OMEA Orchestra Chair

Assessment in Orchestra Classes: From Compliance to Ownership

Over the past hundred years educational leaders, state and federal policy makers as well as the general public in the United States have been increasingly raising an awareness of the importance of systematic *evidence of student learning* through various forms of assessment. This awareness evolved through several eras, starting with an era of IQ tests and other standardized tests in the early 1900s that progressed through an era that emphasized tracking and selection in the 1950s. This was followed by an era of minimum competency testing programs in the 1970s and then an era of accountability, first school and district accountability of the 1980s, then student-learning accountability emphasized in standard-based testing in the 1990s (Cobb, 2004). Even though the gathering and use of evidence of student learning appears to be well-embedded in American educational systems, many educators find harnessing this evidence to be irrelevant and even disruptive to instruction and student learning. Educators often engage in assessment processes for the purpose of *compliance* with external demands, rather than for the purpose of *ownership* and the understanding of student learning and teacher's instructional effectiveness (Kuh et al., 2015).

One of the possible reasons for educators to not engage in assessment procedures with greater eagerness is a lack of understanding of what counts as an assessment in a certain discipline as well as knowledge of how and when to assess. The purpose of this article is to review basics of assessment procedures in general education and offer to music teachers yet another way of thinking about assessment in music classes. Additionally, this article aims to provide music and orchestra teachers with concrete and useful assessment strategies and tools that have the potential to inspire a sense of ownership over understanding of their students' growth in the domains of knowledge, physical skills, and attitudes that are unique to music and orchestra classes. Because of limited space, this article is not promising insights into analyzing and interpreting assessment results and/or suggestions for consequential use of assessment findings, all of which are, admittedly, indispensable parts of a meaningful assessment.

What counts as assessment?

The *Glossary of Education Reforms* defines assessment as "the wide variety of methods that educators use to evaluate, measure, and document the academic readiness, learning progress, and skill acquisition of students from preschool through college and adulthood" (2015). Some methods of evidence gathering happen while learning is still unfolding and that assessment is known as **formative assessment**. Pretests and diagnostic tests are examples of this type of assessment, and their primary purpose is to inform and adjust instruction. Other methods occur at the end of a course or unit of study, and they are called **summative assessments**. The final exam is a classic example of summative assessment, and its primary purpose is to inform teachers and students of the level of accomplishment attained. Some assessment methods are **informal** while others come with higher expectations and are more **formal**. Regardless of what kind of assessment takes place in an instructional setting, its guiding purpose should be to help teachers understand students' progress and to inform teachers' instructional decisions.

Grant Wiggins and Jay McTighe (2005), authors of *Understanding by Design*, explain that: "Understanding can be developed and evoked only through multiple methods of ongoing assessment, with far greater attention paid to formative (and performance) assessment than is typical" (p. 5). Multiple-choice questions, matching exercises, true/false statements, short answers or fill-in items, and essay questions are all examples of formative assessment known as **objective assessment**. Portfolios and exhibitions, on the other hand, are examples of formative assessment known as **authentic** or **performance assessment** that mirrors what happens in the real world when scientists, architects, musicians, and others apply their discipline-based knowledge to solve authentic challenges. More recently, educators are engaged in yet another type of formal assessment known as **blended assessment**, which is a combination of traditional and technology-based assessments, such as combining paper-and-pencil tasks with online tasks, and sometimes enriching the two with a peer assessment. Only when teachers use multiple strategies to gather information about what students understand or still might be struggling with can teachers may gain comprehensive understanding of the quality of teaching and learning that is happening in their classes for the purpose of developing mechanisms to improve their instructional offerings.

When to assess?

While most traditional curriculum designs propose an assessment at the end of the instructional sequence (e.g., what to teach-teach-assess), a somewhat radical approach to curriculum design known as **backward design**, advocates the reverse: One starts with identifying the desired results (e.g., goals, learning objectives, and/or learning outcomes), followed by determining acceptable evidence (e.g., a variety of assessment tools), and ending by planning learning experiences and instruction (e.g., a variety of inductive and deductive learning experiences, classroom activities, etc.) (Wiggins & McTighe, 2005). An important proposition of backward design, when it comes to assessment, is that assessment should involve a range of methods over a long period of time "because understanding develops as result of ongoing inquire and rethinking" and "the assessment of understanding should be thought of in terms of collection of evidence over time instead of an event--a single moment-in-time test at the end of instruction--as so often happens in current practices" (Wiggins & McTighe, p. 5). Assessment methods that are high in frequency and low in magnitude provide students not only with opportunities to uncover the degree to which they mastered certain intellectual or physical skills

on a regular basis—so no fear from errors, no panic and no sweat. Moreover, frequent and low-stakes assessments provide students with additional opportunities to apply what they know and can do in a situation that more closely mirrors real life, which renders assessment just another part of the learning process (Duke, 2013).

What to assess?

Over hundred years ago, the "Father of Modern Education, Swiss pedagogue and educational reformer Heinrich Jean Pestalozzi (1746-1827), planted the seeds of "whole child education," illuminated in his well-known "Three H's" motto that stands for: educating heads, hearts, and hands. Much later, during the 1950s and 1960s educational reforms, a group of experts in educational evaluation led by Benjamin Bloom developed a classification system of educational objectives known as the Three Taxonomies of Educational Domains: Cognitive Taxonomy ("head" or thinking skills), Psychomotor Taxonomy ("hands" or physical skills), and Affective Taxonomy ("heart" or emotional responses). These three taxonomies have helped educators to develop learning objectives and outcomes along with planning meaningful assessments for over 50 years. (For more information on each of the three taxonomies visit the Taxonomy link cited in reference list.)

Table 1 (p. 29) is based on these three taxonomies of educational domains and shows guidelines for the development of instructional objectives that can be adapted to any subject, including music. As explained earlier, backward design proposes that assessments take second place in the learning sequence, right after development of learning goals, objectives, and outcomes, thus encouraging teachers to think of assessments as "inextricably related to the goals of instruction" (Duke, p. 49).

Assessment in music and orchestra classes

As with any other academic subject, music has its standardized tests that can be categorized into two subgroups: (a) Music Aptitude Tests (MAP, Gordon, 1965 & 1979 as cited in Abeles, Hoffer & Klotman, 1994) and (b) Music Achievement Tests (MAT, Colwell, 1969 as cited in Abeles, Hoffer & Klotman, 1994). These tests are usually given when music teachers and administrators want to compare skill levels of their class, school, or school district with other similar or different groups of students across the country. When music teachers are concerned with an assessment of students' outcomes in their own classes they develop *teacher-made achievement tests*.

However, as Harold Abeles, Charles Hoffer, and Robert Klotman, authors of a well-regarded music education text book titled as *Foundations of Music Education* pointed out: "Few music teachers consider assessment as they plan their instruction" (Abeles, Hoffer & Klotman, p. 305). Even when they do, music teachers tend to focus on easily measured cognitive objectives such as memorization of key signatures and names of composers.

Music is an academic subject that possesses an unique potential to educate all three parts of human being (cognitive, psychomotor, and affective) in the most balanced way, and it is important that music teachers remember to include all three educational domains in their learning objectives and assessment. Additionally, music teachers should consider measuring students' progress not only in lower cognitive skills such as memorization and understanding, but also assessing students' higher levels of cognition such as evaluation, synthesis, and creativity. Simultaneously, measuring performance skills, musical interpretation, and attitudes is indispensable part of quality assessment in music classes.

Integrating music instruction with assessments that are based on measuring tools used in general education and that are infiltrated by insights in the three above-mentioned taxonomies of educational domains may provide a useful model for music teachers who aspire to understand the progress of every individual student and who are dedicated to making assessment more useful to their teaching. Below is a brief summary of selected assessment tools that are based on assessments in general education and are built upon an assumption that learning goals, objectives, and/or outcomes have been clearly stated.

Measuring Cognitive Outcomes in Music Classes

All types of formative assessment known as objective tests, including multiple-choice, matching, true-false, and short-answer (completion) tests can be adapted and will serve the purpose of measuring cognitive outcomes in music classes. These tests can measure large amounts of information in relatively short periods of time, but because they frequently focus on objectives at lower levels of cognitive processing, music teachers should creatively modify their content. Table 2 (p. 30) is an example of a multiple-choice test adapted for use in high school orchestra class.

Measuring Psychomotor Outcomes in Music Classes

Of the three domains in which learning outcomes in music classes can be placed, measuring development of psychomotor skills has the least well-developed assessment strategies. This is unfortunate for music teachers because much of what they teach is closely related to the development of psychomotor skills. In order to compensate for this void, music teachers can creatively modify common measurement strategies for psychomotor skills such as checklists, rank-ordering, and rating scales. Below is an example of checklist developed to measure middle school orchestra students' skills and behaviors in performance setting.

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Middle School Orchestra Performance Checklist

Date of the Performance:

Name of the Student:

Correct Rest Position	Yes	No
Taking Bow Appropriately	Yes	No
Smiled	Yes	No
Looked Up at Conductor	Yes	No
Looked at Other Players for Communication	Yes	No
Looked Up at Conductor at Least Two Times	Yes	No
Used Correct Bowing	Yes	No
Moved Expressively with Music	Yes	No
Bowed at End of Performance with Smile	Yes	No

Specify one goal for improvement:

Performance Reviewed by:

Adapted from *Intelligent Music Teaching* by Robert A. Duke

Measuring Affective Outcomes in Music Classes

While also not straightforward, assessing students' progress in affective objectives (e.g., attitudes expressed through observable behaviors, feelings, etc.) can be accomplished through the development of attitude scales such as Likert Scale or other similar tools. There are several factors that teachers should consider when creating assessment tools for measuring affective outcomes: (a) Verbal measurement, such as questionnaires and attitude scales, may not be as accurate an indication of students' attitudes as observations of students behaviors and (b) Observations of several behaviors over a longer period of time and recorded by the teacher on a regular basis may provide the most accurate assessment of affective set of assessments. Below is an example of the Likert Scale developed to measure students' attitudes toward music they played in the last concert.

Elementary School Orchestra Students' Attitude Towards the Music They Played in the Concert

Date of the Performance:

Name of the Student:

Read the sentence and then the circle the *Smiley Face* that best represents your feelings about the pieces we played at our last concert. *Smiley Face* means you agree and *Sad Face* means you disagree with the sentence. The *Face in Between* means you are feeling in between.

1. *Aunt Rhode's Appetite* was a really fun piece to play. ☹ 😐 ☺
2. *Pogostick* was a difficult piece to play. ☹ 😐 ☺
3. *Rigaudon* made me feel like dancing. ☹ 😐 ☺

Summary

Assessment is an indispensable part of successful instruction and as such should be closely related to learning outcomes. High in frequency and low in magnitude is one of the key ingredients of assessment that aims to not only provide evidence of a student's progress but also hopes to enhance the quality of the instruction. Both learning outcomes and assessments in music classes may appear to be a challenge because there are not many easily accessible assessment strategies and tools in the educational domains that are so typical of music, such as psychomotor and affective domains. For that reason, as well as the need for the progression from state of *compliance* with assessment to state of *ownership* over assessment, music teachers should be aware of and willing to learn the basics of assessment theories and practices in general education so that they can confidently implement and adapt them as needed.

References

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Table 1

Bloom's Taxonomy of Cognitive Domain

Levels of Meaning	Words to Be Used in Written Objectives
Knowing	Students will **identify, label, list, match,memorize, name, recognize**…
Understanding	Students will **describe, differentiate, give examples, interpret, summarize**…
Applying	Students will **apply, organize, practice, transfer, calculate, generalize**…
Analyzing	Students will **analyze, categorize, contrast, detect, experiment, point out, subdivide**…
Evaluating	Students will **assess, conclude, criticize, evaluate, measure, rate, validate, synthesize**…
Creating	Students will **create, combine, integrate, modify, produce, propose, solve**….

Simpson's Taxonomy of Psychomotor Domain

Levels of Skills	Words to Be Used in Written Objectives
Perception	Student will become **aware of** … (e.g., component of playing skill or skill itself such as correct bow hold, appropriate left-hand shape, etc.) that is required for desirable performance.
Set	Student will **make adjustments** and develop readiness to perform the skill that involves certain set. (e.g., mental set, physical set, and emotional)
Guided Response	Student **will perform** the skill **under the guidance** of an instructor. (e.g., imitation and trial and error)
Mechanism	Student will display appropriate playing and musical skills on **habitual basis.**
Complex Overt Response	Student will perform with a **smooth proficiency**.
Adaptation	Student will exhibit an **ability to change** a skill or performance and make it more suitable.
Origination	Student will exhibit an **ability to develop** and use skill.

Krathwohl's Taxonomy of the Affective Domain

Levels of Commitment	Words to Be Used in Written Objectives
Receiving	Student's behavior is characterized by **willingness to attend**…
Responding	Student's behavior is characterized by **willingness to interact**…
Valuing	Student is **attaching the worth or value** to an object, phenomenon, or behavior.
Organization	Student **considers** consistency and stability of values and beliefs towards certain objects, phenomenon, or behaviors.
Characterization by a Value	Student **exhibit** consistency and stability of values and beliefs towards certain objects, phenomenon, or behaviors

Adapted from:
Assessment in Higher Education by Heywood 2000 and Eder, Douglas J., "General Education Assessment Within the Disciplines", *The Journal of General Education*, Vol. 53, No. 2, pp. 135-157, 2004

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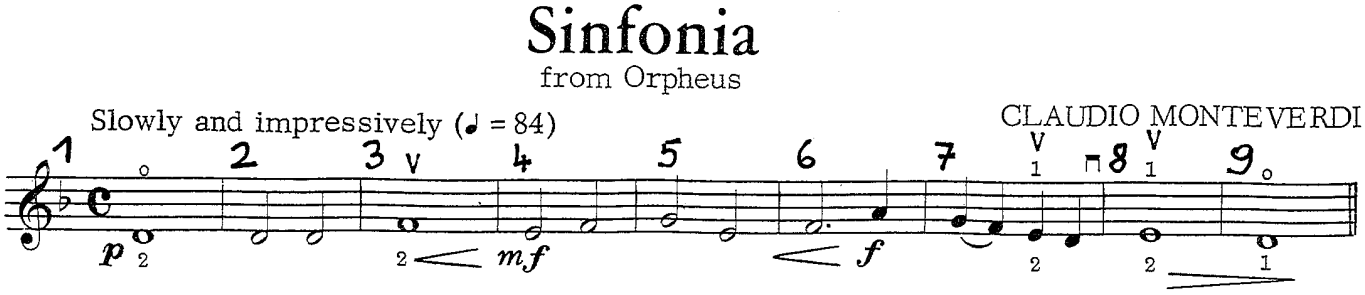
Table 2

Multiple Choice Test for High School Orchestra Students on Sound Production

Below is nine measure long excerpt from Monteverdi's *Sinfonia from Orpheus* (violin part):



After you observe the indicated dynamic changes answer the following questions:

1. In order to play piano dynamics indicated in the first two measures of this excerpt, your bow, in the relation to the bridge and fingerboard (soundpoint), will need to be positioned:
    a. In between the fingerboard and the bridge
    b. Closer to the bridge
    c. Closer to the fingerboard
    d. On the fingerboard
2. In order to play the crescendo indicated in measure number three, your bow will need to move:
    a. Slower and closer to the bridge
    b. Faster and farther from the bridge
    c. Slower and farther from the bridge
    d. Faster and closer to the bridge
3. If the speed of the bow doesn't change but the pressure increases, the bow should move:
    a. Closer to the bridge
    b. Closer to the fingerboard
    c. Stay in the same place
    d. Change the angle of the bow hair on the string
4. If the soundpoint doesn't change but the pressure decreases, the bow speed should:
    a. Stay the same
    b. Increase
    c. Decrease
    d. Stop entirely

Questions 3 & 4 adapted from Tone Production Quiz by Simon Fischer
http://www.simonfischeruk.com/tone%20quiz.pdf