Documenting Student Learning in Music Performance

A Framework

Abstract: A fundamental aim of the Race to the Top agenda is to assess the effectiveness of teachers based on value-added growth measurement models of student achievement. However, in nontested grades and subject areas, such as music, alternative assessment types are being considered, including district-, school-, or teacher-developed measures. This article explores the relationship between assessment for accountability and assessment for instructional improvement and offers a framework for documenting student growth and achievement in the music performance classroom.

Keywords: achievement, accountability, assessment, evaluation, learning, measure, Race to the Top

Legislative concerns on the status of student achievement and teacher effectiveness in the United States have brought about considerable changes in the classroom. In particular, Race to the Top's (RTTT) Assurance Area B (Standards and Assessment) has compelled educators to shift their assessment focus from measured outcomes to student growth as a means of documenting student achievement. Additionally, student growth data now serve as a source for evaluating teacher effectiveness.

Background

The need to document student growth was brought about in 2009 when President Obama signed into law the American Recovery and Reinvestment Act (ARRA). The primary objective of this ten-year, $831 billion economic stimulus package was to incite job growth. The focus of the Recovery Act was to improve and develop government infrastructure, with funding specifically allocated toward the Department of Education, the Department of Health and Human Services, and the Department of Energy.

Using ARRA funding, one of the primary recovery programs developed by the Department of Education was the Race to the Top State Incentive Grant Program. RTTT, a $4.35 billion competitive grant program, was designed to "encourage and reward States that are creating the conditions for education innovation and reform; achieving significant improvement in student outcomes, including..."
making substantial gains in student achievement, closing achievement gaps, improving high school graduation rates, and ensuring student preparation for success in college and careers; and implementing ambitious plans in four core education reform areas. The four RTTT core educational reform areas include (1) enhancing standards and assessments, (2) building data systems that document and measure student growth and achievement, (3) increasing teacher effectiveness and developing equity in the educational workforce, and (4) turning around low-achieving schools.

In 2010, U.S. secretary of education Arne Duncan evaluated the Recovery Act’s effort: “We’ve seen more reform in the last year than we’ve seen in decades . . . It’s staggering how the Recovery Act is driving change.” The significant changes that directly affect classroom instruction were cited in two reform priorities: (1) increasing student growth and achievement and (2) providing clear priorities: (1) increasing student growth and achievement, (3) increasing teacher effectiveness, and ethnicity.

cally accounting for outside bias, such as socioeconomic status, gender, educational experience, and ethnicity. Embedded in the evaluation is a weighted assessment of each teacher’s student growth and achievement data. For subjects such as mathematics and English language arts, student growth and achievement are measured through value-added modeling assessments (VAMs) of standardized test results. VAMs are able to reliably measure a teacher’s sole contribution to student achievement by systematically accounting for outside bias, such as socioeconomic status, gender, educational experience, and ethnicity. VAMs are based on research confirming that teachers are the most influential school-based factor on student achievement.

However solidly defended, VAMs are not applicable to the 69 percent of educators who teach (1) subjects that cannot be adequately or completely measured with a paper-and-pencil test (e.g., art, music, drama, dance), (2) subjects in lower elementary grades that cannot reliably be tested, and (3) subjects that states opt not to test. Linking student achievement and teacher effectiveness for this group of educators is difficult. Cynthia D. Prince and her fellow researchers summarized this: “Identifying highly effective teachers of subjects, grades, and students who are not tested with standardized achievement tests—such as teachers of art, music, physical education, foreign languages, K–2, high school, English language learners, and students with disabilities—necessitates a different approach.” For teachers of these subjects and grades, federal priorities stipulate that suitable measures for deriving student growth data should (1) include a pretest and an end-of-course test (e.g., measurement between two points in time), (2) be rigorous, and (3) be comparable across classrooms. The federal government, however, declined to offer explicit definitions of these terms and encouraged states to define them through their local education agencies.

Carrying out the recommendation of Prince and her colleagues necessitates a method for appropriately documenting data. States and districts need to provide viable options for measuring the progress of these groups of students and the productivity of their teachers. Music educators are being encouraged to work hand in hand with appropriate personnel to develop assessments tailored to individual subjects. In many instances, teachers, schools, and districts are developing student-learning objective (SLO) statements as a method for measuring student growth. The benefit of teacher-derived SLOs, according to investigators Katie Buckley and Scott Marion, is that they are “often tied directly to regular practices of teachers’ work—it is clear to teachers what must be done in order to meet a given performance target, thereby increasing the credibility of the target.”

Two RTTT Assessment Models

According to Peter Ewell of the National Center for Higher Education Management Systems, two general assessment models can be isolated: assessment for accountability and assessment for academic improvement. The first model is what is driving the RTTT initiative. To support educational reform policies, state and district governments are required to provide accountability data supporting the initiatives they fund. These data are used to inform stakeholders on how students, teachers, programs, schools, districts, and states compare (see Figure 1). It not only reports teacher effectiveness but also documents school, district, and state growth. Teachers are having difficulty relating to this model, particularly when the responsibility of gathering accountability data is being put directly in their hands.

The second model, assessment for academic improvement, is formative in nature and assures student engagement. The purpose of such is to (1) differentiate instruction, (2) demonstrate where and when learning is happening, (3) systematically manage instructional improvement, and (4) provide insight into curriculum development. For the subjects where value-added growth models and standardized tests are not currently being considered, this type of data is being used as a basis for deriving student growth data.

Developing a Framework

The development of an assessment system aligned with the expectations of RTTT is a nine-step process (see Figure 1).

Step 1: Establishing an SLO

The RTTT Technical Assistance Network defines SLOs as “a participatory method of setting measurable goals, or objectives for a specific assignment or class, in a manner aligned with the subject matter taught, and in a manner that allows for the evaluation of the baseline performance of students and the measurable gains in student performance during the course of instruction.” According to the U.S. Department of Education, a properly developed SLO comprises six salient features:

1. Clear identification of the student population
2. Instructional interval
3. Assessment(s) of student progress
4. Rigorous yet realistic expected student growth or achievement target(s) to be met by the students
5. Strong rationale for the expected student growth
6. Strategies for achieving student learning objectives

As seen in Figure 2, the target student population for the sample SLO is an advanced-level band that includes students in grades 9 through 12. The instructional period is set for one academic year. An SLO should be aligned with the most current state and district mandated achievement standards. Figure 2 is aligned with the 1994 National Standards for Arts Education and 2009 Georgia Department of Education Fine Arts Education Music Performance Standards. Learning objectives should be clear, specific, and measurable and describe the most important learning that is taking place in the classroom. Most important, learning objectives should contain a state- or district-approved educational taxonomy. Examples of educational taxonomies could include Benjamin Bloom's Taxonomy of Educational Objectives, Robert Marzano's New Taxonomy of Educational Objectives, or Norman Webb's Depth of Knowledge Model, among others.

Figure 2 includes six learning objectives that use Benjamin Bloom's Taxonomy of Educational Objectives. Each objective indicates a level of learning and cognitive expectation associated with Bloom's taxonomy, not an activity or performance. Figure 2 also includes a rationale for the chosen objectives. The rationale section provides an opportunity to discuss the reason for the inclusion of the content, its importance in the field of music education, and the level of rigor that will be documented.
**Growth Targets and Scoring:**

Students will demonstrate growth from their pretest scores to their posttest scores as follows:

- **Tier 1:** Students scoring 50% or below on all pretests will score between 51% and 74% on all posttests.
- **Tier 2:** Students scoring between 51% and 74% on all pretests will score between 75% and 90% on all posttests.
- **Tier 3:** Students scoring between 75% and 90% on all pretests will score above 90% on all posttests.
- **Tier 4:** Students scoring 90% or above on all pretests will demonstrate a 2–5% increase in posttest scores.

**Interval:**

1 year (SY 2014–2015)

**National Standard(s):**

- Listening to, analyzing, and describing music

**State Achievement Standard(s):**

- Demonstrate, through performance, knowledge of the pitch tendencies of the individual instrument and the harmonic responsibilities within the music as students listen to, analyze, and make the appropriate modifications in content to the performance.

**Instructional Objectives/Benchmarks:**

1. **At the end of 9 weeks,** students will be able to identify their individual pitch tendencies as performed on their instrument.

2. **At the end of 18 weeks,** students will be able to describe their individual pitch tendencies as measured by a tuning chart and short answer responses.

3. **At the end of 18 weeks,** students will be able to audibly differentiate between a major chord performed in equal temperament tuning and a major chord performed in just tuning.

4. **At the end of 36 weeks,** students will be able to critique individual intonation of their own pitch matching performances.

5. **At the end of 36 weeks,** students will be able to match pitch and eliminate beats as measured by short answer responses.

6. **At the end of 36 weeks,** students will be able to modify individual intonation to match pitch and eliminate beats as measured by short answer responses.

**Rationale:**

These particular national and state performance standards were chosen because the related skills of intonation, balance, and blend were shown to be weaknesses last year as evidenced by judge ratings through a large group summative performance evaluation. Additionally, the baseline evidence gleaned from the diagnostic assessments demonstrates an overall lack of mastery in the fundamental area of intonation, pitch, and balance control. The fundamental skill of playing with individual pitch and balance control is one that must be developed by every performing ensemble member. In order for an ensemble to cohesively play in tune, each student must be able to tune their instrument individually, and to be able to adjust to intonation discrepancies stemming from individual instrumental and human inconsistency. Research has demonstrated that intonation can be improved through a variety of activities, including singing, playing on mouthpieces, and playing the instrument in different tuning systems. The selected assessments were approved by administration. The documentation of pretest and posttest data will demonstrate rigorous, individual student growth and achievement resulting from one academic year of classroom instruction. It is anticipated that 80–95% of students will demonstrate growth related to the six outlined instructional objectives. Mastery of the outlined objectives will provide an important musical foundation for the continued performance of advanced music literature with a greater aural understanding.
Step 2: Define Benchmarks, Growth Targets, and Scoring

Determine when students should accomplish the learning objectives and the degree of accomplishment that is expected. Figure 2 demonstrates a specific benchmark for each instructional objective (e.g., benchmark 5: “From week 1 to week 27, 85 percent of the students comprising the intermediate band will improve their pretest to posttest scores as measured by a rating scale.”). Each benchmark includes a description of the time frame (e.g., week 1 to week 27), an improvement criterion (e.g., 85 percent of the students), and the specific assessment tool (e.g., rating scale). If multiple learning objectives are being implemented within the SLO, stagger the time frames to make success possible. In particular, objectives that are aligned with a higher-level cognitive dimension (e.g., students will be able to evaluate) should be placed later in the instructional interval. In addition, carefully consider the relationship between the set criterion and cognitive process dimension of the taxonomy. In Figure 2, the criterion for student improvement decreases as the cognitive processes become more complex. As an example, when the objective is for students to remember information (e.g., students will be able to identify or describe), the criterion is set at a higher rate (e.g., 95 percent). However, as the tasks become increasingly more complex and the objective is to analyze or evaluate information (e.g., students will be able to differentiate or critique), the criterion is set at a lower rate (e.g., 85 or 80 percent).

The benchmarks describe the percentage of students that will demonstrate growth, but the growth targets and scoring document how the growth will be measured. These data are often guided by district or school policy and can be handled in several ways: (1) by letter grade or percentage, (2) by percentile, or (3) by quartile. The sample SLO demonstrates growth by improvement in percentage grade. Additionally, growth targets can be tiered according to pretest outcomes (see Figure 2).

FIGURE 3
Assessment Tools in Action

Step 3: Plan Appropriate Assessment Tools

For each objective, an approved measure must be validated by administration prior to the approval of a teacher-derived SLO. The use of multiple data sources is particularly valuable in providing a more comprehensive and accurate account of students’ achievement on chosen learning objectives. The use of diagnostic, formative, summative, and portfolio assessment tools may be included throughout the instructional interval to provide comprehensive documentation of student growth and achievement (see Figure 3). Chosen assessments may reflect tasks that call for selected-response (e.g., multiple choice, true–false), constructed-response (e.g., short answer), or performance tasks. While constructing the assessment tools for each objective, careful consideration should be given to consistency and continuity. The same evaluation criteria should be included in all assessment tools and should consistently represent the same measurable outcomes.

Step 4: Diagnostic (Pretest) Assessments

Diagnostic assessments inform teachers of a student’s level of knowledge and/or skill prior to instruction. They provide baseline data for tailoring goals and objectives based upon existing strengths and weaknesses. Diagnostic assessments help determine learners’ readiness for the planned instructional content, provide evidence of learners’ entry points into the instructional process, and can clue the teacher into what parts of the course program may need to be modified. For performance-based music tasks, “best-practice” tools for diagnostic performance assessments include checklists and rating scales. Checklists are useful for determining the absence or presence of predetermined behaviors or objectives. However, the limitations of checklists include lack of specificity in the instructional process and validity concerns when observable behaviors differ from the expected outcomes. Checklists determine the student’s ability to complete a task, whereas rating scales, although similar in nature, determine degrees of proficiency. Due to this additional specificity, a rating scale must contain three specific criteria: (1) content areas to be assessed, (2) specific items contained within each content area that describe the action being assessed, and (3) a scale demonstrating degrees of proficiency. Figure 4 demonstrates a rating scale for objective 5 (students will be able to modify individual intonation to match pitch and eliminate beats). The rating scale was designed to assess two content areas (e.g., pitch matching and beat elimination) through the use of nine items. The degrees of
proficiency are represented through a four-category Likert response scale system (e.g., strongly disagree, disagree, agree, strongly agree).

Step 5: Revise SLO Based on Diagnostic Data

After collecting the data, the instructor should review the average and range of scores of the individual students as well as take note of students who are scoring notably high or notably low. Lower-achieving students may need special attention or remediation. Higher-achieving students may need opportunities to be challenged in different areas. This information may change the projected student growth target or scope of instructional objectives in your SLO. Specifically, the data may affect the overall teaching focus, range of the content, number of objectives, cognitive dimensions, time frame of the benchmarks, growth target levels, and scoring. Revise the SLO to realistically achieve your goals and to set your students up for maximum success.

Step 6: Multiple Formative Assessments and Differentiated Instruction

Multiple formative assessments should engage the students in continuous feedback and be used to differentiate instruction. Formative assessments make task expectations and degrees of proficiency very clear and should align directly with the diagnostic and summative assessments. The best assessment device for documenting the formative assessment process is the rubric. Rubrics

| FIGURE 4 |
| Sample Rating Scale for Objective 5 |

<table>
<thead>
<tr>
<th>Pitch Matching</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Student demonstrates ability to match a reference pitch through singing</td>
</tr>
<tr>
<td>2. Student demonstrates ability to match a reference pitch through buzzing on mouthpiece (brass only)</td>
</tr>
<tr>
<td>3. Student demonstrates ability to match sequential pitches through singing</td>
</tr>
<tr>
<td>4. Student demonstrates ability to match sequential pitches through buzzing on mouthpiece (brass only)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Beat Elimination</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Student demonstrates ability to eliminate beats with a unison reference tone</td>
</tr>
<tr>
<td>6. Student demonstrates ability to eliminate beats with a harmonic reference tone</td>
</tr>
<tr>
<td>7. Student demonstrates ability to overcome characteristic pitch tendencies related to instrument through manipulation of air speed and/or air direction</td>
</tr>
<tr>
<td>8. Student demonstrates ability to overcome characteristic pitch tendencies related to instrument with alternate fingerings when appropriate.</td>
</tr>
<tr>
<td>9. Student demonstrates ability to overcome characteristic pitch tendencies related to instrument through proper manipulation of physical parts of the instrument.</td>
</tr>
</tbody>
</table>
are beneficial in music performance assessment because they provide clear and concrete levels of student achievement as well as clear indications of how students can improve on their performance.\textsuperscript{31} Examine the rubric data for any particular trends that might emerge as well as areas demonstrating exceedingly high or low gains. Consider how multiple learning styles can be engaged or how technology may be incorporated to approach the concepts from an alternative perspective.

Step 7: Summative (Posttest) Assessments

Summative assessments provide decision-making information on the final status of student growth. In particular, summative assessments demonstrate what learning objectives have or have not been met and to what degree. The summative assessment tool should be identical to the diagnostic assessment tool. As an example, Figure 4 can be used as the assessment tool in order to obtain diagnostic and summative data for instructional objective 5. The data gleaned from summative assessments should be compared to the diagnostic assessments and matched to the proposed scoring targets provided in the SLO. Consider how individual student achievement has affected ensemble achievement. This information, in turn, may provide information regarding further curricular development.

Step 8: Track Data—Portfolio Assessments

According to Wiggins, the purpose of a portfolio assessment is to (1) showcase the student’s work, (2) showcase student growth, (3) provide evidence of student self-assessment, and (4) provide documentation of a student’s collected work.\textsuperscript{32} Suggested artifacts may include the following:

1. A tracking of all teacher assessments
2. Student self-assessments identical to the teacher assessments with reflections regarding how they compare or contrast
3. Recordings of student performance assessments
4. Ensemble recordings with student evaluations and reflections using teacher assessment tools
5. Extracurricular achievements (e.g., solo and ensemble ratings)
6. Course materials

A final portfolio evaluation allows the teacher and student to discuss individual student learning gains, student strengths and weaknesses, and any trends that can be considered for future instructional use. Furthermore, student portfolios can serve as evidence of individual student growth and achievement by providing a summation of assessment data, artifacts that were evaluated, and any other materials that indicate learning at multiple points in time.

Step 9: Relating Assessment to Teacher Effectiveness and Program Development

Evaluation of student performance is the ground post for instructional decision making. The data gathered from this assessment system can provide a wealth of information that may inform curriculum modification as well as illustrate the degree of teaching effectiveness. An analysis of student growth and achievement can guide future teaching decisions relating to content, goals and objectives, levels of learning, teaching style, and learning pace. Moreover, it can inform how teaching and content can be differentiated at multiple student achievement levels by providing insight into how students of various achievement levels perform. According to reflective practice expert Tony Ghaye, five examples of reflective questioning may aid in the improvement of instruction, curriculum development, and teacher effectiveness:

1. What am I doing?
2. How successful am I?
3. What is a better way to do this?
4. What do I need to do to achieve?
5. Is this what I should be doing?\textsuperscript{33}

Teacher Effectiveness Models

RTTT states have provided approved lists of research-based teacher effectiveness frameworks while allowing independent districts the autonomy to choose what particular frameworks best fit their conditions.\textsuperscript{34} Examples of these frameworks included Charlotte Danielson’s Framework for Teaching, Robert Marzano’s Causal Teacher Evaluation Model, James Stronge’s Teacher Evaluation System, and the McRel Mid-Continent Research for Education and Learning’s Teacher Evaluation Standards, among others. A review of each of these frameworks has revealed similar expectations for how assessment strategies should be incorporated by teachers. These include the following:

- The indication of clear student learning objectives
- Use of formal and informal means of assessing students
- Implementation of formative assessment strategies
- Providing feedback to students
- Implementation of student self-assessment
- Monitoring student growth by tracking progress

Rethinking the Evidence

The recent educational focus of documenting individual student growth has required music educators to rethink how they collect and interpret evidence of achievement in the classroom. For music educators, the rehearsal is a platform for providing immediate and continuous feedback to both individual and groups of students. However, educational policies related to the RTTT agenda have compelled music educators not only to accurately document what feedback and student learning have taken place but to also verify each individual student’s academic growth. More important, the process of how music educators document
student growth plays a prominent part in how they are evaluated in teacher effectiveness frameworks. Music educators are now evaluated on their use of appropriate assessment materials in their classroom. Instructional objectives, benchmarks, baseline data, posttest data, and assessment tools may even serve as artifacts in the teacher evaluation process. The emphasis of improving teacher effectiveness and student achievement is a vital component to the RTTT agenda. Developing an assessment framework consistent with the demands and expectations of RTTT provides multiple and wide-ranging sources of student achievement data that can serve to improve teaching and learning in the music classroom. The more informed an educator is about the outcomes of instruction, the better prepared he or she is to make remedial decisions about the instructional process. The result of this preparedness will improve teaching and program effectiveness.

Notes


2. Race to the Top state selection criteria is based upon six assurance areas. Assurance Area B (Standards and Assessments) includes three categories: (1) developing and adopting common standards; (2) developing and implementing common, high-quality assessments; and (3) supporting the transition to enhanced standards and high-quality assessments. Detailed selection criteria of all assurance areas can be found on page 2 of U.S. Department of Education, Race to the Top Program Executive Summary (Washington, DC: Government Printing Office, 2009), accessed June 24, 2013, http://www2.ed.gov/programs/racetothetop/executive-summary.pdf.


5. U.S. Department of Education, Race to the Top Program Executive Summary, 2.

6. Ibid.


9. Assurance Area D (Great Teachers and Leaders) includes five categories: (1) providing high-quality pathways for aspiring teachers and principals, (2) improving teacher and principal effectiveness based on performance,
(3) ensuring equitable distribution of effective teachers and principals,
(4) improving the effectiveness of teacher and principal preparation pro-
grams, and (5) providing effective support to teachers and principals.


16. Ibid., 2.

17. Price et al., The Other 69 Percent, 1.


20. Ibid.


23. Examples of various state-recommended student-learning objective statement (SLO) designs can be found through the Department of Education website, accessed January 29, 2012, www2.ed.gov/about/innovations/.../targeting-growth.pdf. In addition, state Department of Education websites may offer specific guidelines for their expectations.


25. Ibid.

26. The sample SLO uses the 1994 National Standards for Arts Education. These particular standards, as opposed to the 2008 Arts Education Assessment Framework or the new 2014 National Core Arts Standards, were chosen for this particular example for their national popularity and familiarity.


28. Ibid.


34. An example of an approval list can be found on the New Jersey Department of Education’s website, accessed June 26, 2013, http://www.state.nj.us/education/EE4NJ/providers.


“Music was my refuge. I could crawl into the space between the notes and curl my back to loneliness.”
—Poet Maya Angelou, http://www.brainyquote.com/quotes/authors/m/maya_angelou.html