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Assessment in the Music Learning Theory-Based Classroom

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Abstract and Keywords

This chapter provides a brief history of how instruction and assessment used by music learning theory (MLT) practitioners evolved from Edwin Gordon's research on music aptitude. It describes aptitude tests created by Gordon, the purpose of these tests, and the ways in which MLT practitioners use this data to inform instruction and evaluate student growth. It outlines the ways in which MLT practitioners assess students' achievement within the context of classroom activities in elementary general music settings and provides examples of measurement tools teachers may use to assess the students' development of musical skills. Finally, it includes suggestions for ways in which teachers can use assessment data to individualize instruction, guide curricular decisions, evaluate students' musical development, and reflect on the effectiveness of their teaching.

Keywords: music learning theory, elementary general music, achievement, aptitude, assessment, evaluation, measurement

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(p. 477) FOR elementary general music teachers, a variety of pedagogical approaches, methodologies, and learning theories exist to inform instructional choices. Music learning theory (MLT), developed by Edwin Gordon, is one such learning theory. While MLT is not a teaching method, many teachers and scholars have used the theory to develop methodological materials for teaching in a variety of contexts including early childhood, elementary general, piano, and instrumental music. Regardless of the context, assessment is at the heart of MLT-based teaching and learning. Teachers measure students' music aptitudes and music achievement and use this data to inform instruction

and guide curricular decisions, all with the goal of developing students' audiation and helping them attain their maximum individual potentials.

In this chapter, we share a brief history of how MLT-based instruction and assessment evolved from Edwin Gordon's research on music aptitude, and we demonstrate how MLT practitioners assess student growth and use this information to guide their teaching. We describe the aptitude tests created by Gordon, the purpose of these tests, and the ways in which MLT practitioners use this data to inform instruction and evaluate student growth. We outline the ways in which MLT practitioners assess students' achievement within the context of classroom activities and the measurement tools they may use to do so. Finally, we suggest ways in which teachers can use assessment data to individualize instruction, guide curricular decisions, evaluate students' musical development, and reflect on the effectiveness of their teaching.

Audiation, Aptitude, and the Development of Music Learning Theory

(p. 478) In this section, we describe audiation and aptitude and consider how Gordon's understanding of audiation, aptitude, and MLT evolved as he developed standardized tests of music aptitude. We also examine the ways in which aptitude and achievement are different. Finally, we describe some of the standardized tests of music audiation and aptitude created by Gordon and used by MLT-based teachers.

Audiation and Aptitude

The most prevalent idea associated with MLT is the concept of audiation. Audiation is "hearing and comprehending in one's mind sound of music that is not, or may never have been, physically present" (Gordon, 2012, p. 389). Gordon (2012) believed that "audiation is integral to both music aptitude and music achievement" (p. 3) and that audiation development should be at the core of music education. The Music Aptitude Profile (MAP), Gordon's first standardized test of music aptitude, was the seminal work that informed his thinking about audiation, aptitude, and music education (Gordon, 2005). While the MAP could be used successfully to measure the aptitude of students 4th grade through 12th, Gordon discovered that the MAP would not work for children younger than 9 years old and theorized this might be because music aptitude does not stabilize until approximately 9 years old (Gordon, 2005). As his research on aptitude continued, he developed two additional tests intended for use with younger children whose aptitude is developmental and has not yet stabilized: Primary Measures of Music Audiation (PMMA) (Gordon, 1979) and Intermediate Measures of Music Audiation (IMMA) (Gordon, 1982).

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During the development of the PMMA and IMMA Gordon discovered an important precept about developmental music aptitude: it is sensitive to and influenced by music instruction and other environmental influences before it stabilizes (Gordon, 2005). This discovery was later supported by Flohr (1981), who found that short-term music instruction had a significant effect on the PMMA scores of children. Flohr found that PMMA scores of children who received music instruction were significantly higher than those who did not receive music instruction, and he suggested that gains in scores could diminish if instruction ceases or if teaching effectiveness decreases. Music learning theory is based on the belief that teachers have the opportunity to affect their students' aptitudes positively and the belief that rich and developmentally appropriate elementary general music experiences are imperative for later musical achievement. "Realistically, the purpose of music instruction after age nine is to assist students in achieving in music to the extent their musical potential will allow, whereas the purpose of music instruction (p. 479) before that time is to provide environmental influences for stimulating music aptitude" (Gordon, 2005, pp. 26–27).

As Gordon developed the music aptitude tests, he applied his knowledge of music aptitude and learning theories in general education to his work with school-aged children. He began to develop a practical theory of music learning that would eventually become known as music learning theory. Though the music aptitude tests provide important data regarding the individual music potential of each student, teachers initially were unsure about how to use that data meaningfully to teach to individual differences and help students maximize their unique potentials. Gordon emphasized the tests are not an end; they are a means to an end: "The primary purpose of the test battery [was] to assist teachers in teaching to the individual musical differences among students" (Gordon, 1989, p. iii). Therefore, in collaboration with his students and colleagues, Gordon began to develop curricula based on MLT (Gordon, 1989; Walters & Taggart, 1989). Many curricula based on MLT have been developed for use in different contexts including early childhood, instrumental, and general music (e.g., Grunow, Gordon, & Azzara, 2003; Taggart, Bolton, Reynolds, Valerio, & Gordon, 2000; Valerio, Reynolds, Bolton, Taggart, & Gordon, 1998).

Aptitude and Achievement

Though music aptitude and music achievement are linked, they are not the same. Aptitude is the potential to achieve, whereas achievement is the realization of that potential through formal and informal learning (Gordon, 2012). Music aptitude is multidimensional, normally distributed, and influenced by nature and nurture (Gordon, 1987). Each person is born with a certain level of music aptitude that fluctuates depending on the richness of his or her environment and the interactions in which they engage. Gordon suggests the environment affects whether aptitudes persist at birth level or lower (Gordon, 1987). The richer the environment and interactions, the greater the chances of maintaining original levels of aptitude. As mentioned earlier, music aptitude is

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developmental and sensitive to environmental influences until approximately age 9, at which time music aptitudes stabilize (Gordon, 2012).

That is not to say one cannot achieve musically or continue to grow musically after age 9. Aptitudes can be likened to the vehicle you drive. Whether your audiation stabilizes as a skateboard or a racecar, both vehicles can get to the same location. The person with the skateboard will require more effort and time to travel the same distance as the person with the racecar, but travel is possible. While one is capable of achieving musically and benefiting from musical instruction regardless of one's stabilized music aptitude, stabilized music aptitude is only one factor that will influence your future achievement and how much you benefit from musical instruction. Unlike music achievement, which can be measured through observation, music aptitude cannot be measured without a standardized test (Gordon, 1986; Reynolds & Hyun, 2004).

Gordon's Tests of Music Audiation and Music Aptitude

(p. 480) Gordon developed three standardized tests that typically are used with elementary-age students. The MAP is a test of stabilized music aptitude. The PMMA and IMMA are two tests of developmental music aptitude.

The MAP was the first standardized test of music aptitude developed by Gordon and is intended for use with students in 4th through 12th grade (Gordon, 1995). The MAP can be administered to individual students or groups, involves four nonpreference subtests (Melody, Harmony, Tempo, and Meter) and three preference subtests (Phrasing, Balance, and Style), and results in eleven scores (Melody subtest score, Harmony subtest score, Tonal score, Tempo subtest score, Meter subtest score, Rhythm Imagery score, Phrasing subtest score, Balance subtest score, Style subtest score, Music Sensitivity score, and a composite score). Each nonpreference subtest contains 40 items and each preference subtest contains 30 items and should be administered over three days in three 50-minute periods. While it is recognized as a thorough test, teachers restricted to time limits can choose to use only selected subtests, such as the Melody and Meter subtests, with the understanding that this provides a less complete picture of students' aptitudes.

The PMMA and IMMA can be administered to individual students or groups, consist of two subtests (Tonal and Rhythm), and produce three scores (Tonal subtest score, Rhythm subtest score, and a composite score). Each subtest, which should be administered on different days, contains 20 items and takes approximately 20 minutes to administer. Both tests have the same design but are intended for use in different circumstances. The PMMA typically is used with children ages 5 through 8. The IMMA typically is used with children ages 6 through 9, especially "with groups in which half or more of the children score above the 80th percentile on the *Tonal* test or the *Rhythm* test or both, of the *Primary Measures of Music Audiation*" (Gordon, 1987, p. 120). While the IMMA is used primarily as a test of developmental music aptitude, it can be used as a test of stabilized

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music aptitude with children as old as 11 years when it is not possible to use the MAP (Gordon, 1987).

For the majority of elementary general music teachers, the PMMA and IMMA will work as aptitude tests for their students. In addition to the traditional paper format, these tests can be administered using computers via a CD-ROM or online program; however, the validity and reliability of these electronic formats have not been studied as thoroughly as Gordon's original paper-and-pencil version. Once teachers have administered the test and aggregated the data, they will have a rhythm, tonal, and composite score for each student. According to their raw scores and percentile ranks, students' tonal and rhythm aptitudes are categorized as high (80 percentile rank or above), average (between the 79th and 21st percentile ranks), or low (below the 20th percentile rank). It is not unusual for either the rhythm score or the tonal score to be higher than the other (Gordon, 1987). Gordon suggests teachers consider the information idiographically (in relation to the individual student) and normatively (in relation to the students' peers) to individualize and guide informal and formal instruction, as is described later in this chapter. Teachers who use the PMMA and IMMA to inform their teaching typically (p. 481) administer the appropriate test early in the school year and repeat after a period of instruction (midyear or end of the year). By repeating the test, the teacher is able to compare the first score to the new score to determine influence of instruction. If students' scores remain relatively stable, instruction is supporting the tested level of aptitude. If their score has increased, instruction has been compensatory. If their score has decreased, instruction has not supported aptitude and should be adjusted.

Without a test for which sufficient validity evidence has been provided, teachers are not able to determine aptitude accurately based on observations of students' achievement (Reynolds & Hyun, 2004; Stamou, Schmidt, & Humphreys, 2010; Taggart, 1989). When Reynolds and Hyun (2004) asked teachers to compare their estimates of their students' music aptitude to their students' actual scores on the IMMA, the teachers were surprised to find their estimates often were inaccurate: some high-achieving students scored low and some low-achieving students scored high. The teachers recognized their subjective estimates often were influenced by nonmusical behaviors such as participation, attention, and attitude. When teachers have accurate data regarding music aptitudes of their students, they are better able to focus on the specific needs of individual students (Reynolds & Hyun, 2004). By using the results of standardized aptitude tests, teachers can adapt their teaching to meet the needs of their students. Gault (2002) suggests that students with different music aptitudes may require different pedagogical techniques to learn successfully. In addition, when teachers individualize instruction according to students' individual aptitudes, their students achieve to a greater extent than when teachers do not use students' aptitude data to individualize instruction (Froseth, 1971).

Though students benefit when teachers use data from aptitude tests to inform instructional choices, teachers must be cautious when interpreting and applying results of the aptitude tests. First, music aptitude is multifaceted (Gordon, 1987; Mota, 1997) and the aptitude tests are limited to specific dimensions. Scores on the tests can be used to

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adapt instruction regarding certain skills and content but are not exhaustive measures of every dimension of music aptitude. Second, though the aptitude tests are valid for use with students from a variety of educational and socioeconomic backgrounds (Gordon, 1987) and have been used successfully with students outside of the United States (e.g., Reynolds & Hyun, 2004), more research is necessary to determine whether the norms established with students in the United States can be used with students universally (Stamou et al., 2010). Third, Taggart (2005) cautions that “test scores are only estimates, and estimates can be inaccurate” (p. 129). Similarly, Gordon (1986) suggests, “both an objective test battery and a teacher’s subjective knowledge and judgment are required” (p. 6). For example, the teacher’s judgment is required when aptitude scores contrast with achievement. While rare, it is possible for students with high music aptitude to falsely score low due to external factors such as adverse testing conditions or lack of sleep (Taggart, 2005). If a student is achieving beyond expectations based on aptitude score, instruction should proceed at the higher achievement level until the student can be retested. Conversely, high scores do not occur by chance (Taggart, 2005). If a student is achieving below expectations based on aptitude score, instruction should be adapted to help that student reach the potential indicated by the high test score (Flohr, 1981; Taggart, 2005). (p. 482) Finally, test scores must be used appropriately to support audiation development and musical achievement of all students, not to force opportunities on or deny opportunities to any students (Gordon, 2012; Taggart, 1989, 2005). Test scores should be used to guide instructional choices regarding compensatory opportunities for students who need them and enrichment opportunities for those who could benefit from them.

Despite those cautions, aptitude tests are a valuable diagnostic tool to help teachers identify when students need intervention to support development. When teachers have data about students’ aptitudes, they are able to make more accurate diagnoses about students’ musical struggles and accomplishments. Without data about students’ aptitude, teachers may be making pedagogical decisions without the complete picture or based on inaccurate assumptions. To do so would be like taking medication for the flu when you are actually experiencing symptoms of allergies. Without an accurate diagnosis, you cannot choose the appropriate intervention. Without accurate data regarding aptitude and achievement, you cannot provide appropriate instruction. In the next section of the chapter, we describe the ways in which MLT practitioners use data from aptitude tests in combination with measurements of achievement to individualize instruction and make curricular choices. While we acknowledge that teachers apply the theory and assessment strategies differently (based on multiple factors including teaching context, beliefs about teaching and learning, and experience), for the purposes of this chapter, we describe broad commonalities typically observed in MLT-based pedagogical practices and curriculum.

Applications of Music Learning Theory and Assessment in Elementary General Music

Many elementary general music teachers focus on assessing students' knowledge about music, including note names and instrument identification, or nonmusical factors, such as participation, effort, and behavior (Kastner & Shouldice, 2016). In contrast, teachers who use MLT tend to focus primarily on the assessment of musical skills. Because a central assumption of MLT is that all persons possess some level of music aptitude that can be nurtured into audiation and musical skill development, the ultimate goal of MLT is to develop students' audiation and facilitate independent musicianship. For this reason, MLT practitioners emphasize and thus most commonly assess skills for active music making that contribute to audiation development, such as singing, chanting, and movement (Taggart, 2016).

Music learning theory practitioners often assess skills associated with Gordon's skill learning sequence. The skill learning sequence outlines two types of learning: discrimination learning and inference learning (Gordon, 2012). In the discrimination learning levels, students learn by rote through observation and imitation. In the inference learning levels, students teach themselves by applying the skills and understanding developed (p. 483) at the discrimination levels to make inferences. Table 20.1 provides a brief overview of the skill learning sequence as well as examples of learning activities in which students engage at each level. Using the skill learning sequence, teachers guide students from simple to more complex skills and content. While learning can proceed in a stepwise manner through all of the discrimination levels of the skill learning sequence before beginning the inference levels, students benefit when teachers choose to bridge by temporarily advancing instruction from a discrimination level to an inference level and back again. For example, teachers could begin at the Aural/Oral Discrimination level. If they determine, after assessing students' achievement, that the majority of the students are successful at that level, they may choose to bridge to Generalization–Aural/Oral. Using assessment data in conjunction with the skill learning sequence, teachers are able to determine when students have the readiness to proceed to the next, more challenging level of learning. For further details on skill learning sequence and its implementation, see Gordon (2012) and Taggart (2016). (p. 485)

Table 20.1 Description of Skills and Learning Activities Within Gordon's Skill Learning Sequence

Discrimination Learning	Inference Learning
Aural/Oral	Generalization—A/O

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<p>Students develop aural and oral musical “vocabulary” through listening and imitating.</p> <p>Example Activities:</p> <ul style="list-style-type: none">• Echo tonal patterns and rhythm patterns on a neutral syllable (e.g., “bum”/“bah”).• Sing resting tone on a neutral syllable (“bum”).• Move to/chant macrobeats and microbeats on a neutral syllable (“bah”). <p>Example Assessments: Box 20.1.</p>	<p>Students teach themselves new information by independently applying skills learned at the Aural/Oral level to unfamiliar patterns or unfamiliar songs/chants.</p> <p>Example Activities:</p> <ul style="list-style-type: none">• Identify two patterns (neutral syllable) as same or different.• Identify and sing the resting tone (neutral syllable) of an unfamiliar song.• Identify and move to/chant macrobeats and microbeats (neutral syllable) of an unfamiliar song/chant. <p>Example Assessments: Box 20.2.</p>
	<p>Creativity/Improvisation—A/O</p> <p>Students independently apply skills learned at the Aural/Oral level to create and perform new musical material with (improvisation) or without (creativity) external restrictions.</p> <p>Example Activities:</p> <ul style="list-style-type: none">• Create tonal patterns or rhythm patterns (neutral syllable) that are new and/or different from those performed by the teacher.• Create new melodic material, with or without harmonic progression/restrictions.• Arrange or compose new musical material through audiation. <p>Example Assessments: Box 20.3.</p>
<p>(p. 484) Verbal Association</p> <p>Students learn to sing tonal syllables and chant rhythm syllables and use them as a tool for labeling and understanding content previously audiated and performed at the Aural/Oral level.</p>	<p>Generalization—VA</p> <p>Students teach themselves new information by independently applying skills learned at the Verbal Association level to unfamiliar patterns or unfamiliar songs/chants.</p>

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<p>Example Activities:</p> <ul style="list-style-type: none"> • Echo tonal patterns using tonal syllables and rhythm patterns using rhythm syllables, and recognize/label pattern function (e.g., major tonic). • Sing resting tone using tonal syllables and recognize/label tonality. • Move to/chant macrobeats and microbeats using rhythm syllables and recognize/label meter. <p>Example Assessments: Box 20.4.</p>	<p>Example Activities:</p> <ul style="list-style-type: none"> • Apply syllables to patterns performed by the teacher using a neutral syllable. • Label/identify the function of patterns sung/chanted by teacher using a neutral syllable. • Identify and sing the resting tone of an unfamiliar song with the appropriate syllable and identify/name the tonality. • Identify and chant/move to the macrobeats and microbeats of an unfamiliar song/chant with syllables, and identify/name the meter. <p>Example Assessments: Box 20.5.</p>
	<p>Creativity/Improvisation—VA</p> <p>Students create and perform new musical material with (improvisation) or without (creativity) external restrictions, using syllables as a tool.</p> <p>Example Activities:</p> <ul style="list-style-type: none"> • Using syllables, improvise patterns that are new and/or different from those performed by the teacher using syllables. Teacher could specify function to be improvised. • Improvise new melodic material within a specific tonality/meter and/or over an explicit harmonic progression. • Arrange or compose new musical material through audiation within a specific tonality/meter and/or over an explicit harmonic progression. <p>Example Assessments: Box 20.6.</p>
<p>Partial Synthesis</p>	

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<p>Students learn to compare and identify tonal contexts or rhythmic contexts of familiar content.</p> <p>Example Activities:</p> <ul style="list-style-type: none">• Recognize and label the tonality or meter of a series of familiar tonal patterns or rhythm patterns.• Recognize and label the tonality or meter of a familiar song or chant. <p>Example Assessments: Box 20.7.</p>	
<p>Symbolic Association</p> <p>Students learn to read and write notation for content previously audiated and performed at the Aural/Oral and Verbal Association levels.</p> <p>Example Activities:</p> <ul style="list-style-type: none">• Recognize and sing/chant familiar tonal patterns and rhythm patterns seen in notation.• Notate familiar tonal patterns and rhythm patterns.• Recognize familiar tonal patterns and rhythm patterns within the notation of familiar songs/chants. <p>Example Assessments: Box 20.8.</p>	<p>Generalization—SA</p> <p>Students teach themselves new information by independently applying skills learned at the Symbolic Association level to unfamiliar patterns or unfamiliar songs/chants.</p> <p>Example Activities:</p> <ul style="list-style-type: none">• Read unfamiliar patterns.• Write unfamiliar patterns.• Transpose familiar patterns to a new key signature or a new time signature. <p>Example Assessments: Box 20.9</p>
	<p>Creativity/Improvisation—SA</p> <p>Students create and perform new musical material in conjunction with notation reading and/or writing.</p> <p>Example Activities:</p> <ul style="list-style-type: none">• Improvise based on what is read in notation.• Arrange or compose new musical material through audiation and use notation to preserve creation.
<p>Composite Synthesis</p>	

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<p>Students learn to sense tonal and rhythmic context of notated sounds.</p> <p>Example Activities:</p> <ul style="list-style-type: none">• Read/write a series of familiar tonal patterns and rhythm patterns and recognize/label its tonality or meter. <p>Example Assessments: Box 20.10.</p>	
	<p>Theoretical Understanding</p> <p>Students learn theoretical information explaining how musical sounds are constructed and/or audiated (i.e., traditional music theory).</p> <p>Example Activities:</p> <ul style="list-style-type: none">• Understand and identify time-value names of notes.• Understand the patterns of half steps and whole steps within scales and construct scales on a given pitch.• Understand and name pitch intervals.

Forms of Assessment Used by MLT Practitioners

Existing research suggests that written tasks and tests are the most common form of assessment used by elementary general music teachers (Kastner & Shouldice, 2016). However, because these typically are used to assess knowledge about music, they tend to be less common among teachers whose instruction is informed by MLT. Because MLT (p. 486) practitioners focus on audiation and skill development, they are more likely to use forms of assessment like rating scales, rubrics, and checklists to measure musical performance skills than written assessments of conceptual knowledge.

While many elementary general music teachers assess students during large group responses (Kastner & Shouldice, 2016) and may be hesitant to assess individuals (Delaney, 2011; Rutkowski, 1996; Shih, 1997), individual student responses are imperative to assessment in MLT-based instruction (Salvador, 2011, 2018; Taggart, 2005, 2016). Although assessment during group response may be efficient, it is problematic and may be less reliable for a number of reasons. First, during group performance students often engage in split-second imitation of one another, minimizing the teacher's ability to assess students' independent musicianship (Salvador, 2011; Taggart, 2005, 2016).

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Teachers must hear individual responses to measure students' independent musical skills accurately, diagnose students' individual strengths and weaknesses, and differentiate instruction to meet the needs of each individual student (Salvador, 2011, 2018; Taggart, 2005). Second, when performing in solo, students are able to hear themselves and engage in self-assessment, thus employing their audiation and improving musical skills (Gordon, 2001; Rutkowski & Miller, 2003; Taggart, 2005). For example, Gordon (2001) suggests that individual singing and chanting "teach[es] students how to audiate" (p. 34), and Rutkowski and Miller (2003) found that 1st-grade students who experienced singing individually and in small groups showed greater gains in singing achievement than students who had only participated in large-group singing.

To facilitate individual student response, teachers must cultivate a positive and safe classroom environment in which solo response and assessment is a normal part of the class routine. Some teachers avoid individual response/assessment because they believe it makes students uncomfortable and may even lead them to dislike music and music class (Delaney, 2011; Rutkowski & Miller, 2003; Shih, 1997; Taggart, 2005). While this may be true if teachers wait until the upper elementary grade levels to incorporate solo response, teachers can prevent this by beginning to engage students in solo responses (e.g., resting tone, 2-4 pitch tonal patterns, 2-4 beat rhythm patterns) immediately in Kindergarten. At this young age, students are happy and excited to respond individually, and normalizing individual response and assessment at this age helps minimize negative perceptions of solo response in later grades. Teachers also may encourage individual response by nurturing an atmosphere of support and respect, fostering the perception that it is safe to make mistakes, allowing and empowering students to be musically independent, and communicating to students that all can succeed musically (Salvador, 2011, 2018).

It also is important to emphasize the frequency with which MLT practitioners assess students' individual musical progress. While many elementary general music teachers use formative assessments infrequently (once or twice per month) and are more likely to focus on summative assessment immediately prior to completing report cards (Kastner & Shouldice, 2016), MLT practitioners typically conduct frequent formative assessments, some in virtually every class period (Salvador, 2011, 2018). Frequent formative assessment enables teachers to use the data to monitor musical progress of students (p. 487) continuously, constantly adapt and individualize instruction based on students' individual needs, compare students' achievement to their potential, and evaluate the effectiveness of their teaching.

Given that many elementary general music teachers perceive large class sizes and a lack of instructional time as impediments to assessment (Kastner & Shouldice, 2016), one may wonder how teachers assess every student through individual performance on such a frequent basis without compromising time devoted to learning activities. However, this would assume that assessment is divorced from instruction. Music learning theory practitioners weave assessment into learning activities, with assessment serving as a natural outgrowth of teaching and learning. For example, Salvador (2011) describes one

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MLT practitioner, Hailey, who “assessed as she taught and taught as she assessed to the degree that her practice of differentiated instruction and her assessment of students’ capabilities were virtually indistinguishable” (p. 242). This is accomplished by keeping individual student responses brief, embedding them into existing learning activities, and making them a part of the regular classroom routine.

Instruction and Assessments

Two types of activities typically constitute instruction in an elementary general music class informed by MLT: learning sequence activities and classroom activities. Learning sequence activities are research-based, sequential pattern instruction implemented during the first 5 to 10 minutes of each class period. The rest of the class time is devoted to classroom activities, which look similar to activities observed in most other elementary general music classes and include singing songs, playing games, moving to music, and playing instruments. Learning sequence activities and classroom activities form a “whole-part-whole” approach to music learning (Gordon, 2012). “The rationale for that approach is that students will learn most efficiently [and effectively] if they are given a general view of the whole followed by a specific study of parts within that whole, and finally followed by a more enlightened view of the whole” (Walters, 1989, p. 143). In the first whole, students are exposed to tonalities and meters of songs and chants in classroom activities. Then students learn the “parts” of music through tonal pattern and rhythm pattern instruction in learning sequence activities. Finally, skills learned in learning sequence activities are applied to songs and chants in classroom activities, where “the whole is revisited ... with greater comprehension and depth as a result from having engaged in the part[s]” (Taggart, 2016, p. 198). Music learning theory practitioners assess during learning sequence activities and classroom activities but in slightly different ways.

Assessment in Learning Sequence Activities

Learning sequence activities are unique to MLT and “provide students with the audiation and music skills to continue to grow musically and to perform literature in a musical manner” (Gordon, 2001, p. 4). Learning sequence activities are brief periods (5–10 minutes per class period) during which students learn to audiate tonal patterns and (p. 488) rhythm patterns and develop musical skills in a sequential manner. These skills vary “according to the level of the skill learning sequence in which the children are engaged” (Taggart, 2016, p. 200). See Table 20.1 for examples of skills at each level of the skill learning sequence.

When including learning sequence activities in their instruction, MLT practitioners use three resources: *Rhythm Register Book* (Gordon, 1990a), *Tonal Register Book* (Gordon, 1990b), and the *Reference Handbook for Using Learning Sequence Activities* (2001), which provides specific directions for how to teach learning sequence activities. The register books are compilations of brief modules that engage the students in a sequential manner through the levels of the skill learning sequence while also building a vocabulary of tonal and rhythm patterns. The patterns in the books have been studied extensively to determine which are easy to audiate, moderately difficult to audiate, and difficult to audiate (Gordon, 1978).

Most pages of the register books have three *individual patterns* intended to engage individual students in solo responses; one pattern is labeled E for easy, one labeled M for moderate, and one labeled D for difficult. Teachers use results of a standardized aptitude test to determine which difficulty level is most appropriate for each student. “Students of lower music aptitude are taught by using simpler, more readily accessible patterns than those used with students of higher music aptitude” (Gordon, 2012, pp. 48–49). All students learn the same skill within the same tonality or meter in learning sequence activities, but each student is engaged with patterns that challenge him or her appropriately. Students with lower aptitude engage with easy patterns, students with average aptitude engage with easy and moderate difficult patterns, and students with high aptitude engage with all three patterns. In this manner, frustration is minimized for students of lower aptitude and boredom is minimized for students of higher aptitude. While teachers use the three *individual patterns* to engage students in solo responses, they also improvise *class patterns* (in the same tonality or meter as the three patterns) to engage the class in group response. The purpose of class patterns is to add variety and keep all students engaged, whereas the purpose of individual patterns is to develop and assess students’ independent audiation and musical skills.

Students respond to individual patterns and are assessed in either *teaching mode* or *evaluation mode*. “When in teaching mode, the teacher performs the individual pattern in duet with the student,” which serves to teach the student as well as “[prevent] possible embarrassment to a student who may not immediately perform the patterns successfully” (Gordon, 2001, p. 12). After a student successfully performs an individual pattern in teaching mode, the teacher later returns to that student with the same pattern but allows the student to respond in solo, which is called evaluation mode. Similar to a

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checklist, these assessments are marked in a yes/no fashion. Although Gordon does not suggest recording unsuccessful attempts, the teacher may wish to record when a student has attempted but not successfully performed a pattern in either teaching or evaluation mode. Additionally, because students teach themselves rather than learning by rote at the inference levels of Gordon's skill learning sequence, the teacher does not use teaching mode at the inference levels of learning but only assesses students in evaluation (p. 489) mode. Once the majority of students have successfully completed evaluation mode for the patterns at the appropriate difficulty level according to their aptitudes, the teacher moves on to the next learning sequence activity, which includes either a new skill level or new patterns (Taggart, 1989).

Assessment in Classroom Activities

Once students have been introduced to a skill in learning sequence activities, that skill can and should be applied to music literature and assessed in classroom activities. This is important because "students' mastery of skill in music learning sequence activities is never a goal in itself" but is a means to "[provide] skills necessary to learn to audiate and perform conventional literature in classroom music with comprehension and artistry" (Gordon, 2012, p. 264). However, unlike learning sequence activities, there is no prescribed form of assessment for classroom activities. Instead, teachers create their own assessments for use in classroom activities (Taggart, 2016).

Rating scales tend to be the most common form of assessment used during classroom activities. This is because, unlike written tests, which typically are used for assessing knowledge *about* music, rating scales are more appropriate for assessing musical performance skills (Gordon, 2002). Another benefit of rating scales is that they "can be used meaningfully in the context of an on-going class to evaluate student [achievement] quickly" (Taggart, 2015, p. 17), and thus can be used to easily record and manage assessment data. For example, Salvador (2011) found that Hailey "embedded [assessments] in instructional activities in the form of frequent opportunities for individual children to sing, play or move independently" (p. 171) and used rating scales as "an effective way of [assessing] quickly, and in a manageable way" (p. 172).

The curricular objective being measured by the rating scale is called the "dimension," and multiple rating scales can be created to assess various dimensions of the same musical performance, such as intonation, rhythm, and expression (Gordon, 2002). Each dimension involves components called criteria, which serve as "standards upon which the teacher bases the [assessment]" (Lange, 1999, p. 16). It is important that these criteria be stated specifically enough that the rating scale can be used objectively and so that the results can be used to improve instruction (Lange, 2006). There are several types of rating scales, including continuous, additive, and numerical.

The first type, continuous rating scale, is used most frequently by MLT practitioners. Continuous rating scales are named so because they describe a continuum of musical behaviors related to a particular objective in which "each criterion is dependent or built upon another criterion" (Lange, 1999, pp. 16-17). Because continuous rating scales

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involve “sequentially complex criteria,” they are particularly useful for assessing skills that involve developmental processes, such as singing or the ability to keep a steady beat, and provide the teacher with “specific information about a student’s achievement, thereby assisting the teacher in adapting instruction to students’ individual musical needs” (Gordon, 2002, p. 16). Additionally, due to their specificity, continuous rating scales help direct the teacher’s attention in what to listen for when rating students’ musical performances and thus tend to have higher reliability than other forms of (p. 490) rating scales. According to Gordon (2002), “the optimum number of criteria for each dimension ... is five” because “it is difficult ... to consider concurrently more than five criteria when listening to a student’s performance” (p. 18), which reduces validity and reliability. However, teachers may still find it difficult to remember five criteria and may find that rating scales involving only four criteria are easier to remember and thus to use while teaching (see examples in Boxes 20.1–20.10).

The second type, additive rating scale, is similar to a checklist (Lange, 1999). “When using this type of rating scale, a mark is given for each criterion achieved,” and the total number of marks “represents the student’s score on the dimension” (Gordon, 2002, p. 17). Unlike continuous rating scales, each criterion in an additive rating scale does not depend on any other criterion. With additive rating scales, teachers indicate that a student has demonstrated or has not demonstrated a skill (see examples in Boxes 20.1–20.10). Unlike continuous rating scales, there are no options to indicate varying levels of success with a skill. While this might make them easier for teachers to create, this also makes additive rating scales less useful for informing and adapting instruction than continuous rating scales because they “[offer] a teacher only general information about students’ achievement” (Gordon, 2002, p. 16).

A third type of rating scale is the numerical scale. With this type of tool, a student’s performance is rated by indicating a number on a scale ranging “from excellent to poor” (Gordon, 2002, p. 17). Due to the vagueness of the descriptors in a numerical rating scale, they not only tend to be unreliable measurement tools but also provide the teacher with little to no “diagnostic information about what a student’s compensatory or remedial needs might be to improve his or her [achievement]” (Gordon, 2002, p. 17). For this reason, MLT practitioners tend to rarely use numerical rating scales.

Sample Assessments for Use in Classroom Activities

In this section we share examples of assessments that might be used by MLT practitioners during classroom activities. “Classroom activities can be quite different from teacher to teacher” because they “provide the opportunity for teachers to go beyond the skills taught in Gordon’s models to other valued aspects of music learning” (Taggart, 2016, p. 201). However, because the skill learning sequence distinguishes MLT from other approaches, we focus on activities and assessments connected to the various levels of learning in Gordon’s skill learning sequence. Though MLT practitioners often teach and assess skills and knowledge that are not a direct part of Gordon’s skill learning sequence (e.g., folk dances and instrumental arrangements using pitched and nonpitched

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percussion), this section focuses on skills and assessments particular to MLT. Opportunities to build audiation and to develop the musical skills described in Table 20.1 can be integrated into traditional activities, such as play parties and passing games.

Table 20.1 outlines brief examples of skills and activities for each level of the skill learning sequence, and Boxes 20.1 through 20.10 provide sample assessments that could be used to measure student achievement during these activities. The skills described in Table 20.1 would be taught, reinforced, and assessed within the context of a number of songs/chants and through a variety of activity types. For example, tonal pattern echoing (p. 491) might be practiced and assessed through various singing games or by using props such as puppets to elicit singing responses in a playful manner. In some cases, it is possible to assess all students on a particular task in one class period. For instance, the teacher could quickly assess all students' ability to audiate and sing the resting tone (i.e., "home tone" or first scale degree) of a familiar song by pausing at various points in the song to toss a ball or other toy to each student, indicating when it is his or her turn to sing the resting tone. The teacher could assess each individual's achievement using the continuous rating scale for resting tone in Box 20.1 if teaching at the Aural/Oral level or Box 20.4 if teaching at the Verbal Association level. If assessing all students individually in a single class period seemed unrealistic due to time constraints, the teacher could conduct the activity and assessment over a series of multiple days, focusing on one subset of students in each class period.

Box 20.1 Example Assessments at the Aural/Oral Level

Objective: Student will be able to chant familiar rhythm patterns using a neutral syllable (e.g., bah).

Additive Rating Scale for Rhythm Pattern Performance at the Aural/Oral Level:

- Student chants accurate rhythm.
- Student chants with consistent tempo.
- Student chants with expression.

Objective: Student will be able to perform (move or chant) the steady beat (macro or micro).

Continuous Rating Scale for Macro/Microbeat Performance at the Aural/Oral Level:

- 4—Student performs (moves or chants) the steady beat (macro or micro) that consistently corresponds to the externally imposed tempo.
- 3—Student performs (moves or chants) the steady beat (macro or micro) that inconsistently corresponds to the externally imposed tempo.

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2—Student performs (moves or chants) a steady beat (macro or micro), but that beat does not consistently correspond to the externally imposed tempo.

1—Student is learning to perform (move or chant) a steady beat (macro or micro).

Objective: Student will be able to sing familiar tonal patterns (arpeggiated, 2–4 pitches in length), or resting tone, or first pitch of familiar pattern using a neutral syllable.

Continuous Rating Scale for Tonal Pattern, Resting Tone, or First Pitch Performance at the Aural/Oral Level:

4—Student sings pitch(es) with accuracy.

3—Student sings pitch(es) with some accuracy (inaccurate intervalic relationships or approximates contour).

2—Student is not yet able to sing pitch(es) but engages singing voice.

1—Student is learning to engage singing voice.

Box 20.2 Example Classroom Assessment at the Generalization-Aural/Oral Level

Objective: Student will be able to compare familiar and unfamiliar patterns and identify patterns as same or different.

Additive Rating Scale for Same/Different Identification at the Generalization-Aural/Oral Level:

Student is able to accurately identify patterns that are the same.

Student is able to accurately identify patterns that are the different.

Box 20.3 Example Assessments at the Creativity/Improvisation-Aural/Oral Level

Objective: Student will be able to create and perform a rhythm in the same metric context but different from the teacher's pattern.

Continuous Rating Scale for Rhythmic Creativity at the Creativity/Improvisation-Aural/Oral Level:

4—Student improvises a different rhythm pattern while consistently maintaining musical context.

3—Student improvises a different rhythm pattern, but musical context is inconsistent.

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2—Student improvises a different response, but response is not in related musical context.

1—Student imitates teacher's pattern (not yet able to create a different pattern).

Objective: Student will be able to create and perform a pattern in the same tonal context but different from the teacher's pattern.

Additive Rating Scale for Tonal Creativity at the Creativity/Improvisation-Aural/Oral Level:

Student sings pattern that is different from the teacher.

Student sings pattern in the same tonal context as the teacher.

Student uses singing voice.

Box 20.4 Example Assessments at the Verbal Association Level

Objective: Student will be able to chant familiar rhythm patterns using rhythm syllables.

Additive Rating Scale for Rhythm Pattern Performance at the Verbal Association Level:

Student chants accurate rhythm.

Student uses accurate rhythm syllables.

Student chants with consistent tempo.

Student chants with expression.

Objective: Student will be able to sing familiar tonal patterns (arpeggiated, 2–4 pitches in length), or resting tone, or first pitch of familiar pattern using tonal syllables.

Additive Rating Scale for Tonal Pattern, Resting Tone, or First Pitch Performance at the Verbal Association Level:

Student sings accurate pitches.

Student uses accurate solfège.

Student uses singing voice.

Objective: Student will be able to identify harmonic function of familiar tonal patterns.

Additive Rating Scale for Pattern Function Identification at the Verbal Association Level:

Student identifies tonic patterns accurately.

Student identifies dominant patterns accurately.

Box 20.5 Example Assessments at the Generalization-Verbal Level

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Objective: Student will be able to associate rhythm syllables to perform familiar and unfamiliar rhythm patterns heard without syllables.

Additive Rating Scale for Rhythm Syllable Association at the Generalization-Verbal Level:

- Student chants accurate rhythm.
- Student uses accurate rhythm syllables.
- Student chants with consistent tempo.
- Student chants with expression.

Objective: Student will be able to identify the harmonic function of familiar and unfamiliar tonal patterns heard without syllables.

Additive Rating Scale for Pattern Function Identification at the Generalization-Verbal Level:

- Student identifies tonic patterns accurately.
- Student identifies dominant patterns accurately.

Objective: Student will be able to associate tonal syllables to perform familiar and unfamiliar tonal patterns heard without syllables.

Additive Rating Scale for Rhythm Syllable Association at the Generalization-Verbal Level:

- Student chants accurate rhythm.
- Student uses accurate rhythm syllables.
- Student chants with consistent tempo.
- Student chants with expression.

Box 20.6 Example Assessments at the Creativity/Improvisation with Verbal Association Level

Objective: Student will be able to improvise tonal patterns (arpeggiated, 2-4 pitches) using syllables.

Additive Rating Scale for Tonal Improvisation at the Creativity/Improvisation with Verbal Association Level:

- Student improvises a tonal pattern within the guidelines (e.g., major tonic).
- Student applies syllables accurately.

Objective: Student will be able to create and perform a rhythm (4 macrobeats in length) using syllables in the same metric context but different from the teacher's pattern.

Additive Rating Scale for Rhythmic Creativity at the Creativity/Improvisation with Verbal Association Level:

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Student improvises a rhythm pattern the guidelines (e.g., triple meter).

Student applies syllables accurately.

Student performs with consistent tempo and meter.

Box 20.7 Example Assessments at the Partial Synthesis Skill Level

Objective: Student will be able to compare two series of familiar tonal patterns and recognize/name the tonality of either or both of the series.

Additive for the Partial Synthesis (Tonal) Level:

Student accurately recognize/names major tonality.

Student accurately recognize/names minor tonality.

Objective: Student will be able to compare two series of familiar rhythm patterns and recognize/name the meter of either or both of the series.

Additive for the Partial Synthesis (Rhythm) Level:

Student accurately recognize/names duple meter.

Student accurately recognize/names triple meter.

Box 20.8 Example Assessments at the Symbolic Association Level

Objective: Student will be able to read familiar tonal patterns using syllables.

Additive Rating Scale for Tonal Reading at the Verbal Association Level:

Student accurately reads/sings pitches.

Student uses correct syllables.

Student uses singing voice.

Objective: Student will be able to write familiar tonal patterns.

(p. 498) Additive Rating Scale for Tonal Writing at the Symbolic Association Level:

Student writes correct key signature (“DO signature”).

Student accurately notates pitches on the staff.

Objective: Student will be able to read familiar rhythm patterns using syllables.

Additive Rating Scale for Rhythm Reading at the Symbolic Association Level:

Student accurately reads/chants rhythms.

Student uses correct syllables.

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Objective: Student will be able to write familiar rhythm patterns.

Additive Rating Scale for Rhythm Writing at the Symbolic Association Level:

Student writes correct time signature.

Student accurately notates rhythms.

Box 20.9 Example Assessments at the Generalization-Symbolic Level

Objective: Student will be able to read familiar and unfamiliar tonal patterns using syllables.

Additive Rating Scale for Tonal Reading at the Generalization-Symbolic Level:

Student accurately reads/sings pitches.

Student uses correct syllables.

Student uses singing voice.

Objective: Student will be able to write familiar and unfamiliar tonal patterns.

Additive Rating Scale for Tonal Writing at the Generalization-Symbolic Level:

Student writes correct key signature (“DO signature”).

Student accurately notates pitches on the staff.

Objective: Student will be able to read familiar and unfamiliar rhythm patterns using syllables.

Additive Rating Scale for Rhythm Reading at the Generalization-Symbolic Level:

Student accurately reads/chants rhythm.

Student uses correct syllables.

Objective: Student will be able to write familiar and unfamiliar rhythm patterns.

Additive Rating Scale for Rhythm Writing at the Generalization-Symbolic Level:

Student writes correct time signature.

Student accurately notates rhythms.

Box 20.10 Example Assessments at the Composite Synthesis Level

Objective: Student will be able to read a series of familiar tonal patterns using syllables and recognize/name tonality.

Additive Rating Scale for Tonal Reading at the Composite Synthesis Level:

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Student accurately reads/sings pitches (indicate for each pattern in the series).

Student uses correct syllables (indicate for each pattern in the series).

Student uses singing voice.

Student accurately names the tonality of the patterns.

Objective: Student will be able to write a series of familiar tonal patterns and recognize/name the tonality.

Additive Rating Scale for Tonal Writing at the Composite Synthesis Level:

Student writes correct key signature (“DO signature”).

Student accurately notates pitches on the staff (indicate for each pattern in the series).

Student accurately names the tonality of the patterns.

Objective: Student will be able to read a series of familiar rhythm patterns using syllables and recognize/name the meter of the patterns.

Additive Rating Scale for Rhythm Reading at the Composite Synthesis Level:

Student accurately reads/chants rhythm (indicate for each pattern in the series).

Student uses accurate syllables (indicate for each pattern in the series).

Student accurately names the meter of the patterns.

Objective: Student will be able to write a series of familiar rhythm patterns and identify the meter of the patterns.

Additive Rating Scale for Rhythm Writing at the Composite Synthesis Level:

Student writes correct time signature.

Student accurately notates rhythms (indicate for each pattern in the series).

Student accurately names the meter of the patterns.

Using Assessment Data

If activities and assessment such as those described in the previous section are implemented in an ongoing manner, the teacher will have amassed a considerable amount of assessment data on individual students. This process of gathering objective data on students’ music aptitude and achievement is known as measurement (Gordon, 2012). However, measurements are not an end in themselves but rather must be interpreted by the teacher through the more subjective process of evaluation in order to be used to provide feedback regarding individual student progress and to make short-term instructional and long-term curricular decisions. This section will describe ways teachers

can use assessment data for the purposes of adapting instruction, idiographic and/or normative evaluation, and as an indicator of teacher effectiveness.

Adapting Instruction

As previously mentioned, MLT practitioners adapt instruction to meet individual student needs. One way teachers can use assessment data for this purpose is to evaluate the degree to which each student needs remediation or further challenges. For example, if assessment data suggests a student is struggling with a particular skill, “the teacher knows that the student lacks the readiness to accomplish what is being asked. As a result, the teacher should determine what readinesses are missing and help to provide the student with opportunities to develop those readinesses” (Taggart, 2005, p. 140). Conversely, if a student consistently demonstrates high achievement, “the teacher knows that the student needs to be challenged with more difficult tasks in the future to prevent boredom and maximize achievement” (p. 140). Similarly, the teacher can look for broad trends in student achievement among an entire class or grade level in order to discern the degree to which the group has mastered the curricular objectives and thus whether they are (p. 492) ready to proceed to more challenging concepts and/or skills or need compensatory experience. Lange (1999) suggests that using assessment data to identify broad trends in student achievement “would help the teacher recognize [an] omission [or ineffective instruction], and he or she would be able to fix the problem before attempting to teach new material built upon the missing skills” (p. 17). For example, Salvador (2011, 2018) found that Hailey used assessment data to tailor future instruction by either moving on to more difficult material if the data showed that the majority of students were successful or providing opportunities for the class to practice (or even revert to easier material) if many were unsuccessful.

Another way in which teachers use assessment data to meet individual needs is by studying each student’s aptitude test scores and measurements of prior achievement (those attained during learning sequence activities and classroom activities) to determine the difficulty level needed to keep each individual engaged and progressing in his or her musical development. If results of an aptitude test indicate that a student has low aptitude and/or assessments indicate low past achievement in a particular dimension (e.g., tonal or rhythm), the teacher can adapt instruction to this student’s individual learning needs by providing the student with easier response opportunities. For example, if students are practicing the skill of audiating and singing the resting tone of a song in a classroom activity, the teacher might adapt the difficulty level by varying where she pauses during the song to have each student sing the resting tone. In this instance, the teacher might pause after a phrase that ends on the resting tone for a student whose assessment data indicates low tonal aptitude and/or low tonal achievement in the past. Conversely, for a student whose assessment data indicates high tonal aptitude and/or high tonal achievement in the past, the teacher might pause at a point in the song that results in a wide interval between the last pitch sung and the resting tone. Difficulty level

would also be adapted based on individual needs in a similar manner during learning sequence activities, as previously discussed.

Idiographic and Normative Evaluation

In addition to adapting instruction, teachers also may use assessment data for the purposes of idiographic and/or normative evaluation. In an idiographic evaluation, the teacher considers each individual student's achievement in relation to his or her own music aptitude and/or past achievement (Gordon, 2002, 2012). In doing so, the teacher can determine whether each student is achieving at an appropriate and realistic level considering his or her potential to achieve. For example, consider two students, both of whom are achieving consistently only at the "easy" difficulty level during tonal learning sequence activities. If Student A has low tonal aptitude, she would be expected only to achieve at the easy level, thus she would be achieving at a level appropriate to her potential. On the other hand, if Student B has high tonal aptitude, achieving only at the "easy" level would be far below his expected level of achievement, thus he is not achieving to the level of his potential. Teachers also may choose to use idiographic evaluation when assigning student grades, grading each student in relation to his or (p. 493) her own aptitude and/or past achievement level. For example, if a teacher is assigning grades through idiographic evaluation, Student A might receive a high tonal grade because she is achieving at a high level in relation to her tonal aptitude, whereas Student B might receive a low tonal grade because he is achieving quite low in relation to his tonal aptitude.

In addition to idiographic evaluation, teachers also may use assessment data for the purpose of normative evaluation. In normative evaluation, the teacher compares the achievement of individual students with the achievement of their peers (Gordon, 2002, 2012). In general in education, normative evaluation tends to be the most common way of assigning grades: The teacher considers what a typically developing student could achieve and then evaluates individuals in comparison to this standard. An example of normative evaluation observed in many report cards is language such as when students are described as exceeding, meeting, or below grade-level expectations. In this way the teacher, parents, and students are aware of how their achievement compares to the typical achievement of peers. Although assigning grades through normative evaluation traditionally tends to be the most common approach to grading, one may find using a combination of idiographic and normative evaluation more meaningful and informative.

Teacher Effectiveness

Finally, assessment data can play a role in reflective practice as one measure of teacher effectiveness. It is commonly thought that "pretest and posttest data comparisons provide the strongest view of student growth" (Nielsen, 2014, p. 67), and teachers who implement assessments in an ongoing manner will have a plethora of data with which to make such

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comparisons. Specifically, the comparison of student scores from an assessment of a particular skill measured at an earlier point in time with scores from an assessment of the same skill obtained at a later point in time can serve as evidence of student growth and thus one indicator of teacher effectiveness. One such way of documenting student growth through assessment data would be to calculate the mean of all student scores on an early assessment of a skill and compare it to the mean of all student scores on a later assessment of the same skill; if the mean of the latter is higher than that of the former, one could interpret this to be an indication that growth has occurred among that group of students because the average level of achievement went up. One could also reflect on instructional effectiveness by calculating the change in individual students' achievement levels over time. Flohr (1981) suggested that a decrease in aptitude score or achievement might indicate that teachers need to modify instructional strategies and curriculum. In addition, by examining individual students' achievement idiographically, teachers can determine how many students are reaching their expected level of achievement in relation to their music aptitude, which could be considered an indication of the teachers' ability to effectively individualize instruction. While teachers could use these strategies to reflect on their effectiveness, as with music aptitude and achievement, teacher effectiveness is a multidimensional factor that requires examination across multiple contexts and with multiple reliable measurement tools.

Conclusion

(p. 494) In this chapter we have provided an overview of Gordon's music learning theory and the role assessment can play in elementary general music instruction that is informed by MLT. This chapter offers many perspectives on the ways that MLT practitioners use assessment. While we have attempted to be comprehensive, there are a number of intricacies specific to MLT and related pedagogy that are best explored through the suggested references, as well as professional development experiences provided through the Gordon Institute for Music Learning.

Music learning theory evolved from assessment and, as a result, assessment is the foundation of pedagogy and curriculum based on MLT. Practitioners gather data regarding students' aptitude and achievement and use that data to ensure all students have (p. 495) the opportunities and challenges they need to maximize their individual potentials through audiation and musical skill development. Because MLT practitioners value each student's unique strengths and challenges, they include frequent assessment of musical skills and consider the data from idiographic and normative perspectives to provide the most comprehensive picture of each student's musical development. Curricular decisions, short-term and long-term, are then informed by these assessments. Through this student-centered approach, MLT practitioners are able to maximize their potential as guides of their students' musical journeys in the general music classroom.

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