and (f) give students multiple correct repetitions at each step.

Students should have the ability to transfer information from one subject area to another. In order for transfer to take place, students must have learned the original concept with understanding, students must be able to monitor and evaluate their learning, material should be taught and tested in many situations, and students must understand underlying themes and principles of concepts and understand how and when to put information to use.

Goals and Objectives

In searching for guidance on what skills and concepts to teach, an educator can rely on the national teaching standards, which include individual state teaching standards (Education World, Inc., 1997). Standards are statements of what students should know and be able to accomplish in a subject area (The National Association for Music Education, 2006). The National Standards for Arts Education is the section of the National Teaching Standards devoted to dance, music, theatre, and the visual arts. The standards for music education that are most relevant to beginning string classes are; (a) performing on instruments, alone and with others, a varied repertoire of music; (b) improvising melodies, variations, and accompaniments; (c) composing and arranging music within specified guidelines; (d) reading and notating music; (e) listening to, analyzing, and describing music; (f) evaluating music and music performance; (g) understanding relationships between music, the other arts, and disciplines outside the arts (h) understanding music in relation to history and culture (The National Association for Music Education, 2006).

Books devoted to building music programs and teaching music classes (Dillon & Kriechbaum, 1978; Duke, 2005; Green, 1966; Hamann & Gillespie, 2004) also provide educators with lists of standards, which are described as goals and objectives. Goals and objectives are lists of skills that students should be able to demonstrate by the end of a learning period. A teacher

determines the length of a learning period, which can be as long as a student's time in a program or as short as a portion of a class (Duke, 2005). In *Teaching Stringed Instruments in Classes* (Green, 1966), Elizabeth A. H. Green lists ten goals for the first year of playing. Green suggests that students have the ability to demonstrate keeping left-hand fingers curved, on the string as much as possible, and close to the string when not in use. Green's left-hand technique skills include adjusting pitches to play in-tune (with a focus on developing close half-steps), playing one-octave scales, and keeping fingers close to the fingerboard when not in use to set the foundation for future speed and clarity. Green also states that some students may start a vibrato motion in the first year of playing. According to Green, students should also have the ability to demonstrate slurred bowings (producing two or more notes per bow stroke) and whole-bow and half-bow strokes to affect tone quality. Green also suggests that students should be able to memorize and perform solo tunes (Green, 1966).

Dillon and Kriechbaum (1978) suggest that students should be able to demonstrate basic holding and playing positions by the end of the first year of playing. In pizzicato playing (plucking the string), students should be able to play with a resonant sound. The time signatures students should know are 4/4, 3/4, and 2/4, and the rhythmic note and rest values students should know are quarter, half, whole, dotted half, and eighth, as well as ties. Bowing skills include slurs, hooked bowings, using a full bow to play with a resonant sound, and using a slow bow stroke, close to the bridge, to achieve an "intense tone." Left-hand skills include the demonstration of an understanding of first-position notes in the keys of D, G, and C, and being able to play a few rounds and harmonized orchestral tunes (Dillon & Kriechbaum, 1978).

Performance goals and objectives for the first two years of playing listed in *Strategies for Teaching Strings* (Hamann & Gillespie, 2004) are broken down into bowing, instrument position

and left-hand skills, music reading, and aural skills. The bowing skills center around students demonstrating proper bow hold and bow stroke, string crossings, slurs, staccato (short) stroke, hooked bowings, accurate rhythm, and varying dynamic levels. Demonstrating acceptable body posture, instrument position and left-hand shape (including finger patterns for D, G, C, and F major and d natural minor) are listed under instrument position and left-hand skills. Music reading skills focus on students' abilities to name notes and sight-read music in the major keys of D, G, C, and F, and the natural minor key of d. Rhythmic note and rest values that are suggested for students to be able to read are whole, dotted half, half, quarter, and eighth. Aural skills include making left-hand changes in order to match pitch, playing four-note pitch patterns by ear, imitating simple rhythms, imitating major and minor scales, and demonstrating basic instrument tuning skills (Hamann & Gillespie, 2004).

In his book, *Intelligent Music Teaching*, Duke (2005) does not list goals and objectives (standards) for specific years of playing. Instead, he urges teachers to set "far-reaching" goals that will be the same from the first day of instruction to the last. In Duke's method of goal setting, day-to-day activities change while the ultimate goal of having students play at a highly skilled musical level remains the same. Under the heading "Performance Goals for String Players," he includes proper posture, instrument position, bow hold and bow stroke. Other skills included are the ability to play pizzicato (plucking the string) and arco (with the bow), and utilizing varying dynamics, bowing styles and bowing patterns. All music students (band, orchestra, and choir) should demonstrate steady tempo and pulse, and display the ability to play independent rhythms, follow tempo changes, play with a characteristic tone, and make adjustments in intonation (Duke, 2005).

Classroom method books provide educators with specific pieces of music and exercises to use in their teaching, but they also provide lists of performance skills (standards) that students should be able to demonstrate by the end of the method. In some cases specific skills are listed, but in other cases the skills that authors believe are important are seen through examining the pieces used. Upon completion of the *Muller Rusch String Method for Class or Individual Instruction, Book 1* (1961), students have been taught the skills of playing pizzicato and arco (with separate bows and up to three notes slurred) in unison and in multiple part pieces. Students have learned to play in the keys of D, G, and C major, and in the time signatures of 4/4, 2/4, and 3/4. The rhythmic note and rest values students have learned to play are whole, dotted half, half, quarter, and eighth. Students have also learned to play half quarter and whole half ties (Muller & Rusch, 1961).

During the course of studying *Suzuki Violin School Volume 1* (1980), students learn to play pizzicato and arco (with separate bows, up to four notes slurred and hooked bowings) in unison pieces. The keys students learn to play in are D, G, and C major in the time signatures of 4/4, 2/4, and 3/4. The rhythmic note and rest values students have learned to play are half, dotted half, quarter, eighth, and sixteenth.

After completing *Strictly Strings Book 1* (Dillon, Kjelland, & O'Reilly, 1992), students have learned to play pizzicato and arco (separate bows, up to three notes slurred, hooked bowings, and ties) in unison pieces and pieces involving multiple parts. The keys students have learned to play in are D, G, C, and B-flat major, and time signatures students have learned to play in are 4/4, 2/4, and 3/4. The rhythmic note and rest values students have learned to play are half, dotted half, quarter, dotted quarter, and eighth (Dillon, Kjelland, & O'Reilly, 1992).

When studying *Essential Elements 2000 for Strings Book 1* (Allen, Gillespie, & Tellejohn-Hayes, 2004), students learn to play pizzicato and arco (separate bows, up to three-note slurs and hooked bowings) in unison pieces and pieces involving multiple parts. The keys students learn to play in are D, G, and C major, while the time signatures students learn to play in are 4/4, 2/4, and 3/4. The rhythmic note and rest values students utilize are half, dotted half, quarter, and eighth (Allen, Gillespie, & Tellejohn-Hayes, 2004).

Summary

The left-hand skills common to each of these methods are the development of proper left-hand shape and the ability to play in the keys of D, G, and C major. Each method involves playing pizzicato and arco with separate bows and up to three-note slurs. Except for in the Suzuki Method, pieces used are in both unison and multiple parts. The common time signatures students learn to play in are 4/4, 2/4, and 3/4, with the common rhythmic note and rest values of half, dotted half, quarter, and eighth. This list of skills is consistent with The National Standards for Arts Education of; (a) performing on instruments, alone and with others, a varied repertoire of music; and (b) reading and notating music (The National Association for Music Education, 2006).

Left-hand Technique

Each string method described (Allen, Gillespie, & Tellejohn-Hayes, 2004; Dillon, Kjelland, & O'Reilly, 1992; Dillon & Kriechbaum, 1978; Green, 1966; Hamann & Gillespie, 2004; Muller & Rusch, 1961; Suzuki, 1980) starts students in first position using the notes of a one-octave D major scale. First position is established with a whole step between an open string and the first (index) finger. When playing the violin and viola on the D and A strings in D major,

there is a whole step between the first and second (middle) fingers and a half step between the second and third (ring) fingers. When playing on the D and A strings of the cello in D major, there is a whole step between the first and third fingers and a half step between the third and fourth fingers. When playing the bass on the D and A strings, there is a whole step between the first and fourth fingers. Each of the described finger patterns constitutes first position.

Although most string methods start students in first position, Cowden (1972) investigated starting fourth-grade violin students in third position. The advantages, according to Cowden, for starting violin training in third position are; (a) half steps and whole steps are closer together, (b) the fourth finger is used from the start, (c) students will not experience as much fatigue from holding the instrument, (d) the body of the violin can be used as a reminder to tell students when the heel of the left hand is not in position, (e) first finger intonation can be tested by playing the first finger against the next lowest open string, (f) the violin can be held easily, (g) the tonic of the key is under the first finger, and (h) finger numbers and scale degree numbers, up to the fourth scale degree, are the same (Cowden, 1972). Cowden counters these advantages with disadvantages (as cited in Rolland, 1952); (a) the reduced string length makes it harder to produce a good tone, (b) the combination of open strings and stopped notes is more difficult, (c) students may develop a rigid left hand, (d) students might support the instrument with the wrist, not the thumb, and (e) there are few published materials available for teaching using this method (Cowden, 1972). In Cowden's study, four groups (two groups starting in first position and two groups starting in third position) of fourth grade beginning violin students were taught in order to discover if there is a difference in intonation and rhythmic accuracy between the two ways of starting students. No significant differences were found between the groups in intonation or rhythmic accuracy when students played in first position, third position, or when they played

pieces requiring shifts between the two positions (Cowden, 1972).

Playing with correct intonation on a string instrument requires players to use both aural skills (ears) and kinesthetic skills (body movements). Left-hand movements must be consistent and precise, as well as coordinated with aural skills. Jacobs (1969) studied ten violin students with trained musical hearing and ten violin students without trained musical hearing to discover the effect of left-hand movements on intonation. All subjects were between the ages of 11 and 13. Jacobs found that students can; (a) make a correct movement and produce a correct tone, (b) make a wrong movement and produce a wrong tone, or (c) make a wrong movement and produce a correct tone (Jacobs, 1969). To play in-tune, students with no prior musical training relied on kinesthetic and tactile perceptions (how it felt to play in-tune). Students with prior musical training used aural skills to play in-tune, without regard to the look or feel of their left hands. Since the musically trained students did not pay as much attention to the look and feel of their left hands, they made significantly more errors in movements and in left-hand position than those without musical training. Since wrong motions can produce correct pitches, Jacobs encourages teachers to emphasize using aural perceptions with a concentration on the feeling and look of correct position and left-hand movements to adjust intonation (Jacobs, 1969).

To help beginning students play with consistent and precise left-hand and finger motions, Dillon and Kriechbaum (1978) advocate using finger placement markers. The authors state that finger placement markers help students progress faster and play with better intonation in the beginning stages. Since in large classes a teacher cannot hear individual students, finger placement markers allow the teacher to visually assess if students are placing their fingers on the markers. The authors do point out that markers are only an approximation of where the finger should be placed, and that when using finger placement markers teachers and students should use

both their ears and eyes to help adjust intonation. When using finger placement markers, the authors suggest marking the first finger for every instrument to help students learn where to establish first position. On violins and violas, they suggest to either mark the second finger (a whole step away from first) or the third finger (a step and a half away from first). On cellos, the third (a whole step away from first) and the fourth finger placements (a half step from third) should be marked. On the bass, the second (a half step away from first) and fourth finger placements (a half step away from second) should be marked (Dillon & Kriechbaum, 1978). Hamann and Gillespie (2004) encourage teachers who have students use finger placement markers to remove the markers as soon as possible, so students will learn to use their aural skills to find pitches, rather than rely on the markers to find pitches.

Researchers (Bergonzi, 1997; Smith, 1985; Smith, 1988) have investigated the impact of finger placement markers on intonation accuracy in beginning students. To study this, Smith (1985) divided university music students without string instrument experience into three groups. Group I did not use finger placement markers, Group II used finger placement makers for the first and third fingers for all sixteen weeks of instruction, and Group III used finger placement markers for the first and third fingers for eight out of sixteen weeks of instruction. No significant differences in intonation accuracy were found between groups. However, subjects who had their finger placement markers removed after eight weeks showed the greatest decline in intonation accuracy and subjects who used finger markers for the entire sixteen weeks showed an increase in intonation accuracy. The decline in intonation with Group III may have been due to starting note reading, rather than rote playing, at this same time (Smith 1985). In a similar study, Smith (1987) concluded, studying fourth and fifth grade students, that finger placement markers did not result in a significant difference in intonation accuracy among groups. Although no significant

differences were found across groups, the group that did not use finger placement markers had a significant increase in intonation accuracy at the end of the study, and the intonation accuracy of those who had their finger placement markers removed halfway through the study declined (Smith 1987).

Bergonzi (1997) studied the effect of finger placement markers and harmonic context on left-hand technique, intonation performance skills, and overall music performance using sixth-grade beginning string students. Bergonzi found that subjects who used finger placement markers played significantly more in-tune than those who did not, and students whose instruction and practice were accompanied by harmonic background had a higher degree of overall musical performance ability. No difference was found in left-hand position or movements. From these findings, Bergonzi concludes; (a) finger placement markers are appropriate to use in a beginning string class to help develop intonation, but do not have an effect on left-hand technique; and (b) the use of a harmonic accompaniment may aid in overall musical performance ability (Bergonzi, 1997).

Summary

Each of these authors, regardless of their use of finger placement markers, stress the importance of developing the skills to feel how far apart the fingers are from one another and to feel how the fingers are placed on the fingerboard. Teachers' abilities to correct left-hand technique and intonation are an important factor in teaching students to play in-tune. Each author stresses to teach students that correct motions produce correct tones more successfully than incorrect motions. Foremost, the authors stress the importance of teaching students to play in-tune.

Bow Hold

When teaching the bow hold, pedagogues disagree on where fingers should be placed on the bow, how students should first be taught to hold the bow, and what type of bow stroke should be taught first. According to Perkins (1995), Suzuki, Rolland, and Havas suggest different placements of fingers for the violin bow hold. Using Suzuki's bow hold, the thumb is bent and the right edge of the thumb contacts the bow where the stick meets the frog. The thumb does not touch the bow hair. The first three fingers contact the bow on the pads and the fourth finger is placed on the "inside ledge" of the bow. The fingers are kept close together and are not slanted toward the tip (Perkins, 1995).

Using Rolland's bow hold, the thumb is bent with the fleshy right side of the thumb making contact with the edge of the frog. The thumb is allowed to touch the bow hair. The first finger contacts the stick slightly below the middle joint, the second and third fingers "embrace" the frog, and the tip of the fourth finger is placed on the top of the stick. There is space between the first and second fingers, and the third and fourth fingers, with the second and third fingers touching (Perkins, 1995).

Havas' method of finger placement is not as descriptive as Suzuki's or Rolland's. The thumb is bent with the fleshy right side of the thumb tip touching the stick, and the thumb makes contact with the bow hair. The right side of the index finger contacts the bow somewhere between the first and second joints, the middle finger is slanted toward the tip, and the pads of the first three fingers are off the stick. The tip of the fourth finger is placed on the top of the stick. As in Suzuki's method, the fingers are not spaced far apart (Perkins, 1995).

Galamian (1985) describes the ideal bow hold as one that is comfortable and flexible. All fingers are curved naturally and without any stiffened joints, allowing the fingers to act as

springs. When he refers to the fingers being curved naturally, he is describing how the fingers are curved and spaced when the hand is resting at the side of the body. The thumb is curved and should contact both the stick and the frog. The second finger is curved over the stick across from the thumb and should contact the stick at the joint closest to the nail. The third finger will reach over the frog. The fourth finger should be placed on the stick close enough to the third finger so it will curve. The fourth finger is not placed directly on top of the frog, rather it is placed on the inner side of the octagon of the stick. The first finger is placed slightly away from the second finger, contacting the stick close to the nail side of the middle joint (Galamian, 1985).

When teaching the cello bow hold, Potter (1964) instructs students to bend the thumb and place the right side of the tip where the frog meets the stick. The first finger is then curved over the stick from the first joint and should rest on the wrapping. The fourth finger is placed in the center of the frog, also curving over the bow at the first joint. The third finger is placed over the frog. The finger contacts the frog and stick with the first and second joint and the pad touches the ferrule. The first and second joints of the second finger contact the stick, and the pad of the finger touches the bow hair (Potter, 1964).

Green (1966) places the thumb, for all instrument bow holds (French bow hold for bass), on the stick next to the frog. Violin and viola players place the thumb slightly more under the stick than cello and bass players. The first finger makes contact with the bow between the middle and “tip-joint.” The third finger is placed onto the far side of the bow with the violin and viola players placing the finger on the pearl dot. The cello and bass players’ third fingers should almost reach the bottom of the frog. Violin and viola players curve the fourth finger and place it on top of the frog, while cello and bass players place the fourth finger next to the third finger, on or near the pearl dot (Green, 1966).

Dillon and Kriechbaum (1978) direct students to curve the thumb and place it on the stick. The violin and viola players' middle finger hangs slightly over the stick and down onto the frog and the index finger makes contact with the bow between the first and second knuckles. The fourth finger is placed on top of the bow close to the other fingers. Violin and viola players' hands will lean toward the index finger and slant toward the tip of the bow. All of the fingers should be rounded and close together. Cello and bass players place the fourth finger in the center of the frog, the third finger on the ferrule, second finger on the hair, with the first finger slightly resting on the left side at the first knuckle. The thumb should be high, curved, and placed close to the frog on the stick. All fingers should be curved and spaced evenly apart (Dillon & Kriechbaum, 1978).

Hamann and Gillespie (2004) instruct violin and viola students to place the index finger on the top of the stick near the second knuckle joint. The second finger should be curved, lay across from the thumb, and drape over the side of the bow to touch the stick near the second knuckle. The third finger is also draped over the side of the bow with the fingerprint touching the concave side of the frog. The fourth finger is curved with the tip resting near the inner side of the stick. The thumb forms an oval shape with the second finger, and the whole hand leans slightly toward the index finger. The cellists' fingers will naturally curve and drape over the side of the frog and stick. The index finger makes contact with the bow near the first or second knuckle, the fingerprint of the third finger is placed near the U cutout of the frog, the fourth finger is placed near the eyelet of the bow, and the thumb is curved with the side of the tip resting across from the second finger. The cello players' hands are more perpendicular to the bow than violin and viola players' hands. The bass French bow hold is similar to the cello bow hold, but the fingers will drape farther over the frog than with the cello bow hold.

Bass players have the option of choosing between a French or German bow. The French bow is similar in design to the violin, viola, and cello bows, and the bow hold is similar to that of the cello. The German bow is designed with a larger "U" opening in the frog where the second and third fingers are placed. The thumb is placed on top of the bow while the fourth finger is placed underneath the bow. Dillon and Kriechbaum (1978) do not advocate using German bows in a heterogeneous string class. They suggest reserving the German bow for advanced students who take private bass lessons (Dillon & Kriechbaum, 1978). Green (1966) and Hamann and Gillespie (2004) do not state a preference for either French or German bows.

The way students are first taught to hold the bow also varies among pedagogues. Some educators (Dillon & Kriechbaum 1978, Hamann & Gillespie, 2004) start with a pencil, and then transfer the bow hold to the bow. Others start by forming the bow hold on the bow. Green (1966) and Dillon & Kriechbaum (1978) suggest starting the bow hold at the frog, while Hamann and Gillespie (2004), Rolland, and Suzuki suggest starting the bow hold at the balance point, where the bow is lighter and easier to hold. Suzuki also instructs beginners with small hands to place the thumb under the frog, instead of where the frog and stick meet. Once a student's hand is larger, the thumb is moved to the normal position. Jensen (1990) taught university music students in beginning string technique classes to play with either a traditional bow hold, a bow hold with the thumb underneath the frog, or a bow hold at the balance point. Those who began with the thumb underneath the frog later moved the thumb to the traditional place. Jensen discovered that the college-aged students who were initially taught a traditional bow hold had a significantly better hand shape than those in other groups. She also found that those who were taught to hold the bow at the balance point had a better hand shape than those who began instruction with the thumb under the frog (Jensen, 1990).

The type of bow stroke (short or long) first taught to beginners also differs among pedagogues. Some begin with short bows played in the middle, while others begin with a whole bow stroke. Lowe, described through Mishra (2000), found no significant difference between tone quality in students who were taught a long beginning bow stroke and those taught a short beginning bow stroke. However, Lowe did find that those who started with long strokes had more bowing problems than those who started with short bow strokes (Mishra, 2000).

Summary

Pedagogues agree that the bow should be placed about halfway between the bridge and the fingerboard and that it should travel on a path parallel to the bridge. They also agree that by the end of the first year of playing, no matter what type of bow stroke is taught first, students should be able to use the whole bow. Although there are slight variations in finger placements on the bow, experts agree that the bow hold should be “natural,” the fingers should be curved and hang over the bow for better contact, the thumb should be curved, and the bow hold should be loose and flexible. When pedagogues say that the bow hold should be “natural,” they are referring to how the fingers of the hand are slightly curved when the arm is laying at one’s side. This natural curve in the fingers should be applied to the bow hold. No matter where or how fingers are placed on the bow, the goal is to have a flexible and balanced bow hold.

CHAPTER III: METHOD

Participants and Group Division

Participants in this study were 19 undergraduate music education majors enrolled in a beginning string course (MuEd180) at Bowling Green State University, and a second-year graduate student in music education at Bowling Green State University. During the 15-week semester, the class met three times each week for 50-minute class periods. Three members of the class were string instrument majors (one violin, one cello, and one bass), 11 students were vocal majors, and five students' primary instrument was either a woodwind or brass instrument. At the time of data collection, each member of the class had received some instruction on how to play two string instruments. Another graduate student, who is an experienced band teacher, has taught beginning orchestra classes, and has taken four semesters of violin lessons at Bowling Green State University, was asked to be the second teacher in the study.

Data Gathering and Analysis

To test the effectiveness of the curriculum, the graduate student and researcher each taught half of the students using the same three lesson plans. The chosen lessons were the first, fourth, and fifth provided in the curriculum. These lessons were selected to evaluate the effectiveness of instructions for physically setting up a beginning student to play a string instrument, teaching a new piece of music, and reviewing a piece of music. The chosen piece, *French Folk Song,* was selected because it coincided with the curriculum of the string class, which was already in progress.

In order to test the curriculum and lesson plans, the 19 students enrolled in the beginning string class met at the usual class time, but were divided into two groups for three class sessions.

The first session was during the tenth week the class met, while the last two sessions occurred during the eleventh week of the class. I taught students in Group I (*n*=10), while the other graduate student taught students in Group II (*n*=9). Group I consisted of two violin, two viola, three cello, and three bass students. One student whose primary instrument is violin was in Group I, playing the cello. Group II consisted of two violin, two viola, three cello, and two bass students. Group II contained one student whose primary instrument is cello, playing the bass, and one student whose principle instrument is bass, playing the cello.

Lessons occurred during the string classes' regular 50-minute meeting time. Activities, such as set-up, tuning, and class discussion (discussing current and future assignments), were not videotaped. Group I received instruction in the MuEd180 classroom, while Group II was taught in a separate classroom. Lessons were videotaped using Sony Digital Handycams set on stationary tripods. The cameras were positioned in the back of the room to provide a clear view of the center of the room. The cameras stayed in position throughout each lesson, regardless of teachers' movements. When looking through the camera from the back of the room, students in Group I were positioned in a semicircle opening to the front of the room. The violin students stood on the right side, violists in the center, the cellists sat on the left side, two bass players stood behind the violists, and one bass player stood behind a cellist. Students in Group II were positioned in the same way, except, due to room size, the semicircle was smaller and the bass players stood next to the cellists.

After collecting the videotapes, I connected a camera, with a Firewire, to a Power Mac G5. The movies were imported into iMovie, compressed into Quicktime movies, and saved to a recordable compact disk for future viewing. After viewing each movie multiple times, I used Quicktime Pro to divide each lesson into rehearsal frames.

Rehearsal frames began when a teacher identified a performance goal and ended when a teacher moved on to a new goal. A total of 70 (31 from the graduate student's teaching of Group II and 39 from the researcher's teaching of Group I) rehearsal frames were analyzed using *SCRIBE 4.0.2*, Simple Computer Recording Interface for Behavioral Evaluation (Duke & Stammen, 2006). *SCRIBE 4.0.2* is a program that records frequencies and durations of selected events and behaviors. Data are presented in the forms of; (a) a graphic timeline, (b) a summary table, and (c) a chronology of recorded events. *SCRIBE 4.0.2* was used to record durations of (a) teacher performances and verbalizations and (b) student performances and verbalizations. Teacher verbalizations were categorized as information statements, directives, questions, positive feedback, negative feedback, and off-task statements. Student verbalizations were categorized as answers, questions, positive feedback, negative feedback, directives, and off-task statements. Student performances were divided into tutti (whole group) play, small group play, solo play, and discovery.

Directives were statements made by the teacher or students which asked students to perform a specific task. Information statements were used when a teacher or student provided information about the subject matter, but did not provide a directive. General or specific positive statements made by a teacher or student in regard to students' actions (performance or answers to questions) were categorized as positive feedback, and general or specific corrective statements made by either a teacher or students in regard to students' actions were categorized as negative feedback. Off-Task statements were verbalizations that were not related to the subject matter. Teacher modeling was used when a teacher performed on an instrument or sang. Tutti, small group, and solo play were used when students were performing and when students were following directives, but not playing (during instrument position, bow, or left-hand setup). Small

group play was used when one, two, or three groups of instruments, or a small group of mixed instruments were participating. When a teacher asked students to work through a section on their own before trying it as a group, or when a teacher gave students time to find a starting pitch, I categorized it as “discovery.”

Rehearsal frames were categorized according to targets (performance goals). Targets included any aspect of performance that a teacher chose to improve. Four categories of targets emerged; (a) musical results, (b) setup, (c) musical results and setup, and (d) other. The musical results category contains rehearsal frames relating to any aspect of tone (statements regarding how to improve tone and statements requesting students improve tone without a provided directive), intonation (statements regarding how to improve intonation and statements requesting students improve intonation without a provided directive), tone and intonation together (statements regarding how to improve both tone and intonation and statements requesting students improve both tone and intonation without a provided directive), or rhythm (statements regarding how to improve rhythm and statements requesting that students improve rhythm without a provided directive). The setup category contains rehearsal frames relating to any aspect of instrument, bow, or left-hand setup, without concern to musical results, and fingering patterns. Fingering patterns were selected when the focus of the rehearsal frame was to tell students a fingering pattern, or when the focus of the rehearsal frame was to practice a fingering pattern. The third category, musical results and setup, contains rehearsal frames that focused on both intonation and fingering patterns. This category was chosen when the teacher directed students to fix both their intonation and a fingering pattern. The final category, other, contains rehearsal frames that focused on performance trials without a specific target (playing through a

whole piece or scale, or sections of a piece or scale as a performance), and rehearsal frames without a target.

Rehearsal frames were then analyzed to determine if they were successful or unsuccessful. A successful rehearsal frame was one in which a majority of students were able to perform the task(s) a teacher identified at the beginning of the frame. Rehearsal frames were considered to be unsuccessful if the majority of students were not able to perform the task(s) a teacher identified at the beginning of the rehearsal frame. The successful and unsuccessful ratings applied only to the teacher assigned tasks.

After gathering data, I exported the summary table to Microsoft Excel to calculate the mean times of teacher and student play and verbalizations, and the frequency and rate per minute of directives, positive and negative feedback, questions, answers, and off-task statements. Data were gathered to; (a) observe the effect of the lesson plans on instruction and student learning, (b) compare performance results from teaching based on identical lesson plans delivered by two teachers, and (c) to identify which aspects of student performance the two teachers attended to during instruction.

CHAPTER IV: RESULTS

Teacher Verbalizations and Modeling, and Student Verbalizations and Performance

Tables 1 and 2 show the mean proportions of total frame duration, frequency, rate per minute, mean episode duration, and standard deviation for observed teacher, and student behaviors within rehearsal frames. Types of verbalizations (information statements, directives, positive and negative feedback, questions, answers, and off-task statements) are presented only by their frequency and rate per minute. Table 1 is devoted to Teacher I (the researcher) and Table 2 is devoted to Teacher II (the graduate student).

The results indicate that the mean percentage of time Teacher I spent on verbalizations was 61.78%. The mean episode duration of teacher verbalizations was 17.5 seconds and the mean rate per minute was 3.18. The primary form of verbalization used by Teacher I was directives (mean frequency of 14.38 and mean rate per minute of 4.66). Information statements (mean frequency of 3.97 and mean rate per minute 1.48) were next, followed by positive feedback (mean frequency of 3.26 and mean rate per minute 1.08), questions (mean frequency of 2.51 and mean rate per minute .76 per minute), negative feedback (mean frequency of 1.67 and mean rate per minute of .53 per minute), and off-task statements (mean frequency of .33 and mean rate per minute of .13).

During Teacher I's lessons, student tutti play accounted for 18.75% of mean rehearsal frame duration and had a mean rate per minute of .82. The mean episode duration of tutti play was 14.3 seconds. Small group play accounted for 12.73% of mean rehearsal frame duration and had a mean rate per minute of .51. The mean episode duration of small group play was 9.2 seconds. Solo play accounted for 1.54% of mean rehearsal frame duration with a mean rate per

minute of .20. The mean episode duration of solo play was .4 seconds. Student verbalizations accounted for 2.89% of mean frame duration and the mean episode duration was 1.4 seconds. Discovery time accounted for 1.78% of mean rehearsal frame duration. The mean duration of discovery was 2 seconds and the mean rate per minute was .09.

Teacher II spent 51.3% of mean rehearsal frame duration on verbalizations. The mean duration of teacher verbalization was 24.7 seconds and the mean rate per minute was 1.81. The primary form of verbalization used by Teacher II was directive (mean frequency of 5.68, with mean rate per minute of 1.93). Information statements (mean frequency of 3.90 and mean rate per minute of 1.49) were next, followed by questions (mean frequency of 1.35 and mean rate per minute .48), positive feedback (mean frequency .61 and mean rate per minute .23), off-task statements (mean frequency .58 and mean rate per minute .17), and negative feedback (mean frequency of .35 and mean rate per minute of .11 per minute).

During Teacher II's lessons, student tutti play accounted for 25.49% of mean rehearsal frame duration with a mean rate per minute of 1.41. The mean episode duration of tutti play was 14.5 seconds. Small group play accounted for 6.78% of mean rehearsal frame duration and had a mean rate per minute of .12. The mean episode duration of small group play was 10.9 seconds. Solo play accounted for 3.32% of mean rehearsal frame duration with a mean rate per minute of .40. The mean episode duration of solo play was .9 seconds. Student verbalizations accounted for 5.62% of mean frame duration. The mean duration of student verbalizations was 1.9 seconds. Discovery time accounted for 7.28% of mean rehearsal frame duration. The mean duration of discovery was 9.1 seconds and the mean rate per minute was .19 seconds.

Table 1

*Teacher I: Mean Proportions of Total Frame Duration, Frequency, Rate per Minute, Mean Episode Duration, and Standard Deviation for Observed Teacher and Student Behaviors within Rehearsal Frames (*n=*39)*

	Percent of total frame duration	Frequency	Rate per minute	Mean episode duration (in seconds)	
	M	*M*	*M*	*M*	*SD*
Teacher					
Verbalization	61.78	9.90	3.18	17.5	14.08
Information		3.97	1.48		
Directive		14.38	4.66		
Positive Feedback		3.26	1.08		
Negative Feedback		1.67	0.53		
Questions		2.51	0.76		
Off-Task		0.33	0.13		
Model	8.24	2.59	0.95	4.0	0.85
Student					
Verbalizations	2.89	2.33	0.66	1.4	0.73
Answer		1.46	0.45		
Question		0.44	0.12		
Positive Feedback		0.13	0.03		
Negative Feedback		0.08	0.01		
Directive		0.23	0.06		
Off-Task		0.08	0.03		
Tutti Play	18.75	2.23	0.82	14.3	1.37
Small Group Play	12.73	1.82	0.51	9.2	4.92
Solo Play	1.54	0.74	0.20	0.4	0.12
Discovery	1.78	0.23	0.09	2.0	0.13

Table 2

*Teacher II: Mean Proportions of Total Frame Duration, Frequency, Rate per Minute, Mean Episode Duration, and Standard Deviation for Observed Teacher and Student Behaviors within Rehearsal Frames (*n=*30)*

	Percent of total frame duration	Frequency	Rate per minute	Mean episode duration (in seconds)	
	M	*M*	*M*	*M*	*SD*
Teacher					
Verbalization	51.30	4.77	1.81	24.7	15.54
Information		3.90	1.49		
Directive		5.68	1.93		
Positive Feedback		0.61	0.23		
Negative Feedback		0.35	0.11		
Questions		1.35	0.48		
Off-Task		0.58	0.17		
Model	4.05	1.35	0.61	1.8	0.14
Student					
Verbalizations	5.62	1.68	0.61	1.9	1.15
Answer		1.35	0.46		
Question		0.32	0.14		
Positive Feedback		0	0		
Negative Feedback		0	0		
Directive		0	0		
Off-Task		0	0		
Tutti Play	25.49	3.32	1.41	14.5	0.90
Small Group Play	6.78	0.68	0.12	10.9	0.40
Solo Play	3.32	1.16	0.40	0.9	0.03
Discovery	7.28	0.58	0.19	9.1	1.19

Tables 3 through 8 show the mean proportions of total frame duration, frequency, rate per minute, mean episode duration and standard deviation for observed teacher and student behaviors within rehearsal frames by lesson. Tables 3, 4, and 5 are devoted to Teacher I while tables 6, 7, and 8 are devoted to Teacher II. Both teachers' mean percent of teacher verbalizations were highest during Lesson I (Teacher I, 69.87%; Teacher II; 70.50%). The mean percent of teacher verbalizations for Teacher I declined from Lesson I to Lesson II (69.78% to 55.56%), but stayed the same from Lesson II to Lesson III (55.56% to 56.69%). The primary form of verbalizations given by Teacher I across lessons was directives (mean frequencies of 12.69 during Lesson I, 18.27 during Lesson II, and 13.08 during Lesson III). The mean percent of student play (tutti, small group, solo, and discovery) stayed within .5% of each other across lessons (35.85% in Lesson I, 31.63% in Lesson II, 36.3% in Lesson III).

The mean percent of teacher verbalizations for Teacher II declined over time (from 70.50% during Lesson I to 37.12% during Lesson III), while the mean percent of student play (tutti, small group, solo, and discovery) increased over time (from 30.2% during Lesson I to 54.42 during Lesson III). The primary form of verbalizations given by Teacher I across lessons was directives (mean frequencies of 7.82 during Lesson I, 4.29 during Lesson II, and 5 during Lesson III).

Table 3

*Teacher I; Lesson I: Mean Proportions of Total Frame Duration, Frequency, Rate per Minute, Mean Episode Duration, and Standard Deviation for Observed Teacher and Student Behaviors within Rehearsal Frames (*n=*16)*

	Percent of total frame duration	Frequency	Rate per minute	Mean episode duration (in seconds)	
	M	*M*	*M*	*M*	*SD*
Teacher					
Verbalization	69.87	6.06	2.82	25.3	18.32
Information		3.56	1.76		
Directive		12.69	5.38		
Positive Feedback		2.13	.99		
Negative Feedback		.75	.36		
Questions		1.38	.58		
Off-Task		.44	.17		
Model	9.18	1.63	.93	3.8	.40
Student					
Verbalizations	1.94	1.13	.41	0.7	.42
Answer		.88	.34		
Question		.06	.02		
Positive Feedback		.06	.02		
Negative Feedback		0	0		
Directive		.19	.05		
Off-Task		.06	.02		
Tutti Play	17.35	1.75	.85	10.1	.88
Small Group Play	14.57	1.5	.53	10.5	6.41
Solo Play	1.54	.38	.25	0.2	.11
Discovery	2.39	.19	.12	2.0	0

Table 4

*Teacher I; Lesson II: Mean Proportions of Total Frame Duration, Frequency, Rate per Minute, Mean Episode Duration, and Standard Deviation for Observed Teacher and Student Behaviors within Rehearsal Frames (*n=*11)*

	Percent of total frame duration	Frequency	Rate per minute	Mean episode duration (in seconds)	
	M	*M*	*M*	*M*	*SD*
Teacher					
Verbalization	55.56	13.64	3.63	13.0	11.21
Information		3.91	1.17		
Directive		18.27	4.95		
Positive Feedback		4.09	1.19		
Negative Feedback		2.09	.54		
Questions		3.27	.91		
Off-Task		.27	.11		
Model	8.35	3.64	1.11	4.9	1.37
Student					
Verbalizations	3.85	3.09	.87	2.5	1.31
Answer		1.91	.61		
Question		.64	.16		
Positive Feedback		.18	.04		
Negative Feedback		.27	.05		
Directive		.09	.01		
Off-Task		0	0		
Tutti Play	19.69	2.91	.85	16.3	2.23
Small Group Play	7.47	2.09	.51	3.6	1.93
Solo Play	2.82	2	.29	0.9	.27
Discovery	1.65	.27	.07	2.9	.12

Table 5

*Teacher I; Lesson III: Mean Proportions of Total Frame Duration, Frequency, Rate per Minute, Mean Episode Duration, and Standard Deviation for Observed Teacher and Student Behaviors within Rehearsal Frames (*n=*12)*

	Percent of total frame duration	Frequency	Rate per minute	Mean episode duration (in seconds)	
	M	*M*	*M*	*M*	*SD*
Teacher					
Verbalization	56.69	11.58	3.26	11.3	11.08
Information		4.58	1.39		
Directive		13.08	3.42		
Positive Feedback		4	1.07		
Negative Feedback		2.5	.76		
Questions		3.33	.85		
Off-Task		.25	.09		
Model	6.89	2.92	.83	3.6	.96
Student					
Verbalizations	3.27	3.25	.82	1.2	.62
Answer		1.83	.45		
Question		.75	.23		
Positive Feedback		.17	.05		
Negative Feedback		0	0		
Directive		.42	.10		
Off-Task		.17	.07		
Tutti Play	19.76	2.25	.74	18.0	1.22
Small Group Play	15.1	2	.48	12.6	5.66
Solo Play	.36	.08	.07	0.2	0
Discovery	1.08	.25	.08	1.4	.32

Table 6

*Teacher II; Lesson I: Mean Proportions of Total Frame Duration, Frequency, Rate per Minute, Mean Episode Duration, and Standard Deviation for Observed Teacher and Student Behaviors within Rehearsal Frames (*n=*11)*

	Percent of total frame duration	Frequency	Rate per minute	Mean episode duration (in seconds)	
	M	*M*	*M*	*M*	*SD*
Teacher					
Verbalization	70.50	5.64	1.97	33.9	25.65
Information		4.64	1.43		
Directive		7.82	2.39		
Positive Feedback		.82	.27		
Negative Feedback		.18	.04		
Questions		2.73	1.02		
Off-Task		.82	.22		
Model	2.11	1	.33	1.0	.06
Student					
Verbalizations	10.63	3.45	1.13	3.0	2.11
Answer		3.09	1.03		
Question		.45	.12		
Positive Feedback		0	0		
Negative Feedback		0	0		
Directive		0	0		
Off-Task		0	0		
Tutti Play	5.67	2	.71	3.9	.15
Small Group Play	10.07	.45	.09	18.7	.43
Solo Play	1.7	.82	.32	.7	.01
Discovery	12.76	.54	.25	13.2	0

Table 7

*Teacher II; Lesson II: Mean Proportions of Total Frame Duration, Frequency, Rate per Minute, Mean Episode Duration, and Standard Deviation for Observed Teacher and Student Behaviors within Rehearsal Frames (*n=*15)*

	Percent of total frame duration	Frequency	Rate per minute	Mean episode duration (in seconds)	
	M	*M*	*M*	*M*	*SD*
Teacher					
Verbalization	42.30	3.71	1.65	18.4	12.92
Information		3.29	1.42		
Directive		4.29	1.71		
Positive Feedback		.21	.07		
Negative Feedback		.07	.04		
Questions		.57	.17		
Off-Task		.5	.14		
Model	6.88	2.07	1.05	2.3	.27
Student					
Verbalizations	1.4	.64	.27	1.2	.12
Answer		.36	.1		
Question		.29	.17		
Positive Feedback		0	0		
Negative Feedback		0	0		
Directive		0	0		
Off-Task		0	0		
Tutti Play	35.37	3.57	1.80	20.9	1.57
Small Group Play	5.16	.29	.05	8.8	.22
Solo Play	1.37	.64	.20	.5	.02
Discovery	5.99	.79	.21	9.5	2.63

Table 8

*Teacher II; Lesson III: Mean Proportions of Total Frame Duration, Frequency, Rate per Minute, Mean Episode Duration, and Standard Deviation for Observed Teacher and Student Behaviors within Rehearsal Frames (*n=*6)*

	Percent of total frame duration	Frequency	Rate per minute	Mean episode duration (in seconds)	
	M	*M*	*M*	*M*	*SD*
Teacher					
Verbalization	37.12	5.67	1.90	22.3	3.15
Information		4	1.75		
Directive		5	1.60		
Positive Feedback		1.17	.5		
Negative Feedback		1.33	.4		
Questions		.67	.24		
Off-Task		.33	.11		
Model	1.03	.33	.11	1.9	0
Student					
Verbalizations	6.30	.83	.46	1.4	1.83
Answer		.5	.27		
Question		.17	.09		
Positive Feedback		0	0		
Negative Feedback		0	0		
Directive		0	0		
Off-Task		0	0		
Tutti Play	38.79	5.17	1.8	18.8	.74
Small Group Play	4.55	2	.34	1.3	.76
Solo Play	10.85	3	.98	2.2	.11
Discovery	.23	.17	.03	.8	0

Frequency of Targets

Table 9 describes the frequency of targets by category and type for Lessons I, II, and III. The four categories of targets are; (a) musical results, (b) setup, (c) musical results and setup, and (d) other. The musical results category contains rehearsal frames relating to any aspect of tone, intonation, tone and intonation together, and rhythm. The setup category contains rehearsal frames relating to any aspect of instrument, bow, or left-hand setup and fingering patterns. The musical results and setup category contains rehearsal frames that focused on both intonation and fingering patterns. The final category, other, contains rehearsal frames that focused on performance trials without a specific target, and rehearsal frames without a clear target.

The primary category used by Teacher I was musical results (53.84% of rehearsal frames), followed by setup (28.2%), musical results and setup (12.8%), and other (5.1%). Teacher I focused on tone in rehearsal frames most frequently (8), followed by intonation (7), and setup (6). Tone paired with intonation, fingering patterns, and intonation paired with fingering patterns each were the focus in 5 rehearsal frames, while rhythm was the primary focus of 1 rehearsal frame. The primary category used by Teacher II was setup (58.06% of rehearsal frames), followed by musical results and other, which each were the focus in 19.35% of rehearsal frames, and musical results and setup (3.23%). The target most addressed by Teacher II was fingering patterns (12), followed by setup (6), and performance (4). Tone, intonation, rhythm, and unsure target were each the focus of 2 rehearsal frames, while intonation paired with fingering patterns was the focus of 1 rehearsal frame.

Table 9

Frequency of Target Types: Lessons I-III

	Teacher I (*n*=39)		Teacher II (*n*=31)	
	n	*%*	*n*	*%*
Musical Results				
Tone	8	20.5	2	6.45
Intonation	7	17.9	2	6.45
Tone and Intonation (multiple targets)	5	12.8	0	0
Rhythm	1	2.6	2	6.45
Total	**21**	**53.84**	**6**	**19.35**
Setup				
Instrument Position	6	15.4	6	19.35
LH Fingering Patterns	5	12.8	12	38.71
Total	**11**	**28.2**	**18**	**58.06**
Musical Results and Setup				
Intonation and Fingering Patterns (multiple targets)	5	12.8	1	3.23
Total	**5**	**12.8**	**1**	**3.23**
Other				
Performance no Target	2	5.1	4	12.90
Unclear Target	0	0	2	6.45
Total	**2**	**5.1**	**6**	**19.35**

Tables 10, 11, and 12 describe the frequency of targets by category and type for individual lessons. Across lessons, Teacher I focused on the musical results category most frequently (50%, 72%, and 41.67%), while Teacher II focused on the setup category most frequently (72.72%, 42.86%, 66.67%). In Lesson I, both teachers spent one rehearsal frame focusing on intonation paired with fingering patterns, and in Lesson II neither teacher addressed intonation paired with fingering patterns.

Table 10

Frequency of Target Types: Lesson I

	Teacher I (*n*=16)		Teacher II (*n*=11)	
	n	*%*	*n*	*%*
Musical Results				
Tone	4	25	1	9.1
Intonation	3	18.75	0	
Tone and Intonation (multiple targets)	0	0	0	
Rhythm	1	6.3	0	
Total	**8**	**50**	**1**	**9.1**
Setup				
Instrument Position	4	25	5	45.45
LH Fingering Patterns	3	18.75	3	27.27
Total	**7**	**43.75**	**8**	**72.72**
Musical Results and Setup				
Intonation and Fingering Patterns (multiple targets)	1	6.3	1	9.1
Total	**1**	**6.3**	**1**	**9.1**
Other				
Performance no Target	0		0	
Unclear Target	0		1	9.1
Total	**0**	**0**	**1**	**9.1**

Table 11

Frequency of Target Types: Lesson II

	Teacher I (*n*=11)		Teacher II (*n*=14)	
	N	*%*	*N*	*%*
Musical Results				
Tone	2	18.18	1	7.14
Intonation	2	18.18	1	7.14
Tone and Intonation (multiple targets)	4	36.36	0	0
Rhythm	0		2	14.29
Total	**8**	**72.72**	**4**	**28.57**
Setup				
Instrument Position	1	9.09	0	0
LH Fingering Patterns	2	18.18	6	42.86
Total	**3**	**27.27**	**6**	**42.86**
Musical Results and Setup				
Intonation and Fingering Patterns (multiple targets)	0	0	0	0
Total	**0**	**0**	**0**	**0**
Other				
Performance no Target	0	0	3	21.43
Unclear Target	0	0	1	7.14
Total	**0**	**0**	**4**	**28.57**

Table 12

Frequency of Target Types Lesson III

	Teacher I (*n*=12)		Teacher II (*n*=6)	
	n	*%*	*n*	*%*
Musical Results				
Tone	2	16.67	0	0
Intonation	2	16.67	1	16.67
Tone and Intonation (multiple targets)	1	8.3	0	0
Rhythm	0		0	0
Total	**5**	**41.67**	**1**	**16.67**
Setup				
Instrument Position	1	8.3	1	16.67
LH Fingering Patterns	0	0	3	50
Total	**1**	**8.3**	**4**	**66.67**
Musical Results and Setup				
Intonation and Fingering Patterns (multiple targets)	4	33	0	0
Total	**4**	**33**	**0**	**0**
Other				
Performance no Target	2	16.67	1	16.67
Unclear Target	0	0	0	0
Total	**2**	**16.67**	**1**	**16.67**

Successful and Unsuccessful Rehearsal Frames

Tables 13 and 14 show the rate of success students had during rehearsal frames. Table 13 is devoted to Teacher I's lessons, and Table 14 is devoted to Teacher II's lessons. Table 15 shows the success of final student performance trials from all rehearsal frames for each teacher's lessons. A successful rehearsal frame was one in which the majority of the students were able to perform the task(s) a teacher identified at the beginning of the frame. Rehearsal frames were considered to be unsuccessful if the majority of the students were not able to perform the task(s)

a teacher identified at the beginning of the rehearsal frame. The successful and unsuccessful ratings applied only to teacher assigned tasks. Teacher I's students were successful in 87.18% of rehearsal frames and unsuccessful in 12.82 % of rehearsal frames. Teacher II's students were successful in 80.65% of rehearsal frames and unsuccessful in 19.35% of rehearsal frames. Both teachers' students had their highest success rate in Lesson II (90.9% for Teacher I and 85.71% for Teacher II) and their lowest success rate in Lesson III (83.33% for Teacher I and 66.67% for Teacher II).

Table 13

Quality of Final Student Performance Trial by Rehearsal Frame, Teacher I

Lesson I			Lesson II			Lesson III		
Frame	Quality of Student Performance Trial		Frame	Quality of Student Performance Trial		Frame	Quality of Student Performance Trial	
1	S		1	S		1	S	
2	S		2	S		2	S	
3	S		3	S		3	S	
4	S		4	S		4	S	
5	U		5	S		5	S	
6	S		6	S		6	S	
7	S		7	U		7	U	
8	S		8	S		8	U	
9	S		9	S		9	S	
10	S		10	S		10	S	
11	S		11	S		11	S	
12	U					12	S	
13	S							
14	S							
15	S							
16	S							
Total % of Frames	S=87.5	U=12.5		S=90.9	U=9.09		S=83.33	U=16.67

Table 14

Quality of Final Student Performance Trials by Rehearsal Frame, Teacher II

Lesson I			Lesson II			Lesson III		
Frame	Quality of Student Performance Trial		Frame	Quality of Student Performance Trial		Frame	Quality of Student Performance Trial	
1	S		1	S		1	S	
2	S		2	S		2	S	
3	S		3	S		3	U	
4	S		4	S		4	U	
5	S		5	S		5	S	
6	S		6	S		6	S	
7	U		7	S				
8	U		8	U				
9	S		9	S				
10	S		10	U				
11	S		11	S				
			12					
			13					
			14					
Total % of Frames	S=81	U=18		S=85.75	U=14.29		S=66.67	U=33.33

Table15

Quality of Final Student Performance Trials by All Rehearsal Frames

	Teacher I (*n*=39)		Teacher II (*n*=31)	
Percent of Total Frames	S=87.18	U=12.82	S=80.65	U=19.35

CHAPTER V: DISCUSSION

Teacher I

After watching the teaching videos numerous times in order to split the instruction into rehearsal frames and to use SCRIBE 4.0.2, I was able to see patterns in each teacher's use of instruction time and instruction delivery. Since I was Teacher I, I was familiar with my teaching, but watching the videos and analyzing the data helped me notice that I spend a large amount of time verbalizing, am consistent in the amount of talk and play time across lessons, and am consistent in the areas I try to correct in my students' playing across lessons. The data also helped me see that, although I do spend a lot of time talking, I provide many directives (mean frequency of 14.38 and mean rate per minute 4.66). The mean percent of talk times of total frame durations were 69.87 for Lesson I, 55.56 for Lesson II, and 56.69 for Lesson III. The mean percent of student play times of total frame durations were 35.85 for Lesson I, 31.63 for Lesson II, and 36.3 for Lesson III. I am also consistent in the areas I try to correct in my students' playing across lessons. These aspects were tone, intonation, and instrument position. Even though I provided directives and feedback, the long durations of talk time (mean duration of 17.5 seconds) did not allow for as many student performance trials as I had planned.

One area of my teaching that I had not thought extensively about before is my modeling of skills. I noticed that in each lesson I provided more short examples of correct modeling of skills on each instrument than I thought I had. I noticed that providing aural and visual examples of skills, through modeling, helped my students perform more successfully than when directives were provided without an aural or visual example.

Although I did not always spend my time in the way I wanted (spending 61.78% of total mean frame durations on teacher verbalizations), I was consistent in my teaching, which allowed my students to know what to expect from class to class, and let them know what I find important in string teaching and playing at a beginning level, which is concentrating on correcting tone and intonation. Based on these observations, I will concentrate on providing more playing time for my students, giving them more correct repetitions of skills, and will provide shorter episodes of teacher verbalizations in my teaching.

Teacher II

Since before this study I had observed Teacher II only in kindergarten general music classes, I was not very familiar with her string teaching. From observing Teacher II in violin lessons, I was familiar with her violin technique and thought she would be comfortable with the chosen repertoire. I was correct in this assumption, but not correct in my assumption that Teacher II would be comfortable teaching cello and bass. This assumption was based on her teaching experience in band and orchestra and because she had lesson plans and performance checksheets, providing directives for setup and criteria for assessing student playing, with her. Teacher II's directives, observations, and corrections were clear and precise when addressing performance problems related to the violin and viola players, but she often had to ask the students how to perform skills (such as instrument and bow setup) on the cello and bass. During one rehearsal frame, when there was a question concerning the cello bow hold, she gave students incorrect information. If a teacher uses questions to discover what students understand about string playing and to discover what needs to be covered more completely, I believe it is a good strategy, but this is not a useful instructional strategy if a teacher uses questions to figure out how to perform skills. When comparing Teacher II's teaching of cello and bass with her teaching of

violin and viola, I realized that in order to successfully teach an instrument, one needs to have had much experience playing the instrument. This was seen through Teacher II providing clear directives, correct observations, and proper corrections for the violin and viola players, but providing less clear and not always correct observations and corrections for the cello and bass players.

Across time, Teacher II became more comfortable with the students and with teaching a heterogeneous beginning string class. The data show that she used specific positive and negative feedback more frequently in the last lesson. She also interacted with individual students more, used their names more, and provided more descriptive feedback and clearer directives during the second and third lessons.

At times, Teacher II strayed from the lesson plans. Straying from the lesson plan was not successful in Lesson I when she asked the students to describe setup for each instrument. The purpose of the lesson plan was for the teacher to lead the students through setup, using the provided task analysis form. Students lead the class through setup, but omitted some essential information, such as where the left-hand thumb should be placed on the neck of the cello and bass, the height of the left arm and elbow of cello and bass players, how to setup the left arm in this way, and how to produce a tone pizzicato.

Other instances in which Teacher II augmented the lesson plans were successful in terms of student learning such as when she provided her own exercises to help students develop their skills. One particular case is noteworthy; Teacher II had one student play a rhythm on the open D string then had the rest of the class imitate the rhythm. After the class played, another student created a rhythm that the class would repeat. This activity continued until each individual had a chance to lead the class in a rhythm. The alternation of solo and tutti play was also used when

practicing other notes on the D string (E, F#, and G). This exercise allowed the students many repetitions of the skill and resulted in improved intonation. During the exercise the teacher corrected a few students, but I was unable to hear all of her verbalizations since the rest of the class was playing. To make this a stronger exercise, all students could be given specific feedback after performances.

Teacher II spent a large amount of time in the lessons on student performance. By the third lesson, 54.42% of time was spent on student play and discovery time, allowing the students to have many chances to perform skills. The focus of a large amount of the playing time was to learn notes or play through a section of the piece. Although the students played during large portions of the lessons, they were not always given specific goals to achieve for performance trials. Lacking clear goals made it harder for students to correct their playing.

Summary

Due to the nature of Lesson I (instructions for physically setting up a beginning student to play a string instrument and playing Mary Had a Little Lamb, pizzicato), both teachers had their highest percent of verbalizations during this lesson (Teacher I, 69.87 and Teacher II, 70.50%). Due to the lesson plans and exercises provided for teaching playing skills, the teachers had similar mean episode durations of tutti (Teacher I, 14.3, Teacher II, 14.5), small group (Teacher I, 9.2, Teacher II, 10.9), and solo play (Teacher I, .4, Teacher II, .9) for the three lessons combined. Teacher II's third lesson consists of only six rehearsal frames due to the class having difficulties with tuning and the teacher not including a warm-up exercise on the videotape.

Overall, students of both teachers were able to be more successful when the teacher provided clear and concise directives and gave the students a chance to have multiple correct repetitions of skills before moving on to a new activity. Even while teaching from the same

lesson plans, the teachers used their time differently and worked on performance problems in different ways. Teacher I focused on tone and intonation most frequently while Teacher II focused on fingering patterns and instrument position most frequently. When correcting intonation, Teacher I focused directives around left-hand position and left-hand shape more often than Teacher II, who focused correcting intonation on listening and self-correction. This shows that on the spot decision making is a large factor in string teaching. The choices that teachers make are based on their prior experience, what is important to them in string playing, and the students involved.

Both teachers used similar amounts of solo play time, but in different ways. Teacher I used solo play to make corrections while the rest of the class observed, while Teacher II used solo play as a performance and to make corrections to individual students while others were playing. Each teacher used small group play in a similar way as they used solo play. For both teachers, discovery time was effective only when students were given a specific skill to practice, and the teacher used this time to make corrections of individual students' playing.

The exercises provided in the second and third lesson plans were successful in helping students learn and review the notes of *French Folk Song* and the D major scale. These exercises were designed to teach the bowing required to play the piece (first on an open string, second in the scale, then finally in the piece) and to teach the measures that present performance problems (playing repeated three-note patterns and a descending D major scale passage) in the piece before playing it as a whole. The objectives of (a) students will be able to play the left-hand exercises with correct intonation, and a full legato tone, and (b) students will be able to play *French Folk Song* with the correct bowing, fingering and intonation, were not met by both teachers. In the lesson plans, exercises were provided to sequence and correct performance skills, but when a

teacher did not choose to focus specifically on correcting intonation and tone, these goals were not met. After observing the videos I am unsure whether the instructions provided in the lesson plans for physically setting up a beginning string student to play an instrument were effective for both teachers since Teacher II used questioning, student demonstration, and discovery time to setup playing position, while Teacher I went through the task analysis with the students.

Implications for Music Education

Since the students of both teachers were more successful when clear and concise directives were provided and students had multiple correct repetitions of skills before moving on, string teachers should focus their teaching on short instances of student play followed by short instances of feedback and directives. Students were also more successful when they were provided correct aural and visual demonstrations on the instrument they were playing. Therefore, string teachers may want to add more instances of modeling to their teaching. Combining clear directives with aural and visual examples may result in better tone, rhythm, musicality, and accurate intonation in student playing. In order for students to achieve these goals, they should be given many chances to play in each lesson. Since clear directives and specific positive and negative feedback also allowed for more successful performance trials, teachers should make their directives and feedback as specific as possible and have many instances of short durations of talk and play time. These findings support the ideas Duke presents in *Intelligent Music Teaching* (2005).

Suggestions for Future Research

This study could be replicated using more lesson plans from the curriculum, over a longer period of time, and using a variety of educators teaching in a variety of teaching environments.

More research could be completed comparing teaching behaviors of school orchestra directors. These studies could focus on assessment and evaluation practices, the amount and types of directives and feedback used, and practice strategies of string players.

One field of study that seems to have been neglected is how to develop a music, specifically orchestra, curriculum. Many books, articles, and journals are devoted to curriculum, and there are many lists of standards for music classes, but very few were devoted to developing a music curriculum. Teachers should continue to expand on the work done by Green (1966), Dillon & Kriechbaum (1978), and Hamman & Gillespie (2004) to help new teachers build successful string orchestra programs. Teachers could combine the work done by these authors with studies from journals, such as *Journal of Research in Music Education,* to increase understanding, create more questions, and answer more questions concerning string teaching and playing. More of the work done by Duke (2005) and Bransford et al. (2000) could be included in music curriculum books and classroom method books to help teachers focus their instruction on student performance, assessment, evaluation, feedback, sequencing, and transfer.

REFERENCES

Allen, M., Gillespie, R., & Tellejohn Hayes, P. (2002). *Essential elements 2000 for strings: A comprehensive string method.* Milwaukee, Wisconsin: Hal Leonard Corporation.

Bergee, M. J. (1992). A scale assessing music student teachers' rehearsal effectiveness. *Journal of Research in Music Education*, 40 (*1*), 5-13.

Bergonzi, L. (1997). Effects of finger markers and harmonic context on performance of beginning string students. *Journal of Research in Music Education, 45* (2), 197-211.

Bransford, J. D., Brown, A. L. & Cocking, R. R. (Eds). (2000). *How people learn*. Washington, D.C.: National Academy of Sciences.

Brandt, R. S. & Tyler, R. W. (2003). Goals and objectives. In A. C. Ornstein, L. S. Behar-Horenstein, & E. F. Pajak (Eds.), *Contemporary issues in curriculum* (3rd ed.) (pp. 10-19). Boston, MA: Pearson Education, Inc.

Colprit, E. J. (2000). Observation and analysis of Suzuki string teaching. *Journal of Research in Music Education*, 48 (*3*), 206-221.

Cowden, R. L. (1972). A comparison of first and third position approaches to violin instruction. *Journal of Research in Music Education, 20* (4), 505-509.

"curriculum." *Merriam-Webster Online Dictionary*. 2006-2007. http://www.merriam-webster.com (6 Feb. 2007)

Dalton, D. (1988). *Playing the viola: Conversations with William Primrose.* Oxford: Oxford University Press.

Dillon, J. A. & Kriechbaum, C. B., Jr. (1978). *How to design and teach a successful school*

string and orchestra program. San Diego, California: Kjos West.

Duke, R. A. (2005). *Intelligent music teaching*. Austin, Texas: Learning and Behavior Resources.

Duke, R. A., & Henninger, J. C. (1998). Effects of verbal corrections on student attitudes and performance. *Journal of Research in Music Education,* 46 (*4*), 482-495.

Duke, R. A., & Henninger, J. C. (2002). Teachers' verbal corrections and observers' perceptions of teaching and learning. *Journal of Research in Music Education,* 50 (1), 75-87.

Duke, R. A., & Stammen, D. (2006). *SCRIBE (Version 4.0.2) Simple Computer Recording Interface for Behavior Evaluation* [Computer software]. Austin, TX: Learning and Behavior Resources.

Education World, Inc. (1997, May 1) Education World [Online]. Retrieved September 26, 2006 from http://www.education-world.com.

Galamian, I. (1985). *Principles of violin playing and teaching.* Englewood Cliffs, NJ: Prentice-Hall, Inc.

Green, B. (1971). *The fundamentals of double bass playing*. Cincinnati, OH: Piper Co.

Green, E. A. H. (1966). *Teaching stringed instruments in classes*. Englewood Cliffs, New Jersey: Prentice-Hall, Inc.

Hamann, D. L., Baker, D. S., McAllister, P. A. & Bauer, W. I. (2000). Factors affecting university music students' perceptions of lesson quality and teaching effectiveness. *Journal of Research in Music Education*, 48 (*2*), 102-113.

Hamann, D. L. & Gillespie, R. (2004). *Strategies for teaching strings; Building a successful string and orchestra program*. New York: Oxford University Press.

Hamann, K. L. (2000). Teachers, learners, and programs in string education: A review of research. *Journal of String Research,* 1.

Jacobs, C. (1969). Investigation of kinesthetics in violin playing. *Journal of Research in Music Education, 17* (1), 112-114.

Jensen, J. L. (1990). A comparison of initial violin bow hold approaches in undergraduate string techniques classes, including assessments of the influence of baseline ratings of subjects' finger dexterity and mental images of the violin bow hold. *Dialogue in Instrumental Music Education, 14* (1), 10-13.

Kantorski, V. J. & Ellsworth, E. V. (1988). The effect of homogeneous and heterogeneous instruction in college string techniques classes on music education majors. *Dialogue in Instrumental Music Education*, 12 (*2*), 80-92.

Kimpston, R. D. & Rogers, K. B. (1986). A framework for curriculum research. *Curriculum Inquiry*, 16 (*4)*, 463-474.

Madsen, K. (2003). The effect of accuracy of instruction, teaching delivery, and student attentiveness on musicians' evaluation of teacher effectiveness. *Journal of Research in Music Education*, 51 (*1*), 38-50.

McClintock, P. T. (1970). *An examination of curriculum guides in music with reference to principles of curriculum planning*. Bloomington, Indiana: Indiana University.

Mishra, J. (2000). Question and answer: Research related to the teaching of string technique. *Journal of String Research, 1*.

The National Association for Music Education. (2006). National Standards for Music Education [Online]. Retrieved September 26, 2006 from http://www.menc.org/publication/books/standards.html.

Ornstein, A. C. (2003). Philosophy as a basis for curriculum decisions. In A. C. Ornstein, L. S. Behar-Horenstein, & E. F. Pajak (Eds.), *Contemporary issues in curriculum* (3rd ed.) (pp. 3-9). Boston, MA: Pearson Education, Inc.

Perkins, M. M. (1995). *A comparison of violin playing techniques: Kato Havas, Paul Rolland, and Shinichi Suzuki*. Bloomington, Indiana: Tichneor Publishing.

Potter, L. Jr. (1964). *The art of cello playing: A complete textbook-method for private or class instruction.* Evanston, Illinois: Summy-Birchard Company.

Rolland, P. (1959). *Basic principles of violin playing.* Music Educators National Conference.

Salzberg, R. S. & Salzberg, C. L. (1981). Praise and corrective feedback in the remediation of incorrect left-hand positions of elementary string players. *Journal of Research in Music Education*, 29 (*2*), 125-133.

Smith, C. M. (1985). The effect of finger placement markers on the development of intonation accuracy in beginning string students. *Dialogue in Instrumental Music Education, 9* (2), 62-70.

Smith, C. M. (1988). The effect of finger placement markers on the development of intonation accuracy in fourth-and-fifth-grade beginning string students. *Dialogue in Instrumental Music Education, 11* (2), 71-85.

Suzuki, S. (1980) *Suzuki violin school volume 1*. Miami, Florida: Warner Bros. Publications

Tyler, R. W. (1949). *Principles of curriculum and instruction.* Chicago, IL: University of Chicago Press.

Wolf, D. E. & Jellison, J. A. (1990). Music and elementary education students' evaluations of music-teaching scripts. *Journal of Research in Music Education*, 38 (*4*), 311-321.

APPENDIX A: CURRICULUM

Introduction

This curriculum is intended to assist in teaching posture, instrument position, left-hand position, bow hold, tone production, beginning bowing techniques, and note reading to beginning string students. To develop the curriculum, I reviewed articles relevant to class string instruction and articles relating to assessment, evaluation, feedback, teaching for transfer, sequence of instruction, teacher effectiveness, and curriculum development in research journals and books. In addition, I reviewed individual instrument, homogeneous, and heterogeneous class string method books.

Ten sample lesson plans are included with the curriculum. These lesson plans serve as examples to be used for the first three lessons of an academic year (early September), two lessons before winter break (December), the first two lessons after winter break (January), and the final three lessons of the academic year (June). The sequence of lesson plans and objectives for each lesson are based on the national teaching standards, material covered in string method books, and books devoted to building music programs and teaching music classes. Each lesson plan contains left-hand and bowing exercises designed to teach the skills required to play the pieces used in the lesson.

The purpose of the first two lessons is for students to learn how to hold their instruments, and for students to learn how to play the open strings and *Mary Had a Little Lamb*, by rote, pizzicato. The third lesson is centered on reviewing instrument and left-hand position, learning bow hold, and learning how to play open strings and *Mary Had a Little Lamb*, by rote, arco.

The objectives of the fourth lesson are for students to review the D major scale and learn how to play *French Folk Song*. When students have reached this point in the curriculum they are learning both to play by rote and they are learning to read music notation. The objectives of the fifth lesson are to review *French Folk Song* and the D major scale. The sixth lesson plan is intended for use after students return from a two-week break. The focus of this lesson is reviewing instrument and left-hand position and bow hold, and pieces that students have already learned. The seventh lesson plan is designed to teach students how to play an arrangement of the piece *Ode to Joy*.

Lessons eight and nine focus on performance of an arrangement of Haydn's piece, *Surprise Symphony*, in C major. The final lesson plan included with the curriculum is intended to be used as the final lesson of the academic year. The objective of this lesson is to play pieces and demonstrate skills students learned during the first year of string playing.

Three of the sample lesson plans were taught by two teachers as a means to test the effectiveness of the curriculum. The selected lesson plans were the first, fourth, and fifth provided in the curriculum. These lessons were selected to evaluate the effectiveness of instructions for physically setting up a beginning student to play a string instrument, teaching a new piece of music, and reviewing a piece of music. Participants in the study were 19 undergraduate music education majors enrolled in a beginning string course (MuEd180) at Bowling Green State University, a second-year graduate student in music education at Bowling Green State University, and the researcher, also a second-year graduate student in music education. Lessons were divided into rehearsal frames and *SCRIBE 4.0.2* was used to; (a) observe the effect of the lesson plans on instruction and student learning, (b) compare performance results from teaching based on identical lesson plans delivered by two teachers, and

(c) to identify which aspects of student performance the two teachers attended to during instruction.

A total of 70 rehearsal frames were analyzed to calculate the mean time of teacher and student play and verbalizations, and the frequency and rate per minute of different types of verbalizations. Rehearsal frames were then categorized according to performance goals and analyzed to determine if they were successful or unsuccessful.

Overall, students of both teachers were able to be more successful when the teacher provided clear and concise directives and gave the students a chance to have multiple correct repetitions of skills before moving on to another activity. Even while teaching from the same lesson plans, the teachers used their time differently and worked on performance problems in different ways. Teacher I focused on tone and intonation most frequently while Teacher II focused on fingering patterns and instrument position most frequently. When correcting intonation, Teacher I focused directives around left-hand position and left-hand shape more often than Teacher II, who focused correcting intonation through listening and self-correcting. Therefore, on the spot decision making is a large factor in string teaching. The choices that teachers make are based on their prior experience, what is important to them in string playing, and the students involved.

From observing the videos, I concluded that the exercises provided in the second and third lesson plans were successful in helping students learn and review the notes of *French Folk Song* and the D major scale. These exercises were designed to teach the bowing required to play the piece (first on an open string, second in the scale, then finally in the piece) and to teach the measures that present performance problems (playing repeated three note patterns and a descending D major scale passage) in the piece before playing it as a whole. The objectives of;

(a) students will be able to play the left-hand exercises with correct intonation, and a full legato tone, and (b) students will be able to play *French Folk Song* with the correct bowing, fingering and intonation, were not met by both teachers. In the lesson plans, exercises were provided to sequence and correct performance skills, but when a teacher did not choose to focus specifically on correcting intonation and tone, these goals were not met. From watching the videos it is unclear whether the instructions provided in the lesson plans for physically setting up a beginning string student to play an instrument were effective for both teachers since Teacher II used questions, student demonstration, and discovery time to setup playing position, while Teacher I went through the task analysis with the students.

How to Use This Curriculum

The curriculum is intended to be used as a guide for teaching a beginning heterogeneous string class. Teachers are urged to use this information as a starting point and to revise the philosophy, goals and objectives, sample lesson plans, and assessment and evaluation instruments to suit their own teaching situations.

Lesson Plans

Each lesson plan contains additional materials needed to teach the lesson plan, activities, objectives, additional suggestions for making assessments and evaluations of student performance trials during the lesson, and a sequence of instruction. The sequence of instruction contains left-hand and bowing exercises, and exercises designed to teach the skills required to play the pieces used in the lesson. Teachers are urged to create their own exercises to help students develop the skills that are important to the teacher, and to help correct individual students' problem areas.

To teach each lesson, the teacher will need a violin, viola, cello, and bass for demonstration. The teacher can use a student's instrument to demonstrate if extra instruments are not available. The teacher will also need the guides for; (a) instrument setup, (b) pizzicato, (c) bow hold setup, and (d) principles of bowing, as well as the left-hand and bow checksheets.

Assessment and Evaluation of Student Performance

Assessment and evaluation of student performance trials will be based on the provided guides and checksheets. The goal of student performance, playing at the highest appropriate musical level possible, is the same from the first day of instruction to the last, while the day-to-day activities change. Students will demonstrate their abilities to meet the objectives of each

lesson by meeting the criteria of the guides and checksheets. To assess student learning, the teacher should continuously visually and aurally observe students' performance trials throughout the lesson. In order to do this, teachers should have students play tutti, in small groups, and alone while walking around the room to observe students' performance. Formative assessments should be used often, by the teacher providing positive and corrective feedback should, to let students know how they are progressing.

Teachers are not expected to complete a written checksheet for each student during each performance trial. Teachers may have the checksheets with them to remind them of performance goals, but teachers should understand the criteria (principles of correct left and right arm skills) on each checksheet to keep a mental tab, during each performance trial, of how students are progressing. After a learning period, teachers can videotape students' individual performances. Students can then watch their performance and fill out the checksheets. The teacher can then watch students' performance video and fill out the checksheets to compare with the students' assessment of their playing. The teacher and student can then work together to create a practice plan. After students have followed the practice plan, they can be videotaped a second time and fill out a second set of checksheets to evaluate whether the practice plan was effective in correcting specific performance problems. The teacher can then review the second performance and checksheets. The performance videos and checksheets can then be used as a summative assessment of students' progress over time and to determine an end grade.

Correcting Student Performance Trials

If students are unable to perform a task, go back in instruction to a task students are able to perform. Then re-teach each skill required to play the desired task. Do not move on to another task until students are successful in multiple correct repetitions.

When correcting intonation, first observe students' left-hand position to make sure it is set up correctly. After correcting left-hand position, relate intonation corrections to movements the left-hand should make. Instruct students to move their hands closer to the scroll (to correct sharp intonation) and closer to the bridge (to correct flat intonation). Instruct students to move their fingers closer to or farther away from one another to correct intonation within a hand shape.

When correcting tone, first observe students' bow holds, placement of the bow on the string, bow stroke, and right-arm motions. Also observe students' left hands to make sure enough weight is being put ino the string. Consult the bowing principle guide for more information on correcting tone.

To correct ensemble and rhythm problems, make sure students are using the same motions, at the same time, with their left and right arms, hands, and fingers. Additional ways of correcting performance problems specific to an exercise or piece of music are included with each lesson plan.

Philosophy

I believe that every student should have the opportunity to learn to play a string instrument at a highly skilled level. Since students have the opportunity to read great works of literature, they should also be provided the opportunity to perform great works of music. A string orchestra program enhances the school music program, allows more students to participate in music, and allows those already participating in the school music program to hear and perform a larger variety of repertoire. A school orchestra program brings recognition to the school district and the community, and allows students to express themselves in new ways. The skills students gain in an orchestra can be used in their community, at college, and throughout their lives. While playing in an orchestra, students learn how to work together, they gain confidence in their abilities, learn how to problem solve, gain an emotional outlet, and are able to see the success of hard work.

Goals of the Curriculum

1. Students will be able to demonstrate instrument holding position.
    A. Students will be able to demonstrate the posture needed to play a string instrument.
    B. Students will be able to demonstrate proper holding position for a string instrument.
    C. Students will be able to demonstrate proper left-hand shape for a string instrument.
2. Students will be able to demonstrate left-hand skills.
    A. Students will be able to play, with correct intonation and fingerings, a one octave D major scale and pieces and exercises in D major.
    B. Students will be able to play, with correct intonation and fingerings, a one octave G major scale and pieces and exercises in G major.
    C. Students will be able to play, with correct intonation and fingerings, a one octave C major scale and pieces and exercises in C major.
3. Students will be able to demonstrate right-arm skills.
    A. Students will be able to play pizzicato with a full tone.
    B. Students will be able to demonstrate proper bow hold for their instrument.
    C. Students will be able to play arco with a full tone.
    D. Students will be able to play with a straight bow.
    E. Students will be able to play with a detaché bow stroke.
    F. Students will be able to play with a staccato bow stroke.
    G. Students will be able to play with a legato bow stroke.
    H. Students will be able to play separate bows.
    I. Students will be able to play one, two, and three note slurs.
4. Students will be able to demonstrate musical skills.

A. Students will be able to learn and perform pieces and exercises, alone and with others, by rote.

B. Students will be able to learn and perform pieces and exercises, alone and with others, by note reading.

i. Students will be able to read and perform music in the keys of D, G, and C major.

ii. Students will be able to read and perform music in the time signatures of 4/4, 3/4, and 2/4.

iii. Students will be able to read and perform music containing the rhythmic note and rest values of whole, dotted half, half, quarter, dotted quarter, and eight.

C. Students will be able to improvise and write music in the keys of D, G, and C major, in the time signature of 4/4, 2/4, and 3/4, with the rhythmic note and rest values of whole, dotted half, half, quarter, dotted quarter, and eight.

D. Students will be able to play with varying dynamics.

E. Students will be able to play pieces, alone and with others, from varying time periods.

5. Students will be able to demonstrate critical thinking skills.

A. Students will be able to accurately evaluate their own playing and use problem solving skills to advance their technique.

B. Students will be able to accurately evaluate the playing of others.

Instrument Setup

Teacher models each step for students while giving suggested verbal directives.

VIOLIN/VIOLA

1) Sit on the floor with your legs crossed. Place the case in front of you, right side up, with the narrow side pointing to the left.
2) Unhook the latches and open the case.
3) Take the instrument out and place it gently on your lap with the strings facing downward.
4) Place the shoulder pad (or sponge) on instrument. The shoulder pad will be fastened to the back of the instrument with the concave side placed on the same side as the chinrest.
5) Place your instrument back in the case (right side up). Slide the case to the right side of your chair with the narrow side pointing forward.
6) Stand up and lean over your case to take the instrument out. Stand the instrument up with the strings facing away from you. Hold the instrument with your left hand on the upper left bout with your fingers extending over the front of the instrument and your thumb curling around the neck.
7) Stand with your feet shoulder width apart, knees slightly bent, and your left foot slightly forward. Hold the instrument at your left side.
8) Extend your left arm away from your body and turn the instrument so it is parallel to the ground with the top of the instrument facing the ceiling.
9) While looking straight ahead bring the instrument to your neck and rest it on your shoulder.
10) Turn your head slightly toward the instrument and rest your jawline in the chinrest

11) Slide your left arm backward, bringing your curved fingers over the D string with the thumb opposite the 1st finger until you reach first position (1st finger will be a whole step away from the open string).

CELLO (soft case)

1) Holding the instrument in the case at the scroll, place the cello in front of you so that the strings are facing you.
2) Take the bow out of the case and set in a safe place.
3) Unzip the case while holding the instrument at the scroll. Take the instrument out of the case holding it at the neck.
4) Place the case to the right side of your chair.
5) * Adjust the height of the endpin, so that the scroll is near your nose when you are standing. Tighten the screw to keep the endpin in place.
6) Turn the cello, so that the strings are facing away from you. Sit on the edge of your chair with your feet flat on the floor. Space your feet far enough apart so that the cello can fit between your knees.
7) Hold the cello in your left hand at an arm's length away where the neck meets the body of the instrument.
8) Bring the cello toward you so that the upper edge touches the center of your chest and the sides of the cello touch the inside of your knees.
9) * Adjust the endpin so that the C-peg is just above your left ear.

* Denotes a two-step process

10) Slightly turn the cello to the right.
11) There are two ways of putting your hand into first position with proper elbow placement.
    a. Extend your left arm over the fingerboard so that your fingers are touching the bridge. If your arm is not long enough to reach the bridge, extend your arm as far as it will reach. Close your elbow, bringing your curved fingers over the D string. Stop when you reach where the neck and the body of the instrument meet. Place your thumb on the opposite side of the neck, across from the second finger. Continue closing your elbow until you have reached first position.
    b. Extend your left arm out to the side so that it is parallel to the ground and your palm is facing forward. Bend your elbow, bringing your fingers to the D string. Curve your fingers and place your thumb behind your second finger.

BASS

1) With the instrument in the case, holding it at the neck, place the bass in front of you so that you are facing the strings.
2) Take the bow out of the case and set in a safe place.
3) Unzip the case while holding the instrument at the neck. Take the instrument out of the case while holding it at the neck.
4) Place the bass on its side on the floor.
5) * Take the endpin out about an inch, tighten the screw, and stand the bass up. Turn the bass, so that the strings are facing away from you. With your left-hand holding the instrument where the neck meets the body, hold the bass at an arms length away.
6) Stand with your feet shoulder width apart, knees slightly bent, and your left foot slightly forward.

7) Bring the bass to you at a slight angle, so that it touches your left hip. Use your left leg to help balance the bass if needed.
8) * Adjust the height of the endpin so that; (a) your left index finger is at eye level when in first position and (b) you can comfortably reach the bowing area (halfway between the end of the fingerboard and the bridge) with your right arm extended. Part “b” is the most important.
9) There are two ways of putting your hand in first position with proper elbow placement.
    a. Extend your left arm over the fingerboard as far as you can reach. Close your elbow bringing your curved fingers over the D string. Stop when you reach where the neck and the body of the instrument meet. Place your thumb on the opposite side of the neck, across from the second finger. Continue closing your elbow until you have reached first position.
    b. Extend your left arm out to the side, so that it is parallel to the ground and your palm is facing forward. Bend your elbow bringing your fingers to the D string. Curve your fingers and place your thumb behind your second finger. Point your first finger toward the scroll, so that there is a space between your first and second fingers.

* Denotes a two-step process

Pizzicato

1) While holding your instrument in playing position, place the tip of your right thumb on the edge of the right side of the fingerboard.
2) Extend your first finger to touch the strings, keeping your other fingers curved and relaxed.
3) Pull the string using the fleshy part of your finger.
4) Between each pizz, make a circular motion with your arm. Return to the original pizzicato position after each circle.
5) When students are playing; (a) listen for space between each pizzicato and (b) watch students' hands to make sure they are moving at the same time. Ask students to do the same.

Left-hand Checklist

VIOLIN/VIOLA

yes___no___ Wrist is relaxed, but straight

yes___no___ Finger tips are poised over the string

yes___no___ Side of thumb lightly touches lower string side of neck

yes___no___ Plays the correct fingering

yes___no___ Plays in tune

List the notes that are not:

Practice plan for correcting left-hand skills:

CELLO/BASS

yes___no___ Fingers are perpendicular to the string (includes 4th finger)

yes___no___ Upper side of thumb touches neck

yes___no___ Thumb remains under middle of the hand

yes___no___ Finger contact is on pads of fingers

yes___no___ Plays the correct fingering

yes___no___ Plays in tune

List the notes that are not:

Practice plan for correcting left-hand skills:

Bow Hold Setup

Teacher models each step for students while giving the suggested verbal directives. Violin and viola students leave their instruments in the case while cello and bass students set their instruments to the left side of their chair with the scroll pointing to the back and the strings facing away from them. The teacher may instruct violin, viola, and bass players to either sit or stand. Cello players will sit. Bass bow hold directives are for the French bow hold.

ALL INSTRUMENTS

1. Tighten the bow so that you are able to place one finger between the bow hair and the bow stick. The bow stick should not touch the string when playing. When you are finished playing, remember to loosen the bow before placing it back in the case.
2. In your left hand, hold the stick of the bow at the middle with the tip pointing to the left and the bow hair facing the ground.
3. Lay your right hand at your side and notice how the fingers are slightly curved
4. Bend the thumb and touch the right side of the tip to the first joint of the second and third fingers (the joint closest to the nail). This will form a circle between the thumb and the second and third fingers.
5. Raise your right arm in front of you. Leave the elbow straight.
6. Release the thumb just enough to fit the bow between the thumb and the second and third fingers.
7. Bring the bow to your right hand. Touch the tip of the right side of your thumb where the frog meets the stick.

VIOLIN/VIOLA (to be completed after steps 1-6)

8. Lay your second and third fingers over the stick. The third finger will over the bow near the center of the frog.
9. Lay your first finger over the stick, making contact with the bow between the first and second joints.
10. Curl your fourth finger and place it on top of the stick above the frog.
11. Tilt your hand toward the tip of the bow.

CELLO/BASS (to be completed after steps 1-6)

7. Lay your second and third fingers over the frog, so that the pad of the second finger touches the bow hair and the pad of the third finger touches the ferrule (metal).
8. Lay your first finger over the stick.
9. Lay your fourth finger over the frog, so that it makes contact with the middle of the frog.

Bow Checklist

VIOLIN/VIOLA

yes___ no___ Second finger is on the stick

yes___ no___ First finger lays on side, contacting grip between 1st and 2nd joints

yes___ no___ Third finger contacts frog near or on white dot (center of frog)

yes___no___ Fourth finger contacts top of stick (over frog)

yes___ no___ Hand tilts toward the tip of the bow (away from the bow screw)

yes___no___ 1st, 2nd, 3rd, 4th fingers are curled at the frog and extend slightly at the tip

yes___no___ The thumb is bent

yes___no___ The bow is properly tightened

yes___no___ Plays the correct bowing

yes___no___ Arm opens and closes at elbow

yes___no___ Bow remains parallel to the bridge

Practice plan for correcting bowing skills:

CELLO/BASS

yes___no___ First finger is slightly tilted toward tip. (contact on side of finger)

yes___no___ Pad of the second finger contacts the bow hair.

yes___no___ Pad of third finger contacts ferrule (metal)

yes___no___ First finger contacts stick at first joint

yes___no___ Fourth finger contacts middle of frog

yes___no___ The thumb is bent

yes___no___ The bow is properly tightened

yes___no___ Plays the correct bowing

yes___no___ Arm opens and closes at elbow (less on bass)

yes___no___ Bow remains parallel to the bridge

Practice plan for correcting bowing skills:

Principles of Bowing

1. The bow hold should be flexible. When playing at the tip, the fingers will become slightly straighter than when playing at the frog.
2. Violin/viola players should angle the bow stick, so that the hair is slightly facing the player. Cello/bass players should keep the bow hair perpendicular to the string.
3. The bow contacts the string about halfway between the bridge and the fingerboard.
4. The bow moves in a path parallel to the bridge.

VIOLIN/VIOLA/CELLO

5. When playing from the frog to the middle of the bow, the upper arm starts the stroke
6. When playing in the middle of the bow, the upper arm remains still while the elbow opens and closes. (This will help keep the bow parallel with the bridge.)
7. When playing from the middle to the tip of the bow, the wrist and fingers open to continue the stroke once the elbow is fully extended.
8. When playing, place the left-hand fingers first, then move the bow.

BASS (FRENCH BOW)

5. The right elbow is more open than on violin, viola, and cello.
6. The bowing motion starts from the shoulder.
7. The bowing motion is like a pendulum swing.

Lesson Plan One

I. Materials

Mary Had a Little Lamb

II. Activities

1. Parts of instruments
2. Pizzicato (open strings)
3. Exercises
4. *Mary Had a Little Lamb*

III. Objectives

1. Students will be able to identify the parts of their instruments.
2. Students will be able to hold their instrument with proper position.
3. Students will be able to play pizzicato on (a) open strings, (b) E and F# on the d string, and (c) *Mary Had a Little Lamb.*

IV. Assessment/evaluation

1. Visual and aural assessment and evaluation (formative and summative) are based on the criteria in the left-hand checksheets.

V. Sequence of Instruction

1. Parts of the instruments

a. Instruct violin and viola players to sit on the floor with their cases in front of them. The narrow part of the case should point to the left. Lead the cello and bass players through steps 1-3 of *Instrument Setup*. Instruct cello and bass players to lay their instrument in front of them, with the strings facing them, with the scroll pointing to the left. Instruct cello and bass

players to sit on the floor in front of their instrument. Name the parts of the instruments (scroll, peg, peg box, nut, fingerboard, neck, top bout, f-hole, bridge, sound post, fine tuner, tailpiece, chin rest, tail gut, end button, end pin). Point to each part as you name it. While you are naming the parts, have students point to the parts on their own instrument. Name the parts a second time, while pointing) and instruct students to repeat the name after you and point to the parts on their instrument.

2. Instrument Setup

a. For directives, see *Instrument Setup*

b. Start with violins and violas, then cellos, then basses. When working with one group, instruct the other students to practice setting up their instrument.

3. Pizzicato

a. For directives, see *Pizzicato*

b. In open string exercises have students keep the left hand resting on the upper bout.

c. Pizz 4 open Ds in a row. Instruct students to play after you. Continue this pattern until students are able to play in the same rhythm with the correct pizzicato motion. Next, instruct students to play each string 4 times, going from low to high (high to low for basses). Repeat this exercise until students are able to play in the same rhythm with the correct pizzicato motion.

4. Exercises

a. Play Exercise 1, so students can hear the pitches. Tell students you played a D followed by an E. Play the exercise again instructing students to sing the names of the pitches as you play. Repeat until all students are singing the correct pitches and pitch names.

b. Direct students through left-hand setup using the task analysis in *Instrument Setup*. Observe students' setup and do not move on until students have met the criteria in the left-hand checklist. Play Exercise 1 again, asking students to play after you. Repeat until students are able to play and with the correct pizzicato motion. Instruct students to watch the fingers to make sure they are placing the 1st finger in the same spot each time they play an E

c. Play Exercise 2, so students can hear the pitches. Tell students you played a D followed by an E and an F#. Play the exercise again, instructing students to sing the names of the pitches as you play. Repeat until all students are singing the correct pitches and pitch names. Play Exercise 2 again, asking students to play after you. Repeat until students are able to play with the correct pizzicato motion. Instruct students to watch the fingers to make sure they are placing their 1st finger in the same spot each time they play an E and their F# finger in the same spot each time they play F#.

5. *Mary Had a Little Lamb*

a. Play the first phrase of the piece for students. Tell students the names of the pitches you played. Instruct students to sing the pitch names as you play through the phrase a second time. When students are able to sing the correct pitch names, tell them the fingering they will use to play the pitches. Play through the phrase a third time, asking students to sing and finger along as you play. When students are able to do this, have them pizzicato through the phrase. Teach each phrase of the piece this way. Do not move on to a new phrase until students are able to play with the correct setup, in tune, and with the correct pizzicato motion.

Lesson Plan Two

I. Materials

D Major Scale

Mary Had a Little Lamb

II. Activities

1. Review Instrument Position and Pizzicato

2. Learn the D Major Scale

3. Review *Mary Had a Little Lamb*

III. Objectives

1. Students will be able hold their instrument and play pizzicato with proper position and tone quality.

2. Students will be able to play pizzicato the notes of the D Major Scale.

3. Students will be able to play *Mary Had a Little Lamb* pizzicato with proper instrument position, tone quality, and intonation.

IV. Assessment/evaluation

1. Visual and aural assessment and evaluation (formative and summative) are based on the criteria in the left-hand checksheets.

V. Sequence of Instruction

1. Instrument Setup

a. For directives, see *Instrument Setup.*

b. Start with violins and violas, then cellos, then basses. When working with one group, instruct the other students to practice setting up their instrument. Walk around the room to check students' setup and to make corrections as needed.

2. Pizzicato

a. Review how to play pizzicato. For directives, see *Pizzicato.*

b. In open-string exercises have students keep their left hands resting on the bout.

c. Pizz 4 open Ds in a row. Instruct students to play after you. Continue this pattern until students are able to play in the same rhythm with the correct pizzicato motion

d. Pizz 4 open As in a row. Instruct students to play after you. Continue this pattern until students are able to play in the same rhythm and the correct pizzicato motion.

e. Play two Ds followed by two As. Continuously play the exercise until the group is playing with the same pulse with the proper pizzicato motion. Walk around the room and correct students as needed.

2. D major scale

a. Tell each section their fingering. Say the note name followed by the finger number. While saying the fingering show the fingering in the air in a simulated position similar to each instrument. Have students, section by section, repeat the fingerings after you. Instruct students to show the fingering in the air. Say each note name and have all students show the fingering on their instrument.

b. Teach the scale using the D Major Scale Exercise. Move to a new measure when the previous measure can be played correctly.

2. *Mary Had a Little Lamb*

a. Play the first phrase of the piece for students. Ask students the names of the pitches you played. Review the pitch names if students do not remember. Instruct students to sing the pitch names as you play through the phrase a second time. When students are able to sing the correct pitch names, ask students the fingering they will use to play the pitches. If students do not

remember the fingering, review it. Play through the phrase a third time, asking students to sing and finger along as you play. When students are able to do this, have them pizzicato through the phrase. Teach each phrase of the piece this way. Do not move on to a new phrase until students are able to play with the correct setup and fingering, in tune, and with the correct pizzicato motion.

b. Play through the piece at the end of class, providing feedback after the performance.

Lesson Plan Three

I. Materials

D Major Scale

Mary Had a Little Lamb

II. Activities

1. Review Instrument Position

2. Learn Bow Hold

3. Play the open D string arco

4. Play *Mary Had a Little Lamb* arco

III. Objectives

1. Students will be able hold instruments with proper position.

2. Students will be able to hold the bow with the proper bow hold.

3. Students will be able to play the open D string arco with proper bow hold and proper tone.

4. Students will be able to play *Mary Had a Little Lamb* arco with proper bow hold, tone, and intonation.

IV. Assessment/evaluation

1. Visual and aural assessment and evaluation (formative and summative) are based on the criteria in the left-hand checksheets.

V. Sequence of Instruction

1. Instrument Setup and Pizzicato (See *Instrument Setup* and *Pizzicato* for directives)

a. Review instrument setup and pizzicato in the same way as in *Lesson Plan Two*. Walk around the room to observe the setup and pizzicato motion of each student.

2. Bow Hold

a. For directives, see *Bow Hold*. When teaching bow hold, students do not need their instruments. Instruct cello and bass players to lay their instrument to the right side of their chair with the scroll facing back. Instruct violin and viola players to leave the instrument in the case. When working with one group, instruct the other students to practice setting up their bow hold. Walk around the room and correct individuals' bow holds. Once students are able to hold the bow properly, have them place the bow in the middle, on the D string.

3. Playing on the D string

a. For directives, see *Bowing Principles.*

b. Instruct students to place the instrument in playing position (for directives see *Instrument Setup*). In open string exercises, instruct students to keep their left hands resting on the upper bout.

c. Instruct violin, viola, and cello players to place the bow on the string at the middle. All bow strokes will be played in the middle of the bow using a short forearm stroke (see *Bowing Principles*). In the beginning stages, there should be space between each note. All bowing patterns will start down bow. Instruct bass players to place the bow at the wrapping. Their arms will be straighter than the others and they will use a pendulum motion for the bow stroke. Once students have the bow on the string, play 4 open Ds and instruct students to play after you. Repeat this exercise, walking around the room to observe students' bow stroke, until students are able to play with a correct bow hold and stroke.

4. *Mary Had a Little Lamb*

a. Play the first phrase of the piece and instruct students to observe your bowing. Ask students to watch your bow and arm movements as you play to see that the bow is parallel to the bridge and that only your elbow is moving.

b. Review left hand setup (see *Instrument Setup*). Instruct students to pizzicato through the piece with you. Do not move on until students are able to play the pitches. If students are unsuccessful, re-teach the song, phrase by phrase, in the same way as in *Lessons 1* and *2*.

c. Add the bow to the piece, phrase by phrase, with a stop after each note. During the break between notes, instruct students to keep the left and right arms in position. Instruct students to place the left-hand fingers in position for the next note, then play the note. Continue to play a phrase in this way, making the break between notes shorter until there is not a break between notes. Do not move on to a new phrase until students can play the original phrase with the correct fingering, intonation, and bow stroke.

d. At the end of class, play through the portions of the piece that students have learned.

Lesson Plan Four

I. Materials

Exercises

French Folk Song

II. Activities

1. Bowing Exercise

2. Left-hand Exercises

3. *French Folk Song*

III. Objectives

1. Students will be able to play the bowing required for *French Folk Song*

2. Students will be able to play the left-hand exercises with the proper fingering, correct intonation, and a full legato tone.

3. Students will be able to play *French Folk Song* with the correct bowing, fingering and intonation.

IV. Assessment/evaluation

1. Visual and aural assessment and evaluation (formative and summative) are based on the criteria in the left-hand checksheets.

V. Sequence of Instruction

1. <u>Bowing Exercise</u>

a. Three quarter note Ds followed by a dotted half note D. Start down bow using a legato stroke for all notes. For violin, viola, and cello plates, the quarter notes will be played in the middle of the bow. Bass players will play the stroke closer to the wrapping. The dotted half note should be played with a slower bow than the quarter notes. Instruct violin, viola, and cello

players to open and close the elbow when playing in the middle of the bow. Instruct bass players to use the pendulum swing stroke. Play the exercise, alternating between teacher and student play until students are able to play with the correct bowing, with a full tone.

2. Left-hand Exercises

a. Play measures 9-12, so that students can hear the pitches. Ask students the note names and fingering for each pitch. Play the measures again with the students singing the pitch names and fingering along. Have the group play the measures. If students cannot play all notes in tune work on D-E, then E-F#, and F#-G until each pair of notes is correct. Then put the exercise together.

b. Teach measures 13-16 in the same way.

3. D Major Scale

a. The rhythm for the scale is three quarter notes, followed by a dotted half note on each pitch. The bowing is a legato stroke. Instruct students to listen to and correct the intonation on repeated notes. When students are struggling with intonation, play the scale two notes at a time. Do not move on until students can play two pitches in tune. Have violin, viola, and cello players play the open D string while the basses find their high D. Remind basses to move the whole arm when shifting. Remind all students to move the fingers to the next string when playing an open string.

4. *French Folk Song*

a. Point out that the class has already learned measures 9-16 and that the rest of the song is moving around in a descending D major scale pattern. Instruct violin, viola, and cello players to move their fingers to the D string when they play the open A. Instruct bass players to move their hands into first position when playing the open G string.

b. Play the first four measures so that students can hear the pitches. Ask students the note names and fingering for each pitch. Play the measures again with the students singing the pitch names and fingering along on their instruments. Have the group play the measures. Correct performance problems. If students cannot play those measures together, have them play one measure at a time. If students cannot play one measure at a time, have them play three notes at a time. Once students can play these measures with the proper bowing, move on to the next four measures. Correct performance problems in the same way. Once students can play these measures, connect them with the first four measures. Teach the entire piece in this way.

c. At the end of class, play the sections of the piece that the students have learned, providing feedback after the performance.

Lesson Plan Five

I. Materials

Exercises

French Folk Song

II. Activities

1. Bowing Exercise
2. Left-hand Exercises
3. *French Folk Song*

III. Objectives

1. Students will be able to play the bowing required for *French Folk Song.*
2. Students will be able to play the left-hand exercises with the proper fingering, correct intonation, and a full legato tone.
3. Students will be able to play *French Folk Song* with the correct bowing, fingering, and intonation.

IV. Assessment/evaluation

1. Visual and aural assessment and evaluation (formative and summative) are based on the criteria in the left-hand checksheets.

V. Sequence of Instruction

Use the exercises in *Lesson Plan Four* to review the skills needed to play *French Folk Song*. Start with the exercises that students were not able to perform successfully at the end of the previous class. Continue to work on shifting with the basses and developing a smooth legato bow stroke from all students. Once the class has practiced the exercises, start teaching the piece phrase by phrase where you previously stopped. If you were able to teach the entire piece during

the last class, continue to refine intonation and tone, phrase by phrase. Near the end of class select small groups of students to play though the piece.

1. Bowing Exercise

a. Play three quarter note Ds, followed by a dotted half note D. Start down bow, using a legato stroke for all notes. For violin, viola, and cello players, the quarter notes will be played in the middle of the bow. Bass players will play the stroke closer to the wrapping. The dotted half note should be played with a slower bow than the quarter notes. Instruct violin, viola, and cello players to open and close their elbow when playing in the middle of the bow. Instruct bass players to use the pendulum swing stroke. Remind students to keep the right hand loose and flexible as they reach the frog. Play the exercise, alternating between teacher and students, until students are able to play with the correcting bowing, with a full tone.

2. Left-hand Exercises

a. Play measures 9-12, so that students can hear the pitches. Ask students the note names and fingering for each pitch. Play the measures again with the students singing the pitch names and fingering along. Have the group play those measures. If students cannot play all notes in tune, work on D-E, then E-F#, and F#-G until each pair of notes is correct. Then put the exercise together.

b. Teach measures 13-16 in the same way.

3. D Major Scale

a. The rhythm for the scale is three quarter notes, followed by a dotted half note on each pitch. The bowing is a legato stroke. Instruct students to listen to and correct the intonation on repeated notes. When students are struggling with intonation, play the scale two notes at a time. Do not move on until students can play two pitches in tune. Have violin, viola, and cello players

play their open D string while the basses find their high D. Remind basses to move the whole arm when shifting. Remind all students to move their fingers to the next string when playing an open string

4. *French Folk Song*

a. Point out to the class that they have already learned measures 9-16 and that the rest of the song is moving around a descending D major scale pattern. Instruct violin, viola, and cello players to move their fingers to the D string when they play the open A. Instruct bass players to move the hand into first position when playing the open G string.

b. Have the basses play the pitches of the first five measures without rhythm to check their fingering and intonation. Remind bass players to move the arm and hand together when shifting and to keep the thumb behind the second finger. If students are not successful in combining the bowing and fingering, have them play pizzicato at first. Have the basses play the pitches of the last five measures without rhythm to check their fingering and intonation. If students are not successful in combining the bowing and fingering, have them play pizzicato at first.

c. Play the first four measures so that students can hear the pitches. Ask students the note names and fingering for each pitch. Play the measures again with the students singing the pitch names and fingering along. Have the group play the measures. Correct performance problems. If students cannot play the measures together, have them play one measure at a time. If students cannot play one measure at a time, have them play three notes at a time. Once students can play these measures with the proper bowing, move on to the next four measures. Correct performance problems in the same way. Once students can play these measures, connect them with the first four measures. Teach the entire piece in this way.

d. Near the end of class, select small groups of students to play though the piece.

Lesson Plan Six

The purpose of this lesson is to review already learned skills and to give students a chance to perform for the class. Before this class, ask students to select a piece they would like to perform as a solo or in a small group. If teachers able, they can accompany student performances on the piano. Instruct students who are not playing to listen for specific aspects of each performance. Choose aspects of performance that the student playing is able to perform well ("Watch how straight Elaine's bow is when she plays."). Call on individual students to respond to each performance. Make sure student comments are phrased positively and that each student receives applause after they play.

I. Materials

Pieces that students have selected to perform

II. Activities

1. Review instrument setup and bow hold

2. Student Performance

2. Comments about each performance

III. Objectives

1. Students will be able to hold the instrument and bow with correct position

1. Students will play pieces they have learned.

2. Students will comment on each others' performances.

IV. Assessment/evaluation

1. Visual and aural assessment and evaluation (formative and summative) are based on the criteria in the left-hand checksheets.

V. Sequence of Instruction

1. Review instrument position and bow hold. (See *Instrument Setup* and *Bow Hold Setup* for directives. During instrument position, start instruction after students have taken the instruments out of the case).

a. Lead students through the task analysis in *Instrument Setup* then have them place the fingers on the D string in first position. Violin and viola players will place the 1st, 2nd, and 3rd fingers on the D string, cello and bass players will place their 1st, 2nd, 3rd, and 4th fingers on the D string. Walk around the room and observe each student's position, making corrections as needed.

b. Lead students through the task analysis in *Bow Hold Setup* and place their bow on the D string in playing position (halfway between the fingerboard and bridge). Walk around the room and observe each student's bow hold, making corrections (based on bow hold checksheet) as needed. Instruct students to play whole bow strokes on the open D. Walk around the room and make corrections to students' instrument position, bow hold, and bow stroke as needed. Continue until you have addressed each student.

3. Student performances

a. Select a student or group of students to perform. Instruct students who are not playing to listen for specific aspects of each performance. Choose aspects of performance that the student playing is able to perform well ("Watch how straight Elaine's bow is when she plays!"). Call on individual students to respond to each performance.

2. Repeat until each student or group of students has performed.

Lesson Plan Seven

I. Additional Materials

Exercises

Ode to Joy

II. Activities

1. Bowing Exercise

2. Left-Hand Exercise

4. *Ode to Joy*

III. Objectives

1. Students will be able to play the bowing exercises with proper bowing, rhythm, and a full tone.

2. Students will be able to play the left-hand exercises with proper bowing, rhythm, intonation, and a full tone.

3. Students will be able to play *Ode to Joy* with the proper fingering, bowing, correct intonation, and a full tone.

IV. Assessment/Evaluation

1. Visual and aural assessment and evaluation (formative and summative) are based on the criteria in the left-hand checksheets.

V. Sequence of Instruction

1. <u>Bowing Exercises</u>

a. First play two half notes (starting down bow) on the open D string. Play the notes again and instruct students to repeat the notes after you. Remind students to use consistent bow weight

and as much of their bow as possible, while keeping a straight bow. Continue to play half note Ds until students can play with a straight bow and full tone.

b. On the open D string, starting down bow, play a dotted quarter note followed by an eighth note. Continue this pattern multiple times. Tell students the rhythmic value of each note. Play the pattern two times in a row and instruct students to repeat after you.

c. Play the same rhythm, but stop the bow after the dotted quarter note and continue to play the eighth note in the same bow direction. Instruct students to play the pattern after you. Put a long pause between each note. During the pause, remind students to continue in the same direction on the eighth note. After students are able to play the bowing and rhythm with the pause and directive, play the pattern without the added pause and directive.

d. Instruct half the class to play steady eighth notes (in the middle of the bow) while the other half plays the rhythm. Instruct students to listen to the eighth notes to keep the rhythm together. After half of the class is successful, switch groups.

e. Add an up bow half note after the dotted quarter/eighth rhythm. Instruct students to use the same amount of bow on the down and up bows. Divide the class in the same way as under "d."

2. Left-Hand Exercises

a. Play measures 4, 8, 16. Work on each measure one measure at a time. Play the pitches of each measure without the printed rhythm or bowing. Once the pitches are in tune, add the bowing and rhythm. Tell students that this is the same bowing they learned earlier in class. Do not move on to a new measure until the class can play the pitches in tune, in the correct rhythm, and with the correct bowing.

b. Play measures 10 and 11 without the printed rhythm (give all notes an equal value). Once students can play the pitches in tune, add the rhythm. Instruct students to use a faster bow on the eighth notes than on the quarter notes.

3. *Ode to Joy*

a. Point out to students that most of the melody uses stepwise motion. Ask students to tell you the fingerings for the first phrase. When each student knows the fingering, instruct students to sing the pitches while they finger along. When students are successful at one phrase, play through it arco. Make corrections in student performance as needed.

b. Teach the next phrase in this same way. Once students are able to play the second phrase, play the first two phrases together.

c. Teach the third phrase the same way. Teach the fourth phrase the same way. Put these two phrases together, then finally play thorough the whole piece.

d. During each step, make corrections as needed.

e. Play through the piece again at the end of class.

Lesson Plan Eight

I. Additional Materials

Exercises

Surprise Symphony

II. Activities

1. Bowing Exercise
2. Left-hand Exercise
3. *Surprise Symphony*

III. Objectives

1. Students will be able to play the bowing exercises with proper bowing, rhythm, and style.
2. Students will be able to play the left-hand exercises with proper bowing, rhythm, and correct intonation.
3. Students will be able to play *Surprise Symphony* with the proper fingering, bowing, correct intonation, and in the proper style.

IV. Assessment/evaluation

1. Visual and aural assessment and evaluation (formative and summative) are based on the criteria in the left-hand checksheets.

V. Sequence of Instruction

1. Bowing Exercise

a. Instruct students to repeat the following exercise after you. Play an up-bow D, stop the bow and stay in that position. Next, play a second up-bow D, with students repeating after you.

During the break in notes remind students to continue on an up-bow. Repeat this exercise until all students are playing two up-bows in a row. After students can perform this successfully, play the notes without a break. Repeat this exercise until all students are playing two up-bows in a row.

b. In the middle of the bow, play four light staccato Ds. Instruct students to repeat after you. Instruct students to use a light stroke played in the middle of the bow with a loose hand. Repeat until students are all playing in the same rhythm with a light staccato stroke.

c. Play an up-bow half note open D, in piano, followed by a down-bow half note D, forte. Instruct students to repeat after you. Remind students to use a light bow stroke when playing piano and a heavy bow stroke for the forte. Repeat until students are successful at playing each dynamic with the characteristic tone.

2. Left-hand exercise

a. Play D, E, then F natural in quarter notes. Ask students the names of the notes you played and the fingering. If students do not know the fingering, tell it to them while they finger along on their instrument. Play the notes again while students finger along, then have students sing the pitches and finger along as you play. Repeat until students are singing the correct pitches and using the correct fingerings. Have the students play the pattern after you. Repeat until each note is correct.

b. Play F natural, D, B natural. Ask students the names of the notes you played and the fingering, on their instrument, for those notes. If students do not know the fingering, tell it to them while they finger along on their instrument. Play the notes again while students finger along, then have students sing the pitches and finger along as you play. Repeat until students are singing the correct pitches and using the correct fingerings. Have the students play the pattern

after you. Repeat until each note is correct. If students are struggling with the notes, put a break after each note, instruct students to place their fingers, then play the new note. Once students are successful with this, have them play without the break.

4. *Surprise Symphony*

a. Tell students that the exercise they just played was to help them play measures 3 and 4 of the piece. Reinforce to students that the bowing style of this piece is the one they practiced earlier in the lesson. Instruct students to play measure 3 then stop, leaving the bows on the string and their left hands in position. Instruct students to move their fingers into position to play the B, then move the bow to the new string. Once students have the B in place, instruct them to play measure 4. Repeat this exercise, shortening the break between measures, until there is no break between measures.

b. Instruct students to play measure 7 with a large break between the C and F# (provide an aural example). During the break, instruct students to move fingers to the F#, then move the bow to the new string. Repeat this exercise, shortening the break between notes, until there is no break between notes.

b. Instruct students to play measure 9 without the bowing or rhythm (provide an aural example). Remind students that the finger playing F natural will be close to the E finger. Play the measure without rhythm until students can play in tune. Instruct students to play the up bow Ds then stop, leaving the bow on the string and the left hand in position. Once students are ready, play the remainder of the measure. Repeat this exercise, shortening the break between notes until there is no break between notes.

c. Instruct students to play measure 15 without the printed bowing or rhythm (provide an aural example). Remind students that the finger playing C natural will be close to the B finger.

Play the measure without rhythm until students can play in tune. Instruct students to play the up bow Ds then stop, leaving the bow on the string and the left hand in place. Once students are ready, play the remainder of the measure. Repeat this exercise, shortening the break between notes until there is no break between notes.

d. Instruct students to sing through the first phrase of the piece (give them a starting pitch) using the note names. Ask students to tell you the fingerings for the first phrase. When each student knows the fingering, instruct students to sing the pitches while they finger along on their instruments. When students are successful at one phrase, play through it arco. Make corrections in student performance as needed.

e. Teach the next phrase in this same way. Once students are able to play the second phrase, play the first two phrases together.

f. Teach the third and fourth phrases the same way. Put these two phrases together. Continue to work in this manner until students have learned each phrase of the piece.

g. During each step, make corrections as needed.

h. At the end of class, play through the sections of the piece that the students have learned.

Lesson Plan Nine

I. Additional Materials

Exercises

Surprise Symphony

II. Activities

1. Bowing Exercise
2. Left-hand Exercise
3. *Surprise Symphony*

III. Objectives

1. Students will be able to play the bowing exercises with proper bowing, rhythm, and style.
2. Students will be able to play the left-hand exercises with proper bowing, rhythm, and correct intonation.
3. Students will be able to play *Surprise Symphony* with the proper fingering, bowing, correct intonation, and in the proper style.

IV. Assessment/evaluation

1. Visual and aural assessment and evaluation (formative and summative) are based on the criteria in the left-hand checksheets.

V. Sequence of Instruction

Use the exercises in *Lesson Plan Eight* to review the skills needed to play *Surprise Symphony*. Start with the exercises students were not able to perform successfully at the end of the previous class. Continue to work on developing a light staccato bow stroke. Continue to work on developing close half steps between E and F, and B and C. Also continue to work on playing

measures 3-4 and measure 7 . Switching from F to B and from C to F# is a task that will need to be reviewed. Once the class has practiced the exercises, start teaching the piece phrase by phrase where you left off. If you were able to teach the entire piece during the last class continue to refine intonation and tone phrase by phrase. Near the end of class select small groups of students to play though the piece.

1. Bowing Exercise

a. Instruct students to repeat after you. Play an up-bow D, stop the bow and stay in that position. Next, play a second up-bow D, with students repeating after you. During the break between notes, remind students to continue on an up-bow. Repeat this exercise until all students are playing two up-bows in a row. After students can perform this successfully, play the notes without a break. Repeat this exercise until all students are playing two up-bows in a row.

b. In the middle of the bow, play four light staccato Ds. Instruct students to repeat after you. Instruct students to use a light stroke, in the middle of the bow with a loose hand. Repeat until students are all playing in the same rhythm with a light staccato stroke.

c. Play an up-bow half note open D, in piano, followed by a down-bow half note D, forte. Instruct students to repeat after you. Remind students to use a light bow stroke when playing piano and a heavy bow stroke for the forte. Repeat until students are successful at playing each dynamic with a characteristic tone.

2. Left-hand exercise

a. Play D, E, then F natural in quarter notes. Ask students the names of the notes you played and the fingering, on their instrument, for those notes. If students do not know the fingering, tell it to them while they finger along on their instrument. Play the notes again while students finger along, then have students sing the pitches and finger along as you play. Repeat

until students are singing the correct pitches and using the correct fingerings. Have the students play the pattern after you. Repeat until each note is correct.

b. Play F natural, D, B natural. Ask students the names of the notes you played and the fingering, on their instrument, for those notes. If students do not know the fingering, tell it to them while they finger along on their instrument. Play the notes again while students finger along, then have students sing the pitches and finger along as you play. Repeat until students are singing the correct pitches and using the correct fingerings. Have the students play the pattern after you. Repeat until each note is correct. If students are struggling with the notes, put a break after each note, instruct students to place their fingers, then play the new note. Once students are successful with this, have them play without the break.

4. *Surprise Symphony*

a. Tell students that the exercise they just played was to help them play measures 3 and 4 of the piece. Also, tell students that the bowing style of this piece is the one they practiced earlier in the lesson. Instruct students to play measure 3 then stop, leaving the bows on the string and their left hands in position. Instruct students to move their fingers into position to play the B, then move their bow to the new string. Once students have the B in place, instruct them to play measure 4. Repeat this exercise, shortening the break between measures, until there is no break between measures.

b. Instruct students to play measure 7 with a large break between the C and F# (provide an aural example). During the break, instruct students to move fingers to the F#, then move the bow to the new string. Repeat this exercise, shortening the break between notes, until there is no break between notes.

c. Instruct students to play measure 9 without the printed bowing or rhythm (provide an aural example). Remind students that the F natural finger will be close to the E finger. Play the measure without rhythm until students can play in tune. Instruct students to play the up bow Ds then stop, leaving the bow on the string and the left hand in position. Once students are ready, play the remainder of the measure. Repeat this exercise, shortening the break between notes until there is no break between notes.

d. Instruct students to play measure 15 without the bowing or rhythm (provide an aural example). Remind students that the C natural finger will be close to the B finger. Play the measure without rhythm until students can play in tune. Instruct students to play the up bow Ds then stop, leaving the bow on the string and the left hand in position. Once students are ready, play the remainder of the measure. Repeat this exercise, shortening the break between notes until there is no break between notes.

e. Instruct students to sing through the first phrase of the piece (give them a starting pitch) using the note names. Ask students to tell you the fingerings for the first phrase. When each student knows the fingering, instruct students to sing the pitches while they finger along on their instrument. When students are successful at one phrase, play through it arco. Make corrections in student performance as needed.

f. Teach the next phrase in this same way. Once students are able to play the second phrase, play the first two phrases together.

g. Teach the third and fourth phrases the same way. Put these two phrases together. Continue to work in this manner until students have learned each phrase of the piece.

h. During each step, make corrections as needed.

Lesson Plan Ten

The final lesson in the curriculum is to be used on the last day(s) of class. Before this class, ask students to select a piece they would like to perform as a solo or in a small group. Students may perform from their normal seat in class, or the teacher may set up a stage and audience. If the teacher is able, he can accompany student performances on the piano. Instruct students who are not playing to listen for specific aspects of each performance. Choose aspects of performance that the student playing can perform well ("Watch how straight Elaine's bow is when she plays!"). Call on individual students to respond to each performance. Make sure student comments are phrased positively and that students receive applause after they play.

I. Materials

Pieces that students have selected to perform

II. Activities

1. Student Performance
2. Comments about each performance

III. Objectives

1. Students will play pieces they have learned during their first year of string playing.
2. Students will comment on each others' performances.

IV. Assessment/evaluation

1. Visual and aural assessment and evaluation (formative and summative) are based on the criteria in the left-hand checksheets.

V. Sequence of Instruction

1. Select a student or group of students to perform. Instruct students who are not playing to listen for specific aspects of each performance. Choose aspects of performance that the student

playing plays well (“Watch how straight Elaine’s bow is when she plays!”). Call on individual students to respond to each performance.

2. Repeat until each student or group of students has performed.