Assessment Practices of String Teachers

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ASSESSMENT PRACTICES OF STRING TEACHERS

By

Sara Anne Duncan

A THESIS

Submitted to the Faculty of the University of Miami in partial fulfillment of the requirements for the degree of Master of Music

Coral Gables, Florida

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ASSESSMENT PRACTICES OF STRING TEACHERS

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The purpose of this study was to explore string teachers’ assessment practices related to string program success. Additionally, the study examined the relationship between teacher characteristics and string program success. This study was conducted by surveying string teachers ($N = 201$) from around the country. The survey was designed based on the independent variables of teacher characteristics and assessment practices, and the dependent variable of string program success. Results indicated that string teachers most frequently assess with teacher-given verbal criticism, rehearsal skills, attendance, teacher-rated rubrics, and student evaluations. The least common assessment practices used by string teachers were composition assignments, music history assessments, portfolio assessment, improvisation/creativity assignments, and cross-curricular assignments. String program success was correlated with the assessment practices of written assessments, student reflections, teacher-rated rubrics, sightreading skills assessment, student evaluations, music theory assessments, music history assessments, and portfolio assessments, and student rated rubrics. Years of teaching, level of education, musicianship-based assessment, and student-based assessments were predictors of string program success. String program success did not differ as a function of years teaching, however there is a difference in string program success within the characteristics of gender, education level, and primary instrument, as well as primary instrument by education level.
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CHAPTER 1

BACKGROUND

Assessment is an integral part of all teachers’ classroom procedures. Assessment provides information to students, parents, and teachers about students' progress. In the current era of accountability, music teachers have seen increased demands to implement more assessment practices in their classrooms (Brophy, 1997).

The National Standards for Music Education were implemented in 1994 by the Music Educators National Conference, now MENC: The National Association for Music Education, as a response to the United States government’s education reform initiatives. These standards were intended to be a framework for activities and assessment within every music classroom. MENC has published a number of resources to help teachers implement and assess the National Standards for Music Education (MENC, 1994a, 1994b, 1994c, 1994d, 1996; Lindeman, 2003).

Standards are seen as a way to enhance music education by providing context for accountability and assessment. Measurable objectives, such as the National Standards for Music Education, help educators focus their teaching practices and assessments. Although some music educators argue that standards in the classroom put too many constraints on teachers and stifle creativity of students, it is important that educators learn about different assessment strategies to better inform their teaching practices and their students (Welter, 1993; Lehman, 1997; Schultz, 2002).

Assessment measures for the classroom include standardized tests, teacher designed assessment tools, and even researcher-designed measures (Duerksen, 1995). Duerksen advocates that music educators set goals and then select appropriate assessment
measures based on their goals. He also suggests that setting an improvement plan for students based on teacher goals and school-wide goals will help music teachers adjust instruction to the needs of students. Byo (2001) suggests that music performance assessments should be based on what an accomplished performer should be able to do.

Assessment design is an important aspect in the assessment discussion, because assessments need to be relevant and accessible to be meaningful. MENC: The National Association for Music Education, through an action committee, developed six overall guidelines for designing assessments:

1. Assessments should be standards-based and should reflect the music skills and knowledge that are most important for students to learn.
2. Assessments should support, enhance, and reinforce learning.
3. Assessments should be reliable.
4. Assessments should be valid.
5. Assessments should be authentic.
6. The process of assessment should be open to review by interested parties.

(MENC, 1996, p. 7-9)

These guidelines for assessments are a valuable resource for teachers designing assessments for their students. Teachers must be aware that validity and reliability are two of the most important concepts of any assessment, because these two factors determine if the assessment provides dependable information (Messick, 1983). Additionally, constructing assessments that are based on instructional goals is important to assessment results being valid, reliable, and relevant (Scott, 2000).
To educate classroom teachers on assessment ideas and practices, there have been numerous how-to articles on assessment in the *Music Educators Journal* (Taylor, 1984; Tuley, 1985; Mims, 1994; Robinson, 1995; Goolsby, 1999; Keenan-Takagi, 2000; Asmus, 1999; Hickey, 1999; Whitcomb, 1999; Byo, 2001; and Burrack, 2002), *The Instrumentalist* (Senty, 1971; Pace, 1972; Ellis, 1963; McFarlin, 1965; Ross, 1975; and Ervin, 1982), and *American String Teacher* (Turner, 2006). However, only one article has focused on string assessment (Turner, 2006). All of these articles have been based on the author’s perceptions and ideas, but they have been important contributions in providing practicing teachers information about classroom assessment.

*Assessment Practices Research*

Several researchers have conducted studies of assessment of performance-based classes in music education to determine what types of assessment are occurring in classrooms. At the collegiate level, Drake (1984) investigated selected members of the National Association of Schools of Music, and he found descriptive characteristics of collegiate grading procedures in performance ensembles. However, a majority of the studies completed have been investigating practices of teachers in the public school arena (Roberts, 1994; Sears, 2002; McCoy, 1988; Kotura, 2001; McCreary, 2001). There is a paucity of research linking program success to assessment.

Sears (2002) examined secondary instrumental music teachers and their assessment practices. The participants reported utilizing a wide variety of assessment techniques including scale performance tests, practice logs, graded rubrics by teachers and students, as well as "portfolios, method books, concerts, worksheets, quizzes, and leadership responsibility" (p. 19). Roberts (1994) surveyed music teachers from across
Canada to determine their thoughts on music assessment. Results were compiled in five areas: learning priorities, assessment priorities and assessment methods, record keeping, and feelings about formal assessment. Teachers viewed assessment as important, but utilized the same methods of assessment repeatedly.

Two researchers have investigated assessment practices of Ohio music educators (McCoy, 1988; Kotora, 2001). Kotora (2001) investigated what high school choral teachers and college choral methods professors were utilizing as assessment techniques and why they were using the techniques. The three most commonly utilized assessment practices by high school teachers were concert performances, student participation, and student attendance. The three least commonly utilized assessment practices by high school teachers were independent study/written projects; check sheets, rating scales, and rubrics; and student portfolios. Teachers expressed their issues with assessment as having a lack of time, hard to keep accurate records, classroom management issues, students and parent apathy, no administration support, lack of training, and no guidelines to follow. McCoy (1988) investigated secondary choral and band directors. The researcher used survey results to determine that most directors utilize a combination of cognitive, psychomotor, affective, and non-music criteria for grade determination.

McCreary (2001) studied secondary instrumental music teachers' assessment practices in the state of Hawaii. The study aimed to examine techniques and procedures that teachers utilized to assess secondary instrumental students. The results of this study indicated that secondary instrumental teachers use traditional assessment methods such as written tests, playing tests, participation, and practice time to assess their students, but most teachers did not utilize alternative assessments such as portfolios or journals. As a
result of this study, the researcher recommended that the study be replicated on a larger level both within the state of Hawaii and outside the state of Hawaii.

*The Problem*

In today’s era of accountability in schools, music teachers must incorporate assessments in their classrooms to meet national, state, and district requirements. However, it is unclear whether music teachers, specifically string teachers, are actually implementing any assessment strategies. Although there have been a few studies of assessment in secondary music, there have been no studies specifically determining string teachers’ assessment practices. Music teachers’ assessment practices could be the same across-performance areas, but since there has been no research to support this idea, string teachers assessment practices need to be studied individually. Assessment practices are widely discussed in music teacher publications, but there has not been any research to investigate how string teachers are implementing assessment in their classrooms, especially since there has only been one article on string teacher assessment (Turner, 2006). Additionally, as far as can be determined, there has not been any research on the relationship between successful and less successful string teachers and the assessment practices that each group of teachers execute in their classroom.

*The Purpose*

The purpose of this study was to investigate assessment practices of successful and less successful string teachers in the United States. The information gathered may be used to further aid string teachers in improving their teaching practices, which will improve the overall quality of their programs.
Research Questions

1. What individual assessment practices are most used by string teachers?
2. What individual assessment practices and teacher characteristics are related to string program success?
3. What is the best combination of individual assessment practices and individual teacher characteristics to predict string program success?
4. How does string program success differ as a function of teacher characteristics and overall assessment practices?

Delimitations

This study is focused on the assessment practices of elementary, middle, and high school string orchestra teachers. This study does not include band or choral teachers and their assessment practices.

Definition of Terms

Assessment practices. Assessment practices are classroom teacher’s data collection evaluations as a part of the classroom instructional environment that make judgments on students and their acquired knowledge and skill (Asmus, 1999).

Success. Researcher-adapted criteria based on previous research (Crochet, 2006; Froseth, 1974):

1. Receives constant superior and/or excellent ratings at adjudicated string performances (Iida, 1991).
2. Maintains a balanced string program with groups such as leveled string ensembles, chamber music, homogeneous ensembles, and alternative styles groups (Hayes, 1998).

3. Demonstrates personal leadership skills (Covey, 1986; Iida, 1991; Lautzenheiser 1992; Davidson, 1995).


7. Inspires students to the point that students themselves share enthusiasm and dedication (Nelson; 1973; Lautzenheiser, 1992).


9. Provides students the opportunity to work with guest conductors, composers, and outside instructors (Nelson, 1973; Mann, 1979; Hayes 1998).

10. Participates in professional activities (Mann, 1973; Lautzenheiser, 1992; Davidson, 1995).

11. Encourages a large percentage of students to participate in solos and small ensembles at evaluations festivals (Mercer, 1973; Mann, 1979).

12. Received invitation for ensemble under their direction to perform at state or national conference (Davidson, 1995).
13. High percentage of student participation in instrumental music program compared to school enrollment (Blakeslee, Brown, & Hofmann, 2008).

14. Allocated an adequate budget, facility, and rehearsal time (Froseth, 1974).
CHAPTER 2
REVIEW OF LITERATURE

*Historical Perspective*

Classroom grading procedures are not new topics in music. Osborne (1983) tells of assessment in the arts dating back to the nineteenth century England where pupils were assessed on singing tonic sol-fa associations. In the United States, following World War II, grading was accomplished through assessing participation and rehearsal skills (Zaymeyer, 1959). The common premise of grading was that students would begin the term with a certain number of points and then lose points based on their improper actions in rehearsal and performance, such as chewing gum.

Music teachers began receiving information about new, objective grading ideas and practices in the 1960s and 1970s in *The Instrumentalist*. Senty (1971) advocated for weekly practice reports that graded students on “practice, tone, technique, rhythm, articulation, intonation, phrasing, breath control, embouchure, and band music” (p.22). These progress reports were to be utilized as a way to communicate between parents, students, and the teacher. Pace (1972) also advocated weekly assessments, but in the form of the pass-off system where students are given a list of assignments that they must complete before the end of the term. Students then progress through the assignments, as they are able. Through the instrumental music contests, instrumental ensembles began to receive overall performance grades. Some teachers assigned this overall grade to their students; however educational leaders cautioned teachers to only assign grades based on individual effort and assignment grades (McFarlin, 1965).
Ellis (1963) wrote to educators to explain the necessity of defining objectives, measuring student progress, and evaluating student’s overall work. Teachers were simply assigning grades based on the subjective, aesthetic value of their students’ musical output, and not grading with any sort of objective nature. Letter grade specified objectives became a popular way of assessing. A letter grade of “C” was the basic grade, and to earn a higher grade, students had to complete additional assignments (Ross, 1975).

As time progressed, checklists of instrumental performance competencies for individuals were recommended as an easy way to assist student learning (Ervin, 1982). Performance music skills, music elements, participation, classroom conduct, and teacher comment boxes were included on the checklists that constituted a student’s earned grade (Tuley, 1985; Taylor, 1984). This helped communicate specific feedback to students and parents, and establish criteria for giving a grade.

Greer (1980) advocated providing feedback to students and parents. He was the first to analyze the process of music assessment using behaviorist principles. He suggested that music teachers should define learning objectives, teach, give feedback, and then refine the objectives. This process should be repeated until the student masters a task. Greer saw feedback and assessment of students as crucial to student development.

The Music Educators National Conference developed the first publication to outline curriculum goals, teaching strategies, and guidelines for support (including facilities, instruments, and administration) (MENC, 1974). Although assessment was included in teaching publications, it was not a priority. However, in the early 1980s, assessment became an important concern.
In 1983, the National Commission on Excellent in Education (1983) published a report entitled *A Nation at Risk: The Imperative for Educational Reform*. This publication promoted the need for defined standards with measurable outcomes for every academic subject area. However, it was not until 1992, when the National Council on Education Standards and Testing (1992) called for voluntary standards from each academic area, that standards became of the utmost importance for music educators. The Music Educators National Conference began a taskforce to develop standards in Music Education. In 1994, the government passed another resolution, *Goals 2000: Educate America*, which included goals for improving students’ education in the United States. More directly important to music education, the report officially named the arts as an academic subject. The Music Educators National Conference finished writing the National Standards for Music Education and officially presented them in their current and final format in 1994. The National Standards for Music Education for kindergarten through twelfth grade are

1. Singing, alone and with others, a varied repertoire of music.

1. Performing on instruments, alone and with others, a varied repertoire of music.

1. Improvising melodies, variations, and accompaniments.

1. Composing and arranging music within specified guidelines.

1. Reading and notating music.

1. Listening to, analyzing, and describing music.

1. Evaluating music and music performances.
1. Understanding relationships between music, the other arts, and disciplines outside the arts.

1. Understanding music in relation to history and culture (MENC, 1994b).

The National Standards for Music Education were intended to be a framework for activities and assessment within every music classroom.

**Impact of National Standards on Assessment**

Standards were seen as a way to enhance music education by providing context for accountability and assessment. Measurable objectives in music were viewed as a way to encourage teachers to focus their efforts on assessing their students as a way to enhance student education (Welter, 1993). MENC has published a number of resources to help teachers implement and assess the National Standards for Music Education (MENC, 1994a, 1994b, 1994c; 1994d, 1996; Lindeman, 2003). According to the Music Educators National Conference (1996), the guidelines for assessing should be based on six principles:

1. Assessments should be standards-based and should reflect the music skills and knowledge that are most important for students to learn.

1. Assessment should support, enhance, and reinforce learning.

1. Assessment should be reliable.

1. Assessment should be valid.

1. Assessment should be authentic.

1. The process of assessment should be open to review by interested parties (p. 7-9).
Assessments based on these principles will help teachers give assessments that are justifiable and relevant to students, parents, and teachers (Lehman, 1997). Additional questions that need to be asked about assessment are: who is being assessed, what is being assessed, how will that be assessed, and what are the standards to the assessment? (Stauffer, 1999).

Assessment in the Music Classroom

Colwell (1995) indicates that music educators have increased interest in music assessment for a variety of reasons, including the political ramifications that resulted in the National Standards for Music Education. Although music educators are credited as being the creators of authentic assessment through portfolio evaluation, most music educators do not fully assess their students. Colwell advocates that music teachers must use the current political interest in assessment to improve our teaching and our students learning by learning about assessment, developing new assessment measures, and collecting data on what is occurring in classrooms.

Asmus (1999) asserts that assessment is more complex that grading. Assessments do not merely determine an overall grade; they measure progress towards objectives, as well as determining future goals and outcomes for learning. This idea is based on the three main factors of music teaching: “(1) the music instruction content and process, (2) the ongoing assessment during instruction, (3) the outcome of instruction” (p. 20). It is important to identify learning targets/goals that are based from district, state, and/or national objectives and goals. Cope (1996) also writes that setting performance criteria through defining tasks and objectives is the way to make assessment an integral part of music education. Asmus (1999) suggests that if a teacher knows the specifics of learning
and instruction, the teacher only needs to determine the most suitable methodology for assessing the students. Assessments help demonstrate to teachers, students, parents, administrators, and other interested parties that learning is occurring in the classroom. Asmus (1999) and Chiodo et al. (1998) advocate for the use of authentic assessments, assessments that are based on real-life activities such as music performance. These assessments can be embedded in the class, so that teachers can record their students’ skills through the class period rather than always taking separate class time to assess students.

Like Asmus (1999) and Chiodo et al. (1998), Radocy (1995) and Swanwick (1998) both explain that assessments in music must have a specific purpose: to gather information about what students are learning and what students can do in music. Assessments should not be limited to one type of assessment. Teachers should utilize a variety of assessment methods to gain a complete picture of their students’ abilities.

Chiodo (2001) recommends that since assessment reinforces and motivates learning, teachers should utilize an efficient management system to organize their grading policies. Chiodo summarizes overall tips for managing assessment in the music classroom:

1. Start with one successful assessment tool.
1. Keep written records.
1. Use a seating chart.
1. Use embedded assessment.
1. Use appropriate grading procedures.
1. Collaborate with colleagues.
1. Integrating music learning and assessment in other classes.

   1. Make use of technology.
   1. Collect exemplars of student work.
   1. Seize every opportunity for assessment (p. 17-23).

Her tips are valuable, because they summarize the gist of assessment practices in a brief package. Music educators can utilize these strategies to further improve their assessment practices.

McCoy and Ellis (1991) describe the importance of including traditional curricular decision-making strategies about grading into the music classroom. Since music is considered a core academic subject, these educators advocate that teachers must assess their music students in an academic nature. They suggest setting course objects that are consistent with standards and school policies, determining methods of evaluation, collecting data, and then comparing the data to determine the final grade. The authors recognize that grading on the basis of musical decisions is sometimes difficult for students and parents used to only being graded on non-musical criteria, however to work through the differences, it is important for teachers to communicate with all parties.

*String-Specific Assessment*

There has been limited information published on string-specific assessment. Turner (2006) wrote in the *American String Teacher* about practical strategies for evaluating string orchestra students. She advocated that teachers need to think about basic questions: why do we evaluate, what is the basis for the grade, when can we find the time to assess? Evaluation is a crucial part of the teaching process, especially when it is based on goals and objectives. Turner suggests that orchestra teachers should make accurate
reports of assessments that indicate the academic achievement to inform students, parents, colleagues, administrators, and community of the types of assessment occurring in the string classroom.

Zdzinski and Barnes (2002) investigated string performance assessment by determining what factors are most important to assessing string performances and then developing a string performance rating scale based on these factors. The initial categories of assessment, including tone, intonation, interpretation, technique, rhythm, tempo, and general effect, were included based on previous research studies in rating scale development. All items were written into statements that could be judged by a 5-point Likert scale ranging from strong agree to strongly disagree. One hundred string instrument performances were collected. Judges ($N = 50$) were selected from public school educators, string faculty members, and string education students. Judges listened to two performances and then used the rating scales to rate the performances. Interjudge reliability was established by three panels of ten judges. The results indicated that there are five main factors to assess string performance: interpretation/musical effect, rhythm/tempo, tone/articulation, vibrato, and intonation. The only difference between this string specific study and the other studies of woodwind and brass instruments is that in the string study, vibrato was its own factor and that intonation/tone items grouped together. The reliability of the string performance rating scale was .85 and above, which is very high. String educators can use the measure to evaluate students with specific feedback.

To create a measure of orchestral performance for secondary schools, Smith and Barnes (2007) expanded upon the Zdzinski and Barnes (2002) scale to discover the
factors that influenced secondary school orchestral performance, the individual items to best represent these factors, and the reliability and validity of the orchestra performance rating scale. The researchers recorded orchestras from various places in the United Sates ($N = 63$). Additionally, they wrote 49 statements that were used by various performance festival/contest ratings and utilized a 9-point Likert scale to be judged by orchestra teachers ($N = 63$). Seven factors were identified as being significant in the analysis: ensemble, left hand, position, rhythm, tempo, presentation, and bow. To further refine the scale, the researchers made a reduced scale with 25 items with factor loadings greater than $0.64$, and Cronbach's alphas ranging from $0.73$ to $0.91$. To validate the scale, ten orchestra recordings were presented to 10 notable string educators. On the revised scale, the factors were labeled “Ensemble (precision, following conductor), Left Hand (intonation, vibrato), Position (general positions, uniform bowings), Rhythm (correct interpretation), Tempo (appropriate to style, not too fast or too slow), Presentation (appearance, etiquette), and Bow (speed and weight)” (p. 277). The reliability of the judges was computed using a Cronbach's alpha ($\alpha = 0.98$). This scale can be utilized to assess large ensembles in performance situations.

Although there have been limited studies in string assessment, the two studies that have been completed have high reliabilities and are notable measures that can be utilized as a tool by the string teaching profession to assess students. However, there have been no studies examining string teacher’s classroom assessment practices.

Disseminating Assessment Concepts To Teachers

The *Music Educators Journal* has continuously published assessment ideas for practicing music teachers to learn from and help incorporate the National Standards for
Music Education. The most common forms of suggestions include checkpoints, checklists, worksheets, taped recordings, playing tests, portfolios, student self-evaluation critiques, and student journals of reflective writing (Robinson, 1995; Goolsby, 1999; Keenan-Takagi, 2000; Byo, 2001; Burrack, 2002). Byo (2001) suggests that all assessments, especially playing tests, should be based on what an accomplished learner should be able to do; this gives students a concrete goal. Mims (1994) suggests four steps for evaluation: grouping students of the same level of experience, making diagnostic evaluations of each student, monitoring each student's progress and planning remedial instruction (formative evaluation), and finally administering summative evaluations. One of the additional focuses of the *Music Educators Journal* articles was on how to implement performance examinations with rubrics.

Rubrics have become a popular assessment tool. There are examples in magazines, such as the *Music Educators Journal*, available to help teachers understand and write rubrics (Popham, 1997; Hickey, 1999; Whitcomb, 1999; Eppink, 2002). Rubrics typically have concrete objectives that are divided into levels of achievement. Rubrics can be utilized for performance evaluation, as well as composition and writing assignments, which can help satisfy National Standards for Music Education. It is important to note that proper rubric construction must be teacher and student friendly. Teachers must be able to grade quickly and effectively, while still providing students with concrete information (Popham, 1997; Hickey, 1999; Whitcomb, 1999; Eppink, 2002).

In the September 1997 issue of the *Music Educators Journal*, there was an informal survey conducted of music teachers and their assessment practices. Most
teachers were found to use traditional letter grades as summative evaluations of their students. Teachers utilized performance criteria as well as non-musical criteria in their grading practices. In terms of interest, most teachers responded that they were very interested in learning about grading procedures and assessment techniques (Lehman, 1998).

Music Teachers’ Actual Assessment Practices

In light of all of the information provided to teachers to implement assessment practices, several researchers have conducted studies on teachers’ assessment practices in performance-based music classes. Most of the studies have investigated secondary level performance ensembles in the public schools (Roberts, 1994; Sears, 2002; McCoy, 1988; McCoy 1991; Kotura, 2001; and McCreary, 2001).

Roberts (1994) surveyed music teachers from across Canada to determine their thoughts on music assessment. The researcher disseminated 1500 surveys in both French and English to the superintendents of music throughout Canada who then distributed the surveys to their teachers, and 527 (35%) were returned. The surveys returned were equally balanced based on gender, years of teaching experiences, and population densities of the providences in Canada.

Results were compiled in five areas: learning priorities, assessment priorities and assessment methods, record keeping, and feelings about formal assessment. The most valued learning priority was developing participation and involvement (83.1%), and the least valued learning priority was developing familiarity with tools, instruments (21.4%). The most important assessment priority was performance/practical assessment (56.3%), and the least important assessment priority was journal, or sketchbook assessments.
Teachers gave grades almost always (57.9%) by using criteria from the course objectives, and rarely negotiated grades through discussion with each student (3.9%). 81.8% of the teachers utilized percentages for record keeping. Teachers feelings about formal assessment were almost split equally between essential (30.6%), highly desirable (29.4%), and desirable (28.1%). These results can be used as the basis of discussion for assessment practices, however there are no practical implementation to the teaching profession.

In a related study, Sears (2002) examined secondary instrumental music teachers and their assessment practices. The researcher conducted a simple survey of secondary instrumental directors in southeastern Massachusetts to determine what criteria teachers use to evaluate, how teachers document assessments to determine final grades, and if the teachers were considering state music standards in their assessments. The researcher mailed surveys to teachers via two direct mailings and yielded a 52% response rate ($N = 42$).

A majority (93%) of the teachers surveyed give formal grades, but on different increments: quarters (73%), trimesters (16%), or semesters (11%). The teachers reported utilizing a wide variety of assessment techniques including scale performance tests, practice logs, graded rubrics by teachers and students, as well as “portfolios, method books, concerts, worksheets, quizzes, and leadership responsibility” (p. 19). This study yielded descriptive information. Further research needs to be done on a large population with more diverse backgrounds to make general conclusions applicable to all music performance teachers and their assessment practices.
In a larger scale study, Kotora (2001) investigated what high school choral teachers and college choral methods professors in Ohio were utilizing as assessment techniques and why they were using the techniques. Surveys \((N = 608)\) were sent to high school choral teachers from the Ohio Music Educators Association’s master list, and surveys \((N = 38)\) were sent to collegiate professors from the College Music Society’s master list. Participants were asked if they utilized any of the twelve assessment strategies that are commonly found in assessment literature:

(a) videotape recordings, (b) audio tape recordings, (c) singing tests, (d) written tests, (e) independent study/written projects, (f) student portfolios, (g) check sheets, rating scales, and/or rubrics, (h) concert performances, (i) individual performances, (j) student participation, (k) student attitude, and (l) student attendance (p.196).

The participants were asked how and why they used each strategy to assess their students. Additional questions asked the participants’ opinions of the assessments’ usefulness and the weighted emphasis that each strategy factored into the teacher’s grading practices. Another set of questions asked about how the teachers related the National Standards for Music Education to their assessment practices, and their attitudes towards assessment. The collegiate version of the survey asked professors what strategies they were teaching to pre-service teachers.

The three most commonly utilized assessment practices by high school choral teachers were concert performances (87%); student participation (86%); and student attendance (85%). The three least commonly utilized assessment practices by high school teachers were student portfolios (12%); check sheets, rating scales, and rubrics (42%); and
independent study/written projects (51%). A majority of the assessment practices were utilized because of personal choice, not because it was a district, state, or national requirement. In contrast, the college teachers taught assessment in terms of videotape recordings (55%), written tests (55%), concert performances (55%), and student attendance (55%). Collegiate teachers least taught assessment practices were independent study (35%), student portfolios (35%), check sheets, rating scales, and rubrics (35%), and student attitudes (35%). Similar to the high school directors, college professors taught assessment practices based on their personal choice. Both college and high school teachers utilized non-musical assessment techniques as the most popular type of assessment. Teachers expressed their issues with assessment as not having time, training, organization, support, interest, and guidelines, to assess their students properly. The results also indicated that teachers had a lack of understanding and knowledge about implementing the National Standards for Music Education.

Kotura (2001) suggested that in the future survey items should be kept simple, based on a Likert scale. Additionally, the researcher suggested that more studies needed to be completed to paint a complete picture of assessment practices of teachers, and to indicate what can be done by music teacher organizations to help train teachers in assessment practices. The researcher suggested that the difference between gender and teaching experience related to assessment practices should be examined in future.

Like Kotora (2001), McCoy (1988) investigated assessment practices of Ohio music teachers. However unlike Kotora (2001), McCoy surveyed secondary band ($N = 43$) and choral ($N = 54$) instructors to determine the following:
1. To what extent do directors make use of psychomotor, cognitive, affective, and non-music criteria in assigning grades?

2. Do the factors of ensemble size, selectivity, or performance demands influence grading procedures?

3. Are students provided with written course objectives and descriptions of grading procedures?

4. Do administrators supply any guidelines for grading practices? (p. 15)

The researcher used survey results to determine that most directors utilize a combination of cognitive, psychomotor, affective, and non-music criteria for grade determination. Results indicated that directors who were given administrative guidelines for grading included more psychomotor criteria in grading than those who did not receive any guidelines. Additionally, directors who gave their students written grading guidelines often gave more cognitive based assessments. Ensemble size, selectivity, or performance demands did not influence grading procedures. The results indicate that teachers whose school administrations who require teachers to provide guidelines about instructions are more likely to incorporate different functions of assessment in their classrooms.

McCoy (1988) found that most teachers were grading on non-musical criteria in Ohio. McCoy (1991) replicated the study in Illinois to determine how teachers were determining final grades in band and orchestra classes and how these grading practices compared to their principals’ suggestions for grading practices. Through a questionnaire sent to choral directors, band directors, and principals at randomly selected high schools, the researcher determined that music directors relied mostly on non-music criteria,
followed by psychomotor criteria, then affective and cognitive domains. In contrast, principals thought that music directors should be mostly grading based on psychomotor criteria, followed by non-music, cognitive, and affective based criteria. McCoy recommends that directors need assessment models for all domains of evaluation to help with their assessment processes.

In another study of secondary instrumental music teachers’ McCreary (2001) investigated assessment practices of teachers in the state of Hawaii. The study aimed to examine techniques and procedures that teachers utilized to assess secondary instrumental students, as well as to compare student and teacher’s perceptions of assessment. The researcher developed two surveys: one for students and one for teachers. Both surveys included demographic information and survey items. A pilot study was instituted at one middle school and one high school to refine the items. For the study, schools were randomly selected from the island of Oahu, and students ($N = 467$) and teachers ($N = 10$) were given the survey to complete.

The results of this study indicated that secondary instrumental teachers use traditional assessment methods such as written tests, playing tests, participation, and practice time to assess their students, but most teachers (93%) did not utilize alternative assessments such as portfolios or journals. Most teachers utilized non-musical criteria, such as participation, to formulate grades. Students and teachers agreed that a variety of assessments were the best way to assess student learning. Teacher perceptions of assessment on the basis of demographics could not be analyzed because of the small sample size. Student perceptions of assessment indicated that younger students valued instruction and music based assessment more than older students. Orchestra students
perceived that their grades were based on more performance aspects than band students.

All students indicated that they wanted to know how and why they were being assessed.

Summary

Assessment dates back to the beginning of the educational system, however music education assessment has become prevalent since the 1980s, but especially with the advent of the standards movement in the early 1990s. From the national level down, officials dictate policies to hold music teachers accountable for the activities in their classrooms through assessment. There have been many resources provided to music teachers to assist with assessment in the classroom.

There have been many general information articles published in music educators’ reference journals to circulate assessment practices and to explain assessment logistics. Although many teachers have utilized non-music criteria to evaluate their students, teachers have been provided with information about assessment practices that evaluate students on musically-based criteria such as rubrics, portfolios, rating scales, reflections, and cross-curricular assignments.

Guidelines for developing quality assessments have been distributed. Assessments must start with measurable objectives, and then appropriate strategies must be utilized in order for the results to be valid, reliable, and relevant to teachers, students, parents, and administrators. The assessment process is an important part of both student learning and educator teaching.

Although there has been a great deal of information distributed to music teachers, there have been very few studies in determining what assessment practices are actually being used by teachers in their classrooms. In these studies, most music teachers utilized
non-music criteria for assessment in spite of all of the information available about authentic, musically-based assessments. More research needs to be completed to give an accurate picture of assessment practices of music teachers.

Additionally, the research studies have been focused on band and choir performance classes. Only one of the research survey studies (McCreary 2001) included string teachers and their assessment practices, but the study’s population was a very focused population. String teachers and researchers will be able to benefit from a broad, complete survey on classroom assessment practices.
CHAPTER 3

METHOD

The purpose of this study was to investigate assessment practices of successful and less successful string teachers in the United States. The information gathered may encourage string teachers to enhance their teaching practices and improve the overall quality of their programs. The research questions that guided this study included (1) What individual assessment practices are most used by string teachers? (2) What individual assessment practices and teacher characteristics are related to string program success? (3) What is the best combination of individual assessment practices and individual teacher characteristics to predict string program success? (4) How does string program success differ as a function of teacher characteristics and overall assessment practices?

Participants

Participants of the pilot study ($N = 10$) were string teachers from the Miami area. For the main study, the participants ($N = 2400$) were string teachers ($n = 2100$) randomly selected from the MENC: The National Association for Music Education string teacher member database and a full sample of string teachers ($n = 300$) from the following areas: Atlanta, Georgia; Columbia, South Carolina; Cranford, New Jersey; and Las Vegas, Nevada. This group of participants was referred to as the “selected locations participants.” The sampling for this study was a combination of a random sample of string teachers from the MENC: The National Association for Music Education and a full sampling of existing string teachers in the selected locations.
Participant Recruitment

The researcher contacted MENC: The National Association for Music Education’s Director of MENC Information Resources and Publications who agreed to e-mail the survey to a random sample of string teachers. The researcher signed a contract stating she was a graduate student conducting research and agreed to provide MENC: The National Association for Music Education with a copy of the results. MENC: The National Association for Music Education pulled a randomly distributed sample from their membership database. The sample was equally distributed among the fifty states in the United States, and within the state groups, the sample included approximately fifteen elementary, fifteen middle, and twenty high school string teachers. The MENC: The National Association of Music Education pre-determined that these numbers were proportional to their membership at each of the levels. Although the sample number from MENC: The National Association of Music Education was large, according to the association’s protocol, participants may only be contacted once, which does not allow for follow-up e-mails. Therefore, the researcher decided to supplement the list with an additional participant list.

For the selected locations participant list, the researcher selected a small town from the south, a small town from the north, a large city from the south, and a large city from the west to provide a varied group of string teachers that represented different parts of the country: southeast, northeast, and west. The researcher then used her knowledge of the Atlanta, and Columbia, SC, areas to search school district websites for all elementary, middle, and high school individual school websites. Using the individual school websites, the researcher located the e-mail addresses for all of the schools’ string teachers. If
schools had multiple string teachers, all of the teachers were included on the initial
contact list. A colleague provided the New Jersey contacts and their information. The
music supervisor in Las Vegas agreed to send the survey to the string teachers in the area.

Responding Participants Demographics

Once the survey was sent via e-mail, five percent ($n = 130$) of the e-mail
addresses bounced. Of the remaining e-mails ($n = 2270$), there was a return rate of 10.1%
($n = 231$). However, the follow-up capable group had a return rate of 44%, while the non-
follow-up capable group had a return rate of only 6%. Since some participants ($n = 30$)
did not complete the entire survey, they were list-wise deleted. Therefore, the total
number of responding participants used for calculations was $N = 201$, all of whom came
from a variety of educational, teaching, and instrumental backgrounds. The demographics
of the responding participants are presented in Table 1.

Table 1

*Demographic Characteristics of Participants (N = 201)*

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>124</td>
<td>61.7</td>
</tr>
<tr>
<td>Male</td>
<td>77</td>
<td>38.3</td>
</tr>
<tr>
<td>Education Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelors</td>
<td>69</td>
<td>34.3</td>
</tr>
<tr>
<td>Masters</td>
<td>112</td>
<td>55.7</td>
</tr>
<tr>
<td>Doctorate</td>
<td>20</td>
<td>10.0</td>
</tr>
</tbody>
</table>

(Table 1 continues)
(Table 1 continued)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree(s) Earned</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance</td>
<td>56</td>
<td>27.9</td>
</tr>
<tr>
<td>Music Education</td>
<td>179</td>
<td>89.1</td>
</tr>
<tr>
<td>String Pedagogy</td>
<td>26</td>
<td>12.9</td>
</tr>
<tr>
<td>Theory/Composition</td>
<td>5</td>
<td>2.5</td>
</tr>
<tr>
<td>Musicology</td>
<td>4</td>
<td>2.0</td>
</tr>
<tr>
<td>Other</td>
<td>23</td>
<td>11.4</td>
</tr>
<tr>
<td>Primary Instrument</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Violin</td>
<td>62</td>
<td>30.8</td>
</tr>
<tr>
<td>Viola</td>
<td>23</td>
<td>11.4</td>
</tr>
<tr>
<td>Violoncello</td>
<td>32</td>
<td>15.9</td>
</tr>
<tr>
<td>Contrabass</td>
<td>12</td>
<td>6.0</td>
</tr>
<tr>
<td>Guitar</td>
<td>17</td>
<td>8.5</td>
</tr>
<tr>
<td>Piano</td>
<td>10</td>
<td>5.0</td>
</tr>
<tr>
<td>Woodwind</td>
<td>13</td>
<td>6.5</td>
</tr>
<tr>
<td>Brass</td>
<td>20</td>
<td>10.5</td>
</tr>
<tr>
<td>Percussion</td>
<td>3</td>
<td>1.5</td>
</tr>
<tr>
<td>Voice</td>
<td>7</td>
<td>3.5</td>
</tr>
<tr>
<td>Harp</td>
<td>2</td>
<td>1.0</td>
</tr>
<tr>
<td>Teaching Years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-4 Years</td>
<td>67</td>
<td>33.5</td>
</tr>
<tr>
<td>5-8 Years</td>
<td>37</td>
<td>18.5</td>
</tr>
<tr>
<td>9-12 Years</td>
<td>27</td>
<td>13.5</td>
</tr>
<tr>
<td>13-16 Years</td>
<td>17</td>
<td>8.5</td>
</tr>
<tr>
<td>17 or more years</td>
<td>52</td>
<td>26.0</td>
</tr>
</tbody>
</table>

(Table 1 continues)
The researcher created the survey based on the research questions and the variable definitions. The survey was in three parts: demographics, success criteria, and assessment practices. Music education professors and students at the University of Miami edited the questions to establish valid questions without redundancy. Test construction procedures advocated by Payne (2003) were utilized throughout the test. The measure was piloted with teachers in Miami ($N = 10$) to check for any technological issues. To establish content validity, a table of specifications, indicated in Table 2 (see page 32) and Table 3 (see page was created. Reliability was assessed after the survey was conducted. Overall reliability ($\alpha = .74$) and subscale reliability for success ($\alpha = .71$) and assessment practices ($\alpha = .84$), all fit within the suggested reliability for a reliable measure as advocated by Payne (2003).

**Measure of Dependent Variable**

The dependent variable of this study was string program success. While a successful string program encompasses many aspects of teaching and student responses, string program success was measured as a composite on the basis of music program
success criteria compiled by Crochet (2006) listed in Table 3. The researcher converted these criteria to be string specific and added an additional source of success criterion (Froseth, 1974). Utilizing the criterion of Crochet (2006) plus Froseth (1974), the researcher constructed the questions as multiple selection and 4-point Likert scale items as appropriate.

Table 2

*Criterion for Success, Sources, and Item Numbers*

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Citation</th>
<th>Item Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receives constant superior and/or excellent ratings at adjudicated string performances.</td>
<td>Iida (1991) Howard (2001)</td>
<td>10</td>
</tr>
<tr>
<td>Maintains a balanced string program with groups such as leveled string ensembles, chamber music, homogeneous ensembles, and alternative styles groups</td>
<td>Hayes (1998)</td>
<td>24</td>
</tr>
<tr>
<td>Inspires students to the point that students themselves share enthusiasm and dedication.</td>
<td>Nelson (1973) Lautzenheiser (1992)</td>
<td>19</td>
</tr>
</tbody>
</table>

(Table 2 continues)
<table>
<thead>
<tr>
<th>Criterion</th>
<th>Citation</th>
<th>Item Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provides students the opportunity to work with guest conductors, composers, and outside instructors.</td>
<td>Nelson (1973), Mann (1979), Hayes (1998)</td>
<td>25</td>
</tr>
<tr>
<td>Encourages a large percentage of students to participate in solos and small ensembles at evaluation festivals.</td>
<td>Mercer (1973), Mann (1979)</td>
<td>18</td>
</tr>
<tr>
<td>Received invitations for ensemble under their direction to perform at a state or national conference.</td>
<td>Davidson (1995), Howard (2001)</td>
<td>9</td>
</tr>
</tbody>
</table>
It was necessary to compute the difference between more successful and less successful string programs. A composite was created based on the participants’ answers. Participants’ answers were coded as 1 point towards the composite for each activity that they indicated in questions 8 and 9. For question 10, the answers were coded as 1 point for every year category in which the teacher indicated received a superior or excellent rating at large group performance evaluation. For questions 11-25, the Likert scale answers were added together where “strongly agree” equaled 4 points, “agree” equaled 3 points, “disagree” equaled 2 points, and “strongly disagree” equaled 1 point. After the composite score was determined, a median split of the composite was used to define more successful ($n = 100$) and less successful ($n = 101$) string programs.

**Measures of Independent Variables**

The independent variables that were measured in this study were teacher characteristics and assessment practices. Teacher characteristics included background information in the areas of (1) gender, (2) highest level of education, (3) areas of music...
degrees, (4) primary instrument, (5) number of years teaching strings, (6) performance classes taught, and (7) grade level taught. The demographic items of the survey were derived from doctoral dissertation surveys in assessment (McCreary, 2001; Crochet 2006; Bennett, 2001).

Assessment practices were defined as how teachers assess their programs. The assessment practices data were collected via a four-point Likert scale. Additionally, there was one open-ended question to elicit a response from the participants about their assessment practices. The researcher consulted previous assessment studies to develop assessment practices items in four categories: National-Standards for Music Education-based assessment, performance-based assessment, non-performance-based assessment, and overall assessment information. After the surveys were returned, the researcher computed composites based on the Likert scale answers for each of the assessment categories and for overall assessment practices.
Table 3

Subgroups of Assessment Practices

<table>
<thead>
<tr>
<th>Element</th>
<th>Citation</th>
<th>Item Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Standards-based Assessment</td>
<td>MENC (1996)</td>
<td>12; 15; 17-22</td>
</tr>
<tr>
<td>Performance-based Assessment</td>
<td>McCoy (1988)</td>
<td>8-10;13-15; 17</td>
</tr>
<tr>
<td></td>
<td>Roberts (1994)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>McCreary (2001)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kotora (2001)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sears (2002)</td>
<td></td>
</tr>
<tr>
<td>Non-performance-based Assessment</td>
<td>McCoy (1988)</td>
<td>6-7; 11-12; 16</td>
</tr>
<tr>
<td></td>
<td>Roberts (1994)</td>
<td>18-22</td>
</tr>
<tr>
<td></td>
<td>McCreary (2001)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kotora (2001)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sears (2002)</td>
<td></td>
</tr>
<tr>
<td>Overall Assessment Information</td>
<td>McCoy (1988)</td>
<td>1-5; 23</td>
</tr>
<tr>
<td></td>
<td>Roberts (1994)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>McCreary (2001)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kotora (2001)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sears (2002)</td>
<td></td>
</tr>
</tbody>
</table>

**Data Collection Procedures**

The measure was uploaded and hosted on SurveyMonkey.com to facilitate easy dispersal and collection. SurveyMonkey is an internet-based survey site that provides extensive details for users. The professional subscription to the site costs $200 per year plus $100 per year for Secure Socket Layers (SSL) data protection. The professional subscription allows for unlimited responses and gives the researcher freedom to customize the templates and questions. SurveyMonkey provides a complete manual to assist the researcher with all technical considerations.
SurveyMonkey allowed for questions to be typed into a template designed by the researcher. The researcher was able to manipulate the colors, organization, and flow of the survey. Additionally, there were pre-set question templates to help the researcher input questions and their appropriate method of response, such as multiple choice, free response boxes, and Likert-scale ratings. For multiple-choice questions, there were two options in terms of responding: allow for multiple responses or allow for one response; the researcher utilized both within the context of this survey. Although the computer had an option to designate a random order for the answer choices, the researcher specified the order for the choices on each question. Additionally, the researcher was able to include a progress bar and number the questions and pages with simple clicks on the “Survey Design Options.”

Each of the orchestra teachers was e-mailed a survey link. Two different processes were employed for the two different participant groups, however SurveyMonkey encoded all of the data the same way. It was not known by the researcher whether the participant came from the MENC: The National Association for Music Education participant list or the selected locations list.

For the MENC: The National Association for Music Education participant list, SurveyMonkey generated a link to the website. The researcher wrote an e-mail that included the link to the survey and consent for the study (see Appendix A). The consent e-mail explained that SurveyMonkey encodes all information using secure socket layers and that Verisign secures all information. All participants were anonymous; however, the SurveyMonkey site tracked respondents via e-mail address to prevent duplication, but the e-mail addresses were not tied to the data results in any form. The participants had the
option to decline participation by not clicking on the link to the survey’s Internet location. The researcher asked that the survey be completed within two weeks.

For the selected locations participant list, SurveyMonkey provided a template for the researcher to upload the e-mail addresses of the participants to the website. The researcher wrote the e-mail instructions for the survey directly onto the SurveyMonkey template. The e-mail included the same procedural information as the MENC: The National Association for Music Education e-mail, however the consent e-mail was slightly different (see Appendix B). All participants were anonymous; the SurveyMonkey site tracked respondents via e-mail address to facilitate follow-up, but the e-mail addresses were not tied to the data results in any form. The e-mail included a specific link to allow participants to opt-out if they did not want to participate.

SurveyMonkey estimated that there is typically a 20-30% response rate for e-mail based online surveys; however, the researcher only received a 10% response rate. Since MENC: The National Association for Music Education did not provide a method of follow-up contact with the participants, there was not a follow-up with this participant group. With the selected locations participant list, follow-up e-mails were sent one week after the initial e-mail to help facilitate a higher response rate (44%). SurveyMonkey kept the e-mail list up-to-date, insuring that participants who had already completed the survey did not receive any additional communication. Additionally, the researcher personally contacted her colleagues in the Atlanta and Columbia areas to ask them to complete the survey.

Once the survey was completed, a thank you page was presented to the participant. All of the data was collected on the SurveyMonkey website and compiled
into detailed reports. This information was downloaded to Excel and inserted into Statistical Packages for the Social Sciences (SPSS).

Data Analysis

Once the surveys were returned, the data was downloaded in the form of Excel spreadsheets. The researcher imported and coded the data from the Excel sheets provided from SurveyMonkey into SPSS version 17.0 for Mac to perform the data analysis. A data run to determine frequencies was performed to check for outliers and incorrect data entry. Study dropouts who did not complete the entire study were list-wise deleted. For random missing data points, the researcher substituted means, because it was a simple process that would not change the estimate of the population mean (Little & Rubin, 2002).

The researcher performed a preliminary check of data using descriptive information. The researcher calculated each individual item in terms of skewness, kurtosis, mean, and standard deviation. The researcher looked for a normal distribution. Anything that was plus or minus one standard deviation was flagged. Additionally, the reliability of the measure that was reported earlier was computed. Finally, the researcher analyzed the data in terms of the research questions.
CHAPTER 4

RESULTS

In an effort to determine the assessment practices of string teachers, string teachers \((N = 201)\) answered items \((N = 48)\) on the String Program Success and Assessment Practices Survey. The measure was designed to assess teacher characteristics, string program success, and assessment practices. The results discussed in the subsequent pages answer the research questions listed below.

Research Questions

1. What individual assessment practices are most used by string teachers?
2. What individual assessment practices and teacher characteristics are related to string program success?
3. What is the best combination of individual assessment practices and individual teacher characteristics to predict string program success?
4. How does string program success differ as a function of teacher characteristics and overall assessment practices?

Research Question One

The researcher used descriptives analysis techniques to answer the first research question. The distribution of the assessment practices are found in Table 4, and a complete list of the assessments and frequencies based on the Likert scale can be seen in Appendix E.
Table 4  
*Distribution of String Teachers’ Assessment Practices*

<table>
<thead>
<tr>
<th>Assessment</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher-given Verbal Criticism</td>
<td>3.74</td>
<td>.57</td>
</tr>
<tr>
<td>Rehearsal Skills</td>
<td>3.74</td>
<td>.57</td>
</tr>
<tr>
<td>Attendance</td>
<td>3.67</td>
<td>.68</td>
</tr>
<tr>
<td>Teacher-Rated Rubrics</td>
<td>3.47</td>
<td>.81</td>
</tr>
<tr>
<td>Student Evaluations</td>
<td>3.24</td>
<td>.79</td>
</tr>
<tr>
<td>Student Reflections</td>
<td>2.99</td>
<td>.87</td>
</tr>
<tr>
<td>Teacher-given Written Criticism</td>
<td>2.97</td>
<td>.88</td>
</tr>
<tr>
<td>Music Theory Assessments</td>
<td>2.90</td>
<td>.84</td>
</tr>
<tr>
<td>Sightreading Skills Assessments</td>
<td>2.81</td>
<td>.89</td>
</tr>
<tr>
<td>Written Assignments</td>
<td>2.81</td>
<td>.83</td>
</tr>
<tr>
<td>Student-Rated Rubrics</td>
<td>2.66</td>
<td>.95</td>
</tr>
<tr>
<td>Home Practice Reports</td>
<td>2.65</td>
<td>1.23</td>
</tr>
<tr>
<td>Cross-curricular Assignments</td>
<td>2.37</td>
<td>.84</td>
</tr>
<tr>
<td>Improvisation/creativity Assignments</td>
<td>2.37</td>
<td>.89</td>
</tr>
<tr>
<td>Portfolio Assessment</td>
<td>2.30</td>
<td>.99</td>
</tr>
<tr>
<td>Music History Assessments</td>
<td>2.22</td>
<td>.88</td>
</tr>
<tr>
<td>Composition Assignments</td>
<td>2.11</td>
<td>.90</td>
</tr>
</tbody>
</table>

String teachers most often used teacher-given constructive criticism, rehearsal skills, attendance, and teacher-rated rubrics for assessments. Composition assignments, music history assessments, improvisation/creativity assignments, cross-curricular assignments, and portfolio assessments were the least-used assessments.

The participants were given an opportunity to list any additional assessment practices that they used in their classrooms. The researcher used content analysis to
categorize the participants’ responses to this open-ended question. Assessments with multiple responses included peer-related assessment ($n = 9$) and Smart-Music ($n = 8$).

The descriptive statistics of the assessment subgroups of National Standards for Music Education-based assessment, performance-based assessment, and non-performance-based assessment are seen in Table 5.

Table 5

Descriptive Statistics of Assessment Subgroup Composites

<table>
<thead>
<tr>
<th></th>
<th>Question $n = 8$</th>
<th>Question $n = 7$</th>
<th>Question $n = 10$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standards</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>20.99</td>
<td>20.32</td>
<td>28.68</td>
</tr>
<tr>
<td>Maximum Score %</td>
<td>.66</td>
<td>.73</td>
<td>.71</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>4.65</td>
<td>3.63</td>
<td>4.79</td>
</tr>
<tr>
<td>Skewness</td>
<td>-.19</td>
<td>-.42</td>
<td>-.37</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>-.21</td>
<td>.59</td>
<td>.45</td>
</tr>
</tbody>
</table>

Based on the percentages of the maximum score possible, it appeared that string teachers used more performance-based assessment and non-performance-based practices than National Standards-based assessment.

**Research Question Two**

To answer the second research question, *What individual assessment practices and teacher characteristics are related to string program success?*, the researcher conducted Pearson-Product-Moment correlations between individual assessment practices and the string program success composite, and between teacher characteristics and string program success. For teacher characteristics, the researcher chose to only examine gender, education level, and years teaching to keep the variable ratio to a lower
The results are presented in Table 6. Additionally, the researcher computed a chi-squared to discover the relationship between primary instrument and string program success ($\chi^2 = 32.89; p = .00$).

Table 6  
*Correlation of Individual Assessment Practices and Teacher Characteristics with String Program Success*

<table>
<thead>
<tr>
<th>Assessment Practices</th>
<th>r</th>
<th>$r^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written Assessments</td>
<td>.22**</td>
<td>.05</td>
</tr>
<tr>
<td>Student Reflections</td>
<td>.22**</td>
<td>.05</td>
</tr>
<tr>
<td>Teacher-Rated Rubrics</td>
<td>.21**</td>
<td>.04</td>
</tr>
<tr>
<td>Sightreading Skills Assessments</td>
<td>.20**</td>
<td>.04</td>
</tr>
<tr>
<td>Student Evaluations</td>
<td>.20**</td>
<td>.04</td>
</tr>
<tr>
<td>Music Theory Assessments</td>
<td>.19**</td>
<td>.04</td>
</tr>
<tr>
<td>Music History Assessments</td>
<td>.19**</td>
<td>.04</td>
</tr>
<tr>
<td>Portfolio Assessment</td>
<td>.15**</td>
<td>.02</td>
</tr>
<tr>
<td>Student-Rated Rubrics</td>
<td>.14*</td>
<td>.02</td>
</tr>
<tr>
<td>Cross-curricular Assignments</td>
<td>.13</td>
<td>.02</td>
</tr>
<tr>
<td>Teacher-given Written Criticism</td>
<td>.10</td>
<td>.01</td>
</tr>
<tr>
<td>Attendance</td>
<td>.09</td>
<td>.01</td>
</tr>
<tr>
<td>Rehearsal Skills</td>
<td>.08</td>
<td>.01</td>
</tr>
<tr>
<td>Composition Assignments</td>
<td>.07</td>
<td>.00</td>
</tr>
<tr>
<td>Teacher-given Verbal Criticism</td>
<td>.02</td>
<td>.00</td>
</tr>
<tr>
<td>Home Practice Reports</td>
<td>-.05</td>
<td>.00</td>
</tr>
<tr>
<td>Improvisation/creativity Assignments</td>
<td>-.02</td>
<td>.00</td>
</tr>
<tr>
<td>Teacher Characteristic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>-.34</td>
<td>.12</td>
</tr>
<tr>
<td>Education Level</td>
<td>.28*</td>
<td>.07</td>
</tr>
<tr>
<td>Years Teaching</td>
<td>.35*</td>
<td>.12</td>
</tr>
</tbody>
</table>

* $p < .05$.  ** $p < .01$.  


String program success was correlated with written assessments, student reflections, teacher-rated rubrics, sightreading skills assessment, student evaluations, music theory assessments, music history assessments, portfolio assessments, and student-rated rubrics. No other assessment practices were significantly related to string program success.

Education level, years teaching, and primary instrument were correlated with string program success while gender was not correlated. As education level and years of teaching increased, so did string program success.

**Research Question Three**

To answer the third research question, *What is the best combination of individual teacher characteristics and individual assessment practices to predict string program success?*, two regression analyses were conducted using the teacher characteristics in the first analysis and assessment practices in the second analysis. The researcher first reduced the variable levels of teacher characteristics to create more comparable groups. The researcher recoded the instruments into four groups: high strings (violin and viola), low strings (cello, bass), band (woodwind, brass, and percussion), and other (guitar, vocal, and harp). The groups were fairly equal in size and distribution. Also, the researcher recoded years teaching from three groups into four groups. The groups were 0-4 years, 5-8 years, and greater than 9 years. These groups were also equal in size and distribution. Because categorical variables cannot be imputed directly into a regression equation, the categorical teacher characteristic variables were recoded into dummy variables. Then, the researcher completed a simultaneous regression between string program success and the
individual assessment practices and a simultaneous regression between string program success and teacher characteristics. Two regressions were performed, because the output of a single regression was not clear. Simultaneous regression was chosen because it is the best procedure for prediction and gives the relative effects of each variable (Keith, 2006).

To predict string program success, the researcher simultaneously regressed the individual teacher characteristics of gender, education level, instrument, and years teaching. The results are presented in Table 7.

Table 7

Regression Analysis Summary for Teacher Characteristics Predicting String Program Success

<table>
<thead>
<tr>
<th>Teacher Characteristic</th>
<th>$\beta$</th>
<th>$R^2$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>-.03</td>
<td>.03</td>
<td>.63</td>
</tr>
<tr>
<td>Education Level</td>
<td>51.41</td>
<td>.08</td>
<td>.00</td>
</tr>
<tr>
<td>Instrument</td>
<td>52.24</td>
<td>.08</td>
<td>.00</td>
</tr>
<tr>
<td>Years Teaching</td>
<td>47.69</td>
<td>.12</td>
<td>.00</td>
</tr>
</tbody>
</table>

Education level, instrument, and years teaching were predictors of string program success. Education level and instrument each indicated a shared variance of 8.3% with string program success, while years teaching indicates 12% shared variance with string program success.

A multiple regression procedure was also performed between individual assessment practices and string program success. However, the regression using individual assessment practices did not produce significant results. Therefore, the
researcher decided to perform a factor analysis to determine groupings of the individual assessment practices. The measuring of sampling accuracy was .83, which is appropriate for factor analysis (Asmus, 1989). The research used an exploratory factor analysis, because this allows for the maximum amount of variance to be explained. Principal axis factoring method was used since it would calculate a correlation matrix, which is important in the analysis of the items (Asmus, 1989). Additionally, as suggested by Asmus, an oblimin rotation was used to allow for factors to correlate in a real-life context, because assessment is not a theoretical concept, but a real-life occurrence. The researcher adjusted the delta value to elicit a higher correlation of the item values ($\Delta = .3$). The researcher analyzed the initial returns of the exploratory factor analysis and found five factors. After further examining the data, the fifth factor only had one item loading, so the researcher decided to eliminate it and force a four-factor solution (Asmus, 1989). The factors were named from the assessment items with primary loadings in each factor: **Musicianship-based Assessments** (factor 1), **Rehearsal-based Assessments** (factor 2), **Creativity-based Assessments** (factor 3), and **Student-based Assessments** (factor 4).

The results of the factor analysis are presented in Table 8, Table 9, and Table 10.

Table 8

<table>
<thead>
<tr>
<th>Factor</th>
<th>Eigenvalue</th>
<th>% of variance</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Musicianship-based Assessments</td>
<td>5.12</td>
<td>26.95</td>
<td>26.95</td>
</tr>
<tr>
<td>Rehearsal-based Assessments</td>
<td>1.81</td>
<td>8.44</td>
<td>35.39</td>
</tr>
<tr>
<td>Creativity-based Assessments</td>
<td>1.15</td>
<td>3.84</td>
<td>39.23</td>
</tr>
<tr>
<td>Student-based Assessments</td>
<td>1.07</td>
<td>3.71</td>
<td>42.95</td>
</tr>
</tbody>
</table>
Table 9

Summary of Items and Factor Loadings for Oblimin 4-Factor Solution

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Music History Assessments</td>
<td>.709</td>
<td>.233</td>
<td>.433</td>
<td>-.120</td>
</tr>
<tr>
<td>Music Theory Assessments</td>
<td>.698</td>
<td>.248</td>
<td>.470</td>
<td>-.204</td>
</tr>
<tr>
<td>Sightreading Skills Assessments</td>
<td>.679</td>
<td>.210</td>
<td>.526</td>
<td>-.247</td>
</tr>
<tr>
<td>Cross-curricular Assignments</td>
<td>.649</td>
<td>.203</td>
<td>.484</td>
<td>-.203</td>
</tr>
<tr>
<td>Written Assignments</td>
<td>.628</td>
<td>.279</td>
<td>.425</td>
<td>-.274</td>
</tr>
<tr>
<td>Student-Rated Rubrics</td>
<td>.609</td>
<td>.349</td>
<td>.496</td>
<td>-.317</td>
</tr>
<tr>
<td>Teacher-given Written Criticism</td>
<td>.457</td>
<td>.174</td>
<td>.305</td>
<td>-.217</td>
</tr>
<tr>
<td>Teacher-Rated Rubrics</td>
<td>.456</td>
<td>.391</td>
<td>.275</td>
<td>-.293</td>
</tr>
<tr>
<td>Portfolio Assessment</td>
<td>.387</td>
<td>.217</td>
<td>.314</td>
<td>-.220</td>
</tr>
<tr>
<td>Rehearsal Skills</td>
<td>.188</td>
<td>.936</td>
<td>.103</td>
<td>-.030</td>
</tr>
<tr>
<td>Attendance</td>
<td>.158</td>
<td>.469</td>
<td>.124</td>
<td>-.220</td>
</tr>
<tr>
<td>Teacher-given Verbal Criticism</td>
<td>.234</td>
<td>.441</td>
<td>.137</td>
<td>-.264</td>
</tr>
<tr>
<td>Composition Assignments</td>
<td>.519</td>
<td>.202</td>
<td>.855</td>
<td>-.193</td>
</tr>
<tr>
<td>Improvisation/creativity Assignments</td>
<td>.534</td>
<td>.127</td>
<td>.730</td>
<td>-.151</td>
</tr>
<tr>
<td>Home Practice Reports</td>
<td>.220</td>
<td>.207</td>
<td>.253</td>
<td>.044</td>
</tr>
<tr>
<td>Student Evaluations</td>
<td>.419</td>
<td>.297</td>
<td>.352</td>
<td>-.713</td>
</tr>
<tr>
<td>Student Reflections</td>
<td>.502</td>
<td>.342</td>
<td>.368</td>
<td>-.647</td>
</tr>
</tbody>
</table>

*Note. Boldface indicates highest loading factors. Factor 1-Musicianship-based Assessments; Factor 2- Rehearsal-based Assessments; Factor 3-Creativity-based Assessments; and Factor 4-Student-based Assessments*
Table 10

*Assessment Practices Factor Correlation Matrix*

<table>
<thead>
<tr>
<th></th>
<th>Rehearsal-based</th>
<th>Creativity-based</th>
<th>Student-based</th>
</tr>
</thead>
<tbody>
<tr>
<td>Musicianship-based</td>
<td>.43</td>
<td>.71</td>
<td>-.37</td>
</tr>
<tr>
<td>Rehearsal-based</td>
<td>.32</td>
<td></td>
<td>-.31</td>
</tr>
<tr>
<td>Creativity-based</td>
<td></td>
<td>-.24</td>
<td></td>
</tr>
</tbody>
</table>

To complete the analysis, the researcher created composites of the factor scores and then input the scores into the regression equation to complete the analysis. The results are in Table 11.

Table 11

*Regression Analysis Summary for Assessment Practices Factors Predicting String Program Success*

<table>
<thead>
<tr>
<th>Factor</th>
<th>B</th>
<th>SEB</th>
<th>( \beta )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Musicianship-based</td>
<td>.20</td>
<td>.86</td>
<td>.28*</td>
</tr>
<tr>
<td>Rehearsal-based</td>
<td>.49</td>
<td>.52</td>
<td>.07</td>
</tr>
<tr>
<td>Creativity-based</td>
<td>-1.48</td>
<td>.78</td>
<td>-.20</td>
</tr>
<tr>
<td>Student-based</td>
<td>-1.50</td>
<td>.64</td>
<td>-.18 *</td>
</tr>
</tbody>
</table>

Note. * \( p < .05 \); \( R^2 = .328 \)

The factors regressed predicted 32.8% of string program success. Musicianship-based Assessments and Student-based Assessments were the only significant factors within the regression model. However, Creativity-based Assessments was approaching significance.
Research Question 4

To answer research question four, *How does string program success differ as a function of teacher characteristics and overall assessment practices?*, the researcher utilized one-way ANOVA for gender, education level, primary instrument, years teaching, string program success, and post-hoc comparisons. The researcher ran Tukey HSD post hoc tests since they are the less conservative of the post hoc procedures (Winer, Michels, & Brown, 1991; Cook & Farewell, 1996). There was no significant difference on string program success between teachers of varying years teaching, however, significant main effects were found for the other three teacher characteristics. Additionally, significant two-way interaction effects were found between education and primary instrument. The results are reported in Table 12, Table 13, and Figure 1.
Table 12

One-Way Analysis of Variance Summary for String Program Success by Teacher Characteristics and Overall Assessment Practices

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>η²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>181.97</td>
<td>1</td>
<td>181.97</td>
<td>5.26*</td>
<td>.03</td>
</tr>
<tr>
<td>Education Level</td>
<td>695.93</td>
<td>2</td>
<td>347.89</td>
<td>10.06*</td>
<td>.11</td>
</tr>
<tr>
<td>Instrument</td>
<td>565.39</td>
<td>3</td>
<td>188.47</td>
<td>5.45*</td>
<td>.09</td>
</tr>
<tr>
<td>Years Teaching</td>
<td>187.94</td>
<td>2</td>
<td>93.97</td>
<td>2.72</td>
<td>.03</td>
</tr>
<tr>
<td>Overall Assessment</td>
<td>34.97</td>
<td>1</td>
<td>34.97</td>
<td>1.01</td>
<td>.01</td>
</tr>
<tr>
<td>Gender-Education</td>
<td>212.00</td>
<td>2</td>
<td>106.00</td>
<td>3.07</td>
<td>.04</td>
</tr>
<tr>
<td>Gender-Instrument</td>
<td>143.69</td>
<td>3</td>
<td>47.90</td>
<td>1.39</td>
<td>.03</td>
</tr>
<tr>
<td>Gender-Years Teaching</td>
<td>23.02</td>
<td>2</td>
<td>11.51</td>
<td>0.33</td>
<td>.00</td>
</tr>
<tr>
<td>Gender-Overall Assess.</td>
<td>15.33</td>
<td>1</td>
<td>15.33</td>
<td>0.44</td>
<td>.00</td>
</tr>
<tr>
<td>Education-Instrument</td>
<td>512.22</td>
<td>6</td>
<td>85.37</td>
<td>2.47*</td>
<td>.09</td>
</tr>
<tr>
<td>Education-Years Teaching</td>
<td>67.43</td>
<td>4</td>
<td>16.86</td>
<td>0.49</td>
<td>.01</td>
</tr>
<tr>
<td>Education-Overall Assess.</td>
<td>21.52</td>
<td>2</td>
<td>10.76</td>
<td>0.31</td>
<td>.00</td>
</tr>
<tr>
<td>Instrument-Years Teaching</td>
<td>294.60</td>
<td>6</td>
<td>49.10</td>
<td>1.42</td>
<td>.05</td>
</tr>
<tr>
<td>Instrument-Overall Assess.</td>
<td>45.05</td>
<td>3</td>
<td>15.01</td>
<td>0.43</td>
<td>.01</td>
</tr>
<tr>
<td>Years Teaching-Overall Assess.</td>
<td>114.67</td>
<td>2</td>
<td>57.34</td>
<td>1.66</td>
<td>.02</td>
</tr>
</tbody>
</table>

Note. p > .05; R² = .39
Table 13

*Observed Means for Significant Main Effects for String Program Success by Teacher Characteristics and Overall Assessment Practices*

<table>
<thead>
<tr>
<th>Teacher Characteristic</th>
<th>Mean One</th>
<th>Mean Two</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female-Male</td>
<td>51.17</td>
<td>50.69</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelors-Masters</td>
<td>48.92</td>
<td>51.41</td>
</tr>
<tr>
<td>Bachelors-Doctorate</td>
<td>48.92</td>
<td>55.68</td>
</tr>
<tr>
<td>Masters-Doctorate</td>
<td>51.41</td>
<td>55.68</td>
</tr>
<tr>
<td>Primary Instrument</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper String- Lower String</td>
<td>52.23</td>
<td>52.79</td>
</tr>
<tr>
<td>Upper String- Band</td>
<td>52.23</td>
<td>48.31</td>
</tr>
<tr>
<td>Upper String- Other</td>
<td>52.23</td>
<td>48.50</td>
</tr>
<tr>
<td>Lower String- Band</td>
<td>52.79</td>
<td>48.31</td>
</tr>
<tr>
<td>Lower String- Other</td>
<td>52.79</td>
<td>48.50</td>
</tr>
<tr>
<td>Band- Other</td>
<td>48.31</td>
<td>48.50</td>
</tr>
</tbody>
</table>

*Note.* Underline indicates significant difference (*p* < .05).

Although there was a slight difference in terms of string program success and the level of education between those string teachers who have their Bachelors and their Masters, there was a larger difference between teachers who have their Bachelors and those who have their Doctorate. There was also a difference between teachers who have their Masters and Doctorates. String program success was not significantly different between teachers whose primary instruments were upper or lower strings. However, significant differences in string program success were found between teachers whose primary instrument was an upper string instrument and those teachers who had band or
other instruments as their primary instrument. The comparison between lower strings and the band instrument and other instrument teachers was similar to the upper string comparison. There was no difference on string program success between the band instrument playing teachers and the other instrument playing teachers.

As seen in Figure 1, the interaction effect between primary instrument and education level was quite noticeable. String players with Bachelors were more successful than non-string players. String teachers of all primary instruments with their Masters were within five points of being similarly successful. At the Doctorate level, there was a great difference between the primary instruments. Lower-string and band players were more successful than the other teachers.
Figure 1

Interaction Effects of Education Level and Primary Instrument by String Program Success

- Upper String
- Lower String
- Band
- Other
Discussion

The present study’s results are comparable to McCreary (2001) and Kotura (2001). The results of the McCreary study indicated that secondary instrumental teachers use traditional assessment methods such as written tests, playing tests, participation, and practice time to assess their students, but most teachers (93%) did not utilize alternative assessments such as portfolios or journals. Most teachers utilized non-musical criteria, such as participation, to formulate grades. In the Kotura (2001) study, the three most commonly utilized assessment practices by high school choral teachers were concert performances, student participation, and student attendance. The three least commonly utilized assessment practices by high school teachers were student portfolios, check sheets, rating scales, and rubrics, and independent study/written projects.

In this study, teacher-given constructive criticism, rehearsal skills, attendance, and teacher-rated rubrics were the most utilized forms of assessment. Similar to the McCreary and Kotura studies, alternative assessments such as composition assignments, music history assessments, improvisation/creativity assignments, cross-curricular assignments, and portfolio assessment, were least likely to be used by string teachers. In previous studies of music teachers’ assessment practices, teachers were more likely to use non-performance practices (McCoy, 1988; McCoy, 1991; McCreary, 2001; Kotora, 2001), however in this study with the assessment practices subgroups, string teachers were more likely to use performance-based and non-performance-based assessments to assess students rather than National Standards-based assessments.

The assessments that were significantly correlated with success included written assessments, student reflections, teacher-rated rubrics, sightreading skills assessment,
student evaluations, music theory assessments, music history assessments, portfolio assessments, and student-rated rubrics. These assessments were all student-centered and involve some implementation of the National Standards for Music Education.

Attendance, rehearsal skills, composition assignments, teacher-given verbal criticism, and home practice reports were the assessments that had the lowest correlations with success.

As expected, string program success was correlated with years teaching and education level; therefore as years teaching and education level increased, so did success. Success logically comes with more experience, so this finding makes sense in a real-world context. Of the teacher characteristics examined, gender was the only characteristic that did not correlate with success.

Three of the four teacher characteristics examined predicted string program success. While gender was not a significant predictor of success, education level, instrument, and years teaching all were significant predictors of string program success. As education level and teaching level increased, so did success.

Individual assessment practices did not predict success. Music teachers are not merely defined by their individual practices, so it made sense that individual assessment practices did not correlate. The subsequent factor analysis results provided a logical grouping of the assessment practices. The factors that emerged were interpreted as Musicianship-based Assessments, Rehearsal-based Assessments, Creativity-based Assessments, and Student-based Assessments. The high cross loadings and high correlations indicated that assessment practices were not mutually exclusive of each other. Rehearsal-based Assessments was the only factor without cross loading. This could be because rehearsal-based assessments are simpler assessment than other assessment
techniques. Musicianship-based Assessments and Creativity-based Assessments were highly cross loaded on almost every item, because musicianship skills could be related to creativity skills. Creativity-based Assessments of improvisation and composition grouped together indicating an importance of creative assessments in music. Student evaluation and student reflection grouped together to signify that student participation in the assessment process is an important aspect of assessment.

The regression of the four assessment factors on string program success accounted for 32.8% of the variance in the string program success composite. Success was predicted by assessment practices, specifically by Musicianship-based Assessments and Student-based Assessments. In order to have a more successful program, string teachers should assess their students in terms of the Musicianship-based assessment of music history, music theory, sightreading, cross-curricular, written assignments, student-rated rubrics, teacher-written criticism, teacher-rated rubrics, and portfolio assessments, as well as the Student-based Assessments of student evaluations and student reflections.

In terms of teacher characteristics, although string program success does not differ between years teaching, however differences in string program success were found for gender, education level and instrument. Gender does not correlate with success, but does differ as a function of success. This result should be interpreted with caution because of the parsing of variance that occurs during the ANOVA statistical calculation. Education level should make a difference, because it would be expected that greater knowledge should impact success. The greatest difference was between teachers who had a Bachelors degree and those with a Doctorate, and this is congruent with this notion.
As expected, no significant differences in success composite scores were found between string teachers who were high and low string instrument performers. However, there were significant differences between both groups of string instruments with band and other instruments. No differences were found between band and other instruments, suggesting a similar premise within these two groups.

A very interesting interaction effect was found between education level and primary instrument. String players right out of college were initially more successful than the non-string players, however after a Masters, the difference equaled out. This could be because Bachelors degrees are typically focused on technique set where as Masters degrees are characteristically focused on the psychological understanding of teaching. Interestingly, string teachers with low strings or band as their primary instrument were more successful after earning a Doctorate. The difference at the Doctorate level could be attributed to the fact that upper string players and the other instrument players are traditionally focused on solo performance, where as low string players and band players are usually more focused on ensemble performance.
CHAPTER 5

CONCLUSIONS

Summary

The purpose of this study was to explore string teachers’ assessment practices related to string program success. Additionally, the study examined the relationship between teacher characteristics and string program success.

String teachers ($N = 201$) from around the country completed an online survey designed by the researcher. The survey was designed to assess the independent variables of teacher characteristics and assessment practices, and the dependent variable of string program success. Items were adapted from previous studies in assessment.

The first part of the survey gathered teacher characteristic information. The second part of the survey was a series of multiple selection and Likert-scale questions to measure string program success. The final portion of the survey consisted of Likert-scale questions where teachers rated how often they used specific assessment practices in their classrooms. Additionally, there was an open-response question to allow string teachers to share any additional assessment practices that they use in their classrooms.

To establish content validity, a table of specifications was created. Test construction procedures advocated by Payne (2003) were utilized throughout the test. Reliability was assessed after the survey was conducted and was found to be adequate ($\alpha = .74$). The survey was placed on the web via the SurveyMonkey website to facilitate an ease of distribution to the participants. A pilot study was completed with teachers in the Miami area to check for face validity of the measure and the technology.
The final measure was sent to two groups of string teachers from around the country. One group was sent an e-mail link to the survey from MENC: The National Association for Music Education. This group was not follow-up capable. The other group was sent an e-mail link from the researcher, and this group was follow-up capable. One follow-up e-mail was sent to the participants in the second group. The overall response rate was 10.1%, however, the follow-up capable group had a return rate of 44%, while the non-follow-up capable group had a return rate of only 6%.

The survey responses were collected and analyzed, and the results were reported in Chapter 4. Descriptive analysis, correlation, multiple regression, and ANOVA were used to interpret the survey data.

**Implications**

This study shows that the most common assessment practices by practicing string teachers were teacher-given verbal criticism, rehearsal skills, attendance, teacher-rated rubrics, and student evaluations. The least common assessment practices used by string teachers are composition assignments, music history assessments, portfolio assessment, improvisation/creativity assignments, and cross-curricular assignments. String teachers indicated in the free response section that they also use Smart-Music and peer-related assessment. Overall, string teachers use more assessments that are non-performance-based than performance-based and National Standards for Music Education-based assessment practices. The study’s results suggest the following implications for practicing string teachers:

1. String program success is related to the assessment practices of written assessments, student reflections, teacher-rated rubrics, sightreading skills
assessment, student evaluations, music theory assessments, music history assessments, and portfolio assessments, and student rated rubrics. Only two of these assessments are the assessments that string teachers reported using most often. Therefore, string teachers should try to incorporate these assessment practices over any of the other assessment practices.

2. Years of teaching and level of education are predictors of string program success; therefore success increases as string teachers gain experience and education. Teachers need at least four years of experience before expecting to see success.

3. String program success is predicted by two groups of assessment practices. The first is Musicianship-based Assessments, which includes the assessment practices of music history, music theory, sightreading, cross-curricular, written assignments, student-rated rubrics, teacher-written criticism, teacher-rated rubrics, and portfolio assessments. The second is the Student-based Assessments of student evaluations and student reflections. In order to have a more successful program, string teachers should assess their students in terms of the Musicianship-based Assessments and Student-based Assessments.

4. There is a difference in string program success by education level, primary instrument, and gender. The greatest difference was between teachers with a Bachelors degree and those with a Doctorate. String teachers should be encouraged to seek out higher educational degrees to improve their success.

5. There is a difference in string program success by the interaction of primary instrument and education level. After a Bachelors degree, string teachers who
are primarily string instrument players have higher degrees of success, but after a Masters degree, this advantage dissipates. Therefore, non-string players teaching strings should be encouraged to pursuing a masters to be more successful at teaching strings. Teachers with a low-string or band instrument as their primary instrument should be encouraged to obtain Doctorates, because these individuals were the most successful.

**Recommendations**

The results of this study provide a summary of string teachers’ assessment practices and the relationship of string teachers themselves and the assessment practices to overall string program success. However, this study has several things that could be improved upon in replication.

1. All participants need to be follow-up capable to elicit a higher response rate. The participants in the follow-up capable group had a 44% response rate compared to the non-follow-up capable rate of 6%.

2. Smart-Music and peer-graded assessments need to be included on subsequent surveys. Many teachers added these items in the free-response question, however the researcher wonders if there would be more string teachers who use these strategies but did not take the time to write them down.

3. Twenty-nine participants dropped out of the survey before completing the assessment practices section and had to be list-wise deleted. Although the survey is fairly concise, it could be even more succinct to encourage more participants to fully complete the survey. The string program success
composite should be factor analyzed to see if any items can be deleted to make a more concise measure.

4. The researcher asked questions on overall assessment practices that were not utilized in the analysis. Therefore, these questions could be eliminated, unless a researcher wants to specifically look at the overall information of assessment practices, and then the researcher should write a research question to use the information. Researchers should only include items on the survey if they are related to the research questions.

5. There is no difference of string program success between high and low string instrument teachers. However, there were differences between both groups of string instruments with band and other instruments. This difference needs to be studied further to gain further insight into the relationship between string program success and primary instrument.

6. Gender did not correlate with string program success, however gender did differ as a function of string program success. This is conflicting information. Therefore, replication of this study would help clarify this result.

7. The interaction of primary instrument and education level on string program success had an interesting finding. String teachers with a primary instrument of a low-string or band instrument and a doctorate had the highest success composite. This needs to be further investigated to determine why the success occurs between these two levels, but not for the upper-string and other instrument teachers, especially when there is not a significant difference with the main effect between upper and lower string players in terms of success.
This study provided a great deal of insight into the assessment practices of string teachers. Assessment is a crucial tool used to provide information to students, teachers, and parents. Individual assessment practices and certain categories of assessment practices, mainly musicianship-based and student-based assessment, make more of a difference in string program success. String teachers need to use assessment to improve their students’ knowledge and their own success. Replication of this study would give the string teaching profession even more practical information on how assessment is related and crucial to string program success.
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Crochet, L. S. (2006). Repertoire selection practices of band directors as a function of
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in music education. Quarterly Journal of Music Teaching and Learning, 6(4), 57-64.


28-32.


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University.

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85(4), 26-33.


APPENDIX A

CONSENT FORM: MENC: THE NATIONAL ASSOCIATION FOR MUSIC EDUCATION LIST
Dear Madam/Sir,

My name is Sara Duncan. I am currently enrolled as a Masters in Music Education student in the Frost School of Music at the University of Miami. I am involved in a research study called Assessment of String Orchestra Teachers at the University of Miami. We received your information from the MENC: National Association of Music Education membership list as being an orchestra teacher in the United States.

PURPOSE OF STUDY:

We are asking you to take part in a research study because we are trying to learn more about assessment practices of string orchestra teachers. You will be asked to complete a brief online survey. All data generated during this study will remain completely anonymous. This survey utilizes SSL encryption technology. Using this technology, a secure line communication is created to keep your survey responses completely private during transmission. Your name, the name of your school, and your email address will not be recorded. Only the principal investigator and co-investigator will have access to the information collected during the survey. There are no risks to participating in this study.

Although you may not benefit directly from the study, the information gained may assist both researchers and educational professionals to understand assessment practices of string teachers.

I am requesting your cooperation as a voluntary participant in this study. You will not be paid for participating in this survey.
All of your answers will be coded by a special identifying number rather than your name. All of the papers pertaining to the study will be kept in a locked file cabinet, and all electronic data will be stored in computer files. Only people who are directly involved with the project will have access to those records. When the project is finished and results are reported, no individual will be identified in any way.

Your participation is voluntary. You can decline to participate, and you can stop your participation at any time, if you wish to do so, without any negative consequences to you.

By you answering the survey questions online, this means you consent to participate in this research project. If you agree, please click on the link below and you will be directed to the survey questions. If you have any questions, please feel free to ask.

If you have any questions or concerns about the research, please feel free to contact Please contact Dr. Stephen Zdzinski, Principal Investigator and Faculty Sponsor at (305) 284-2161 ext. 7602 P.O. Box 248165; Coral Gables, FL 33124-7610

If you have questions regarding your rights as a research participant, contact the University of Miami, Human Subject Research Office at (305)243-3195.

Sincerely,

Sara Duncan
Strings Teaching Assistant
Department of Music Education/Music Therapy
Frost School of Music
University of Miami
s.duncan4@umiami.edu
SaraAnneDuncan@gmail.com
APPENDIX B

CONSENT FORM: RESEARCHER DEVELOPED E-MAIL LIST
Dear Madam/Sir,

My name is Sara Duncan. I am currently enrolled as a Masters in Music Education student in the Frost School of Music at the University of Miami. I am involved in a research study called Assessment of String Orchestra Teachers at the University of Miami. We received your information from your school’s website saying that you were an orchestra teacher in the United States.

PURPOSE OF STUDY:
We are asking you to take part in a research study because we are trying to learn more about assessment practices of string orchestra teachers. You will be asked to complete a brief online survey. All data generated during this study will remain completely anonymous. This survey utilizes SSL encryption technology. Using this technology, a secure line communication is created to keep your survey responses completely private during transmission. Your name, the name of your school, and your email address will not be recorded. Only the principal investigator and co-investigator will have access to the information collected during the survey. There are no risks to participating in this study.

Although you may not benefit directly from the study, the information gained may assist both researchers and educational professionals to understand assessment practices of string teachers.

I am requesting your cooperation as a voluntary participant in this study. You will not be paid for participating in this survey.
All of your answers will be coded by a special identifying number rather than your name. All of the papers pertaining to the study will be kept in a locked file cabinet, and all electronic data will be stored in computer files. Only people who are directly involved with the project will have access to those records. When the project is finished and results are reported, no individual will be identified in any way.

Your participation is voluntary. You can decline to participate, and you can stop your participation at any time, if you wish to do so, without any negative consequences to you.

By you answering the survey questions online, this means you consent to participate in this research project. If you agree, please click on the link below and you will be directed to the survey questions. If you have any questions, please feel free to ask.

If you have any questions or concerns about the research, please feel free to contact Please contact Dr. Stephen Zdzinski, Principal Investigator and Faculty Sponsor at (305) 284-2161 ext. 7602 P.O. Box 248165; Coral Gables, FL 33124-7610

If you have questions regarding your rights as a research participant, contact the University of Miami, Human Subject Research Office at (305)243-3195.

Sincerely,

Sara Duncan
Strings Teaching Assistant
Department of Music Education/Music Therapy
Frost School of Music
University of Miami
s.duncan4@umiami.edu
SaraAnneDuncan@gmail.com
APPENDIX C

STRING PROGRAM SUCCESS & ASSESSMENT PRACTICES SURVEY (SPS&AP)
STRING PROGRAM SUCCESS & ASSESSMENT PRACTICES SURVEY (SPS&AP)

Please select the appropriate answer(s) for each question as it relates to you and your teaching situation.

1. What is your gender?
   A. Male
   B. Female

2. What is your highest level of education completed?
   A. Bachelors
   B. Masters
   C. Doctorate
   D. No college degree

3. In what areas of music do you hold degree(s)? (select all that apply)
   A. Applied Music (performance)
   B. Music Education
   C. String Pedagogy
   D. Composition/Theory
   E. Musicology/Ethnomusicology
   F. Other: ___________________

4. What is your primary instrument?
   A. Violin
   B. Viola
   C. Violoncello
   D. Contrabass
   E. Guitar
   F. Other: _____________

5. How many years have you taught strings in a public or private school?
   A. 0-4 years
   B. 5-8 years
   C. 9-12 years
   D. 13-16 years
   E. 17 or more years

6. Please select the performance areas in which you currently teach. (select all that apply)
   A. Band
   B. Orchestra
   C. Chorus

7. Please select the level(s) that you currently teach strings. (select all that apply)
   A. Elementary School (K-5th grade)
   B. Middle School (6-8th grade)
   C. High School (9th-12th grade)
8. Which activities have you participated in during the past 2 years? (select all that apply)
   A. Attended a summer workshop
   B. Served as a clinician for local string program
   C. Served as a honor orchestra clinician
   D. Served as an adjudicator
   E. Attended a music teachers conference
   F. Presented at a conference
   G. Enrolled in a college course
   H. Engaged in private study
   I. Published articles, research, or compositions
   J. Attended school district in-service

9. What conferences have your string ensemble received an invitation to perform? (select all that apply)
   A. The Midwest Clinic
   B. MENC: The National Association for Music Education conference
   C. Your state music educators conference
   D. American String Teachers Association conference
   E. Suzuki Association of the Americas conference
   F. Other (please specify)
   G. Not applicable

10. How many years have you received overall superior (I) and/or excellent (II) rating(s) with your most advanced string ensemble at large group performance evaluation?
    A. 0-4 years
    B. 5-8 years
    C. 9-12 years
    D. 13-16 years
    E. 17 or more years

Please select to what extent you agree or disagree with each of the following statements.

11. I have an adequate classroom facility.
    Strongly Agree  Agree  Disagree  Strongly Disagree
12. I have sufficient rehearsal time.
    Strongly Agree  Agree  Disagree  Strongly Disagree
13. I have an adequate budget for my program.
    Strongly Agree  Agree  Disagree  Strongly Disagree
14. I set goals for my program and evaluate progress towards those goals.
    Strongly Agree  Agree  Disagree  Strongly Disagree
15. I make decisions based upon my written philosophy of music education.
    Strongly Agree  Agree  Disagree  Strongly Disagree
16. I have a set procedure for tuning, warm-up and problem-solving during rehearsal.
    Strongly Agree  Agree  Disagree  Strongly Disagree
17. A high percentage of the school population is enrolled in my string program.
    Strongly Agree  Agree  Disagree  Strongly Disagree
18. A majority of my students participated in the most recent solo/ensemble evaluation.  
   Strongly Agree   Agree   Disagree   Strongly Disagree
19. My students share my enthusiasm and dedication.  
   Strongly Agree   Agree   Disagree   Strongly Disagree
20. I have control over the decisions involving my program.  
   Strongly Agree   Agree   Disagree   Strongly Disagree
21. I have a supportive administration.  
   Strongly Agree   Agree   Disagree   Strongly Disagree
22. I have a quality feeder program.  
   Strongly Agree   Agree   Disagree   Strongly Disagree
23. I counsel my students about personal and academic matters.  
   Strongly Agree   Agree   Disagree   Strongly Disagree
24. I offer alternative ensembles, such as chamber music or alternative styles groups, to 
   my students.  
   Strongly Agree   Agree   Disagree   Strongly Disagree
25. I provide opportunities for my students to work with guest conductors, composers, 
   and/or clinicians.  
   Strongly Agree   Agree   Disagree   Strongly Disagree

Please select the appropriate answer(s) for each question regarding assessment in 
your string program.

1. Are formal grades (numerical/letter) given on report cards and/or progress reports 
   for your string students?  
   a. Yes  
   b. No
2. Are strings class grades applied towards a student’s grade point average?  
   a. Yes  
   b. No  
   c. Not applicable
3. Does your district or school provide string-specific tests, rubrics, or other types of 
   assessment documentation for you to utilize?  
   a. Yes  
   b. No
4. What grading period does your school follow for report cards?  
   a. Quarter  
   b. Trimester  
   c. Semester  
   d. Annual  
   e. Other ________________
5. Where have you received music assessment training? (select all that apply)  
   a. Conference sessions (such as at state, MENC, or ASTA)  
   b. District in-service  
   c. Summer workshop  
   d. Undergraduate degree program  
   e. Graduate degree program  
   f. Not applicable
Select the frequency which you incorporate the following student assessments in your classroom.

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Attendance (at concerts, rehearsals, events)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Rehearsal skills (bringing materials, attentiveness)</td>
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<tr>
<td>8. Portfolio assessment (video or audio tape)</td>
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<tr>
<td>9. Student-rated rubrics on performance skills</td>
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<tr>
<td>10. Teacher-rated rubrics on performance skills</td>
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<tr>
<td>11. Home practice reports</td>
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<tr>
<td>12. Composition assignments</td>
<td></td>
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<tr>
<td>13. Teacher-given verbal constructive criticism</td>
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<tr>
<td>14. Teacher-given written constructive criticism</td>
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<tr>
<td>15. Improvisation/creativity assignments</td>
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<tr>
<td>16. Written assessments</td>
<td></td>
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<tr>
<td>17. Sightreading skills assessment</td>
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<tr>
<td>18. Music history assessment</td>
<td></td>
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<tr>
<td>19. Music theory skills assessment</td>
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<tr>
<td>20. Cross-curricular assignments (math, language arts, history related to music)</td>
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<tr>
<td>21. Student reflection (written or verbal)</td>
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<tr>
<td>22. Student evaluations of musical performances</td>
<td></td>
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</tbody>
</table>

23. List any additional assessment strategies or tools that you utilize in your classroom.
APPENDIX D

MENC: THE NATIONAL ASSOCIATION FOR MUSIC EDUCATION

RESEARCHER CONTRACT
Nonprofit Research Use of MENC Mailing List or other Large Scale MENC Data

The database of MENC member names and addresses (or MENC data in general) may be used with no fee assessed for nonprofit research/academic purposes. In all cases, the use must meet the following restrictions and criteria:

MAILED PAPER SURVEY:
- The use must be one time only; the database of names may not be retained after the project is completed; nor may the list (data) be used OR SHARED for additional mailings or additional research or publication without the prior approval of MENC.
- Under no circumstances may additional contact by e-mail or telephone be made with members on the basis of the list, unless express written consent is granted by each member so contacted. Under no circumstances may this data be used for any additional purposes other than the intended use described below, without pre-authorization from MENC.

EMAILED SURVEY:
- MENC does NOT share/give out MENC member email addresses. If your survey is a web based survey to be emailed, MENC must email the survey for you.
- MENC cannot send out reminder/follow up emails for your survey, unless it is a very small (under 300) sample, and then only as staff time permits.

FOR ALL:
- You must provide MENC with a copy of the survey, a link to the on-line survey, and an abstract of your study as well as all of your contact information, at least three-four weeks prior to the date you wish to send the survey. Send this to MENC as far in advance as possible. MENC Staff are involved in many other projects and assistance to other researchers. In most cases, requests for assistance are handled in the order they are received at MENC. The more advance notice you give us, the better.

- MENC highly recommends the survey be kept as short as possible since music teachers/MENC members are extremely busy, and a survey that takes longer than 5 -10 minutes to complete may not yield as many responses as a briefer survey.

- The research must support the goals of MENC: The National Association for Music Education. Please see: http://www.menc.org/documents/07stratplanfinal.pdf

- When the study is completed, a short electronic summary of your results, and if possible, a final copy of the entire report are to be shared with MENC: The National Association for Music Education. This is only for the purpose of keeping the MENC staff and National Executive Board supplied with information that could bear on the policy and operational decisions necessary for the effective functioning of the association. The research will not be distributed beyond MENC staff and the NEB. First publication rights are still held by the researcher.
Date of request: 10/7/08

Date of anticipated use: 11/10/08: this letter depends on IRB
(note: MENC must receive the request for mail list at least three weeks prior to estimated actual date of need)

Name of researcher: Sara Anne Duncan

Institutional Affiliation/Academic Advisor:
Dr. Stephen Zedzinski, University of Miami

Complete contact information (email, mailing address, phone/fax):
SaraAnneDuncan@gmail.com; s.duncan@umiami.edu

School
5801 Alabany Ave
P.O. Box 1000
Coral Gables, Florida 33146

Home (permanent)

Office (office)

Cell

Nature of requested use (describe project):
See attached

Details of sample needed: MENC can sort by state, by teaching area, by teaching grade level. Any number of teachers across the country

Disposition of request:
☐ Approved, subject to conditions listed above
☐ Denied: does not meet conditions of nonprofit research listed above. Please call Karen Fishbeck of the American Music Council at 609-583-2675.

☐ Denied (reason): 

Signed for MENC: Sara Anne Duncan

Conditions accepted by researcher (sign): Sara Anne Duncan

Please fax signed form to 703-290-1531, attention SUE KARUS
APPENDIX E

FREQUENCY OF STRING TEACHERS’ ASSESSMENT PRACTICES
Frequency of String Teachers’ Assessment Practices

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Often</th>
<th>%</th>
<th>Sometimes</th>
<th>%</th>
<th>Rarely</th>
<th>%</th>
<th>Never</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td>Teacher-given Verbal Criticism</td>
<td>158</td>
<td>80</td>
<td>35</td>
<td>18</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>2</td>
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<td>Rehearsal Skills</td>
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<td>80</td>
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<td>16</td>
<td>5</td>
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<td>76</td>
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<td>17</td>
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<td>Teacher-Rated Rubrics</td>
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<td>26</td>
<td>13</td>
<td>7</td>
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<td>Student Evaluations</td>
<td>85</td>
<td>43</td>
<td>83</td>
<td>42</td>
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Note. Percentages are valid percents taking into missing data from skipped questions.