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## Understanding Music Aptitude: Teachers' Interpretations

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### Abstract

The purpose of this research was to examine teachers' understandings of music aptitude. The problem was to examine how teachers select, check, suspend, regroup, and transform their understanding when they estimate the music aptitude of their students and then obtain standardized music aptitude test scores from their students. Ten classroom teachers from South Korea and the United States wrote about their experiences throughout the study and, at the end, participated in an individual interview. Categories emerging from the symbolic interactionist approach to the data included: estimation criteria, reactions of surprise when teachers informally compared their estimates to students' test scores, recognition of subjective aspects when estimating, the need to pay attention to individuals during music instruction, and requests to learn more about music aptitude. Teachers transformed their understandings of music aptitude while interacting with their students. We recommend similar experiences for teachers who seek to further understand music aptitude.

Throughout the 20<sup>th</sup> century music psychologists have designed tests to measure music constructs such as talent, ability, musicality, and aptitude. By using their tests, educators can try to either predict musical potential or better measure music achievement. However, teachers' practices vary widely in their use of talent, ability, musicality or aptitude test scores to assess potential, diagnose strengths and weaknesses, and improve teaching. Some music teachers are skeptical about the value of objective information yielded by test scores. Others appreciate and use such tests, but not consistently. Those who use tests interpret results inconsistently because of differences in "philosophical perspective, theoretical persuasion, musical experience, musical sophistication, and general understanding of the constructs and related issues" (Boyle, 1992, p. 248).

That teachers differ in their understandings of music constructs such as talent, ability, musicality, and aptitude is not surprising. Boyle (1992) identified a long-standing lack of agreement among music psychologists about definitions for those constructs, and the extent to which they are distinct from one another. Researchers and teachers would do well to achieve consensus about music constructs, their measurement, and the use of results, because testing offers "objective bases for instructional, curriculum, and program changes that take into account students' individual differences" (Boyle, 1992, p. 247).

We, the researchers and authors of this study, are from two countries: South Korea (Hyun) and the United States (Reynolds). We find objective measurement of innate music potential to be integral to promoting optimal music learning for children in the developmental stages of music aptitude. We chose to consider the construct music aptitude in this study—rather than music talent or ability—because we accepted Gordon's definition of music aptitude, "the potential to achieve in music" (2003, p. 372), and his premise that all persons have music potential.

Although some of Gordon's standardized music aptitude tests have been translated from English to Korean, and therefore are accessible in both countries, we observe that some teachers in both countries continue to rely only on their subjective judgments of music aptitude to plan instruction and assess music achievement. As researchers and music teacher educators, we would like to learn more about what teachers consider when evaluating the music aptitude of their students.

Most researchers (Auh, 1992; Brown, 1928; Cain, 1960; Christy, 1956; Culver, 1965; Doxey & Wright, 1990; Drake, 1949; Forsythe, 1984; Gaston, 1957; Gaw, 1922; Gordon, 1967; Gordon 1970; Gordon, 1984; Harrington, 1969; Hatfield, 1967; Lundin, 1949; Mursell, 1932; Schoen, 1923; Whybrew, 1962; Wing, 1948; Young, 1976) traditionally have solicited teachers' judgments of their students' talent, ability, or aptitude because they were interested in estimating relationships between teachers' judgments and students' test scores to provide some evidence of the test's validity. Typically, researchers defined the construct in question for teachers, and explained how to use their Likert-type rating scales and how to distribute ratings across a group of students. Researchers variously interpreted relationships between students' test scores and teachers' judgments to be (a) too low to validate the test as a measure of the construct in question, (b) sufficiently high to validate the test, or (c) lower than the test's predictive validity coefficient. The last shows that test scores perhaps yield information beyond that gleaned by teachers who base their judgments solely on their interactions with students. Regardless, researchers (Boyle, 1992; Boyle & Radocy, 1987; Gaw, 1922; Gordon, 1967; Young, 1976) have supposed that teachers are influenced by non-musical factors such as students' temperaments, attitudes, personalities, or interests, or by their subjective evaluations of their students' music achievement when trying to make decisions about music aptitude—even when researchers provide guidelines for them to follow.

Perhaps, as Kingsbury (1988) observed in his ethnographic study of the notion of talent within a music conservatory, "[t]he validity of a given person's musical talent is a direct function of the relative esteem of the persons who have attributed the talent to the person in question" (p. 68). Sloboda, Davidson, and Howe (1994) suggested that persons make decisions about others' music abilities based upon "folk psychology" popular among persons in the music profession (p. 351).

Hallam and Prince (2003) asked musicians, non-music educators, professionals in fields other than education, and students—a group who was involved in extra-curricular music activities, and a group who was not—to finish the statement, "Music ability is: . . ." (p. 5). Participants' responses seemed to vary to the extent with which they were actively involved in music making or music teaching, and described overall music ability as combinations of various music-specific skills and general qualities.

Blumer (1969) provides a broad explanation for how a person constructs meaning for a given entity. One engages in a reflective, interpretive process Blumer calls symbolic interactionism. A person continuously learns from experience, modifying his or her understanding of a particular social interaction by

. . . setting up a goal, judging the possibilities of the situation, and prefiguring his line of action. . . . [He] may hold his prospective act in suspension, abandon it, check it at one or another point, revise it, or devise a substitute for it. (Blumer, 1969, p. 55)

Specifically, a person "selects, checks, suspends, regroupes, and transforms" (p. 5) meaning to shape his or her understanding.

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Kingsbury (1988), Sloboda, Davidson, and Howe (1994), and Hallam and Prince (2003) provide insights into our examination of teachers' understanding of music aptitude. However, in this study, we were interested in how teachers select, check, suspend, regroup, and transform their understanding specifically when they estimate their students' music aptitude and then obtain standardized music aptitude test scores from their students.

## **Method**

We chose qualitative methodology as most appropriate for exploring in detail the ways in which teachers select, check, suspend, regroup, and transform their understandings of music aptitude. We selected procedures for collecting data and, as Patton (2002) suggests, allowed our design " . . . to remain sufficiently open and flexible to permit exploration of whatever the phenomenon under study offers for inquiry" (p. 255). We chose symbolic interactionism (Blumer, 1969) as the appropriate theoretical framework from which to describe teachers' interpretive processes that emerged from the qualitative data during this study. We also selected qualitative methodology so that we could remain "active learners" (Creswell, 1998, p. 17-18) throughout the research process.

## **Teachers and their settings**

Five classroom teachers in South Korea and five general music teachers in the United States who taught general music to elementary school-aged students participated in this study. None had administered standardized music aptitude tests to their students previously. Teachers from South Korea were public school classroom teachers with music concentrations and had earned a masters degree in education. Three teachers, Sungsook, Saehee, and Kyungmee, taught in inner city schools with children from middle to upper socioeconomic backgrounds; and two teachers, Jaehee and Soogil, taught in countryside schools with children from low socioeconomic backgrounds. They taught in diverse locations across South Korea. They had been teaching between three and 26 years, and taught either first, second, third, or fourth grade. Teachers' class sizes ranged from 10 to 44 students.

The teachers from the United States were all certified music educators with 1/2 to four years' experience teaching kindergarten through fifth grade general music. They all had a music classroom, and had been teaching in the same school for their entire careers. Sally taught part time in an inner-city charter school in Pennsylvania; Jane taught in an urban public school in Ohio, and Sophie, Celia, and Dan taught in suburban public schools in districts of various sizes in Texas, Georgia, and New Jersey, respectively. Teachers' class sizes ranged from 16 to 25 students.

## **Design and Procedures**

We collected data from February to July of 2002. Each teacher from the United States selected one group of students he or she knew the best musically and estimated students' music aptitudes; classroom teachers in South Korea estimated music aptitudes of their current group of students. We sent tonal estimation scales, rhythm estimation scales, and a chart on which to record each student's estimates to teachers via e-mail. By supplying the scales, we implied that music aptitude exists and is estimable, and that a wide range of estimates was possible. We explained that a zero on the scale represented the lowest aptitude estimate and 40 the highest, with

one-point increments in between. We asked teachers to rate students' tonal music aptitudes before estimating their rhythm aptitudes. Otherwise, we provided no information about music aptitude, music aptitude tests, what to consider while estimating, or how to distribute estimates among students.

For their reference during the remaining procedures, teachers listed in three adjacent columns students' names, tonal estimates, and rhythm estimates. They forwarded copies of completed charts to us via e-mail. Next, teachers wrote a series of descriptions that they sent to us by e-mail: their (a) processes for estimating music aptitudes, (b) feelings about the process of estimating children's aptitudes; (c) reasons for estimating children as having the highest tonal and highest rhythm aptitudes, and lowest tonal and lowest rhythm aptitudes; and (d) feelings about administering a music aptitude test.

Teachers then administered and scored the *Tonal* and *Rhythm* subtests of the *Intermediate Measures of Music Audiation* (Gordon, 1986), following instructions in the test manual. We chose *Intermediate Measures of Music Audiation (IMMA)* because its content was most appropriate for measuring tonal and rhythm music aptitude for children in the age range that the teachers in this study were teaching, and the test materials were available in Korean and English.

Hyun interviewed South Korean teachers while she was in the United States via Internet chat. Reynolds interviewed the Pennsylvania teacher in her university office, the New Jersey teacher in his music classroom, and the teachers in Georgia, Ohio, and Texas via telephone. Interviews lasted approximately 70 minutes each. Hyun subsequently translated the data from the teachers in South Korea into English. An assistant transcribed one interview; Reynolds transcribed the other and kept her transcripts of the telephone conversations with the remaining teachers.

We used multiple means for gathering data as a way to corroborate participants' responses during the analysis, which Patton (2002) refers to as data collection triangulation. Member checks (Creswell, 1998) insured trustworthiness within this study. Teachers provided member checks by reviewing copies of this paper and verifying that we had accurately represented their contributions to the study.

## Data sources

Data sources for this study included teachers' written responses, and the Internet chat dialogue or transcripts from phone conversations or face-to-face interviews with the teachers. Because we were interested in how teachers understand music aptitude, we did not consider the collected quantitative data (teachers' tonal estimates, teachers' rhythm estimates, students' *Tonal IMMA* scores, and students' *Rhythm IMMA* scores) for this study. The estimates and obtained scores, therefore, became data sources for the teachers' possible considerations. We made notes about teachers' responses as we received them throughout the data-gathering process, and kept copies of e-mail correspondence from teachers and each other in our researchers' logs.

## Analysis

We independently reduced teachers' descriptions of behaviors they selected during the estimations, the types of behaviors that the teachers listed for the highest and lowest estimated students, and teachers' descriptions about music aptitude testing to short phrases, which became the codes. Next, we worked together until we

agreed upon 117 codes. A music education research assistant reviewed 50 codes, and agreed that the established codes were present in the data. Then Reynolds and the research assistant created categories from the codes, and forwarded those to Hyun. Hyun studied the categories and agreed with the content of each. Reynolds and Hyun discussed the categories until they agreed upon each category's assignment to one of Blumer's five stages of the interpretive process (selecting, checking, suspending, regrouping, or transforming understanding).

### Trustworthiness

The research assistant and teachers in this study participated in validation checks, which helped to improve the trustworthiness of this study during this study. The research assistant audited of approximately 43% of the codes, and strengthened the collaborative process for the formation of the categories. We invited teachers to read copies of the final paper (or to listen to their contributions with explanations of their uses in Korean), and to clarify or delete information pertaining to their contributions. None requested revisions.

### Findings

Teachers in this study selected, checked, suspended, regrouped, and transformed their understandings of music aptitude in similar ways. We present each stage of the interpretive process with the resulting categories; we purposefully suspend our discussion in this section to allow readers to interpret our findings.

### Selecting aptitude-related behaviors

Teachers provided information about their understanding of music aptitude by documenting students' behaviors and estimation processes they selected to estimate tonal and rhythm music aptitude. As shown in Tables 1 and 2, teachers selected performance criteria that represented students' recent music achievement rather than criteria measurable by paper and pencil tests. Teachers selected similar music behaviors (e.g., general singing ability) that were not culturally specific and, according to their first reports, they minimally considered non-music behaviors (e.g., attitude, participation) while estimating music aptitude.

Table 1

*Teachers' Considerations While Estimating Students' Tonal Music Aptitude*

Musical behaviors	Non-musical behaviors
General singing achievement Whether the student is a strong singer Ability to sing in tune, accurately, the resting tone, a rote song after hearing it once, correct pitches in an unfamiliar song Ability to identify pitches as high or low, discriminate between two pitches, name pitch with speed and accuracy, match pitch, echo 8 tonal patterns, perform tonal patterns or familiar songs Frequency of spontaneous singing	Whether student is interested in music and confident during music class Ability to concentrate during general studies

**Table 2**  
**Teachers' Considerations While Estimating Students' Rhythm Music Aptitude**

Musical behaviors	Non-musical behaviors
Ability to echo a rhythm pattern on a classroom percussion instrument, by clapping, or chanting	None provided
Ability to improvise a rhythm pattern in response to a teacher's pattern	
Ability to sight-read patterns in familiar or unfamiliar songs using rhythm syllables	
Ability read patterns using notation	
Ability to move with coordination during physical education activities	
Ability to move to a steady beat	

### Checking one's selection of aptitude-related behaviors

We noted three general ways in which teachers checked their selected criteria for music aptitude. First, teachers reported either semi-systematic or nonsystematic procedures for estimations. They reported having observed students' current achievement of musical behaviors, recalled their previous observations of students' musical behaviors, or reviewed previously assigned music achievement grades to complete their estimates. Second, teachers described the students they had estimated to have the highest and lowest tonal and rhythm aptitude (Tables 3 and 4). Third, without being asked to, teachers checked their criteria by comparing their estimates with obtained *IMMA* scores.

### Suspending one's understanding of music aptitude

Even though we did not ask teachers to do so, they informally and nonsystematically compared their estimates with *IMMA* scores. Some teachers suspended their reliance on their selected and checked criteria for music aptitude in two ways. Some waited for *IMMA* scores, thinking the test results would legitimize their estimates. Others described instances in which their estimate/*IMMA* score informal comparisons caused them to second-guess their estimates.

*Waiting to see.* Teachers said they were "eager," "anxious," or "excited," to see *IMMA* scores. Many teachers feared underestimating their students' music aptitudes. Some teachers feared that knowing *IMMA* scores would bias them against their students, especially low-scoring students.

*Second-guessing after estimate/score informal comparisons.* Teachers were variously surprised, shocked, and confused by estimate/score informal comparisons. Jaehee said, "I am shocked that a student who cannot even sing one note scores high on the test." Sungsook said, "The observed achievement of some students is much lower than their obtained scores. I am shocked." In the interview excerpt that follows, italics show Sophie's emphasis. Interspersed throughout are bracketed italics after Sophie presents her thoughts. In those brackets, we show the stage of her interpretive process.

Sophie: (I did) a lot of thinking before I gave them a number. I tried to figure out, 'What does tonal aptitude *mean*? What does the *number* mean?' I wasn't sure what the measurement was *of*. A kid would come and echo tonal and rhythm patterns. [*Select Understanding*] They'd echo several patterns; then I'd ask them to be different. They'd do the same thing [as I did]. I'd say, "Ok, now do it different."

It'd be the same. [*Check Understanding*] They *know* it's the same! They don't know how to be different and I don't know how to tell them to be different. Like Kirk. . . . he just doesn't get it—how to be different. And then he scored high on both tests. I felt like I didn't know what I was talking about when I estimated—but I *did*. He was sitting right in front of me and he couldn't do those things I'd asked him. [*Suspend Understanding*] . . . I didn't know some of the kids were not using their singing voices, and so I didn't know how to rate their tonal aptitude. [*Select and Check Understanding, Suspend Understanding*] Which, how could this be? Because we've been working on this since kindergarten! Like there is this kid, Brenda, and she does not have her singing voice. She's like "UHHHH" [Sophie makes a low sustained sound] and so I ranked her . . . one of the lowest ones because she's a terrible singer, one who sings in the wrong direction. But she scored pretty high—above average on the percentile ranks. I felt pretty stupid.

Reynolds: Why?

Sophie: Well, because I was completely wrong about her. But she doesn't demonstrate a high tonal aptitude and a high rhythm aptitude! If you have high tonal aptitude, how could you *not* know how to use a singing voice? You'd *know* you were singing the wrong thing, I think. This is *my* thought process. [*Suspend Understanding*] (Sophie seemed on the verge of regrouping her understanding when she thought she "was completely wrong about her." However, she suspends her understanding immediately afterward.)

## Regroup Understanding

We found instances when a teacher would regroup and consider a new understanding of music aptitude. We illustrate with the continuation of Sophie's interview.

Sophie: . . . Like, Jen. She is the most perfect student in the universe. I love this little girl. She sings beautifully and moves beautifully. She likes to improvise. I'm sure she scored lower than Brenda.

Reynolds: Did she score relatively high within the class?

Sophie: No, I don't think she did. [Pause.] So, that was highly confusing. What a coup! [Pause.] It disappointed me [that she didn't score higher]. [*Regroup Understanding*] I ranked her very high: a 35. On tonal and rhythm.

Sophie's confusion and disappointment represented a shift in her thinking: a move to incorporate new information into her understanding of music aptitude. Previously, she had focused on students' immediate success with an unfamiliar task, such as improvising a tonal pattern in response to the teacher's tonal pattern. Although Sophie expressed disappointment about a favored student, she implied that she accepted the possibility that a less demonstrative, lower-achieving student might have high aptitude.

After teachers informally compared estimates to scores, they described their estimation processes as subjective. Most became uncomfortable about relying solely on observations to evaluate students. Teachers believed that non-musical behaviors have little to do with one's music aptitude, but allowed those behaviors to influence their estimates nonetheless. Specifically, they cited students' gender, attitude, participation, temperament, attention spans, behavior, compliance, academic achievement, and language abilities. Jaehee said, "Especially if the student is very shy . . . it's very easy to make the wrong judgment with a very subjective measure." Sungsook said, "A student with a bad attitude I estimated low; I was surprised when the student scored high." Soogil said, "I am surprised that boys scored high."

Teachers realized they did not know their students equally well. In the United States, general music teachers were teaching between 300 and 750 students. Sophie, Dan, and Celia said that, for some groups of students, they did not know individuals sufficiently well to estimate music aptitude. In South Korea, Saehee said

that having 40 students in a class makes it difficult to estimate. She said, "I realize [now] that I know some students better than others." Jaehee said, "I think I cannot know student's music aptitude just teaching [music] two hours a week." Given the diverse music performances and cognitive knowledge and skills for which general music teachers are responsible, and the large number of other academic subjects and corresponding skills for which classroom teachers also are responsible, these teachers' comments are understandable.

Table 3

*Descriptions of Students with Highest and Lowest Tonal Music Aptitude Estimates*

Musical behaviors	Non-musical behaviors
Highest tonal estimates	
Sings [melody] well, accurately, or in tune	Has good concentration
Uses singing voice	Confident when singing
Stays in starting key	Understands quickly
Sings voice part accurately in choir	Sits directly in front of me; I see and hear it all
Classically trained in piano	Class leader during music
Has highest music achievement scores	Memorizes well
Plays well	One of the outspoken girls
Imitates well	Likes music
Improvises well	First to volunteer to sing alone
[Correctly] hums patterns intended for others	Quiet, but pays attention
Corrects others' tonal mistakes	Perfectionist
Reads music well	Has high general academic achievement
Has a good ear	Tries hard during music
Distinguishes between pitches accurately	
Has perfect pitch	
Greets me in the hallway with singing	
Sings difficult intervals accurately	
Sings patterns easily	
Plays rote songs by ear on piano	
Distinguishes same and different	
Lowest tonal estimates	
Cannot distinguish between two pitches	Has difficulty with rote learning, speaking, staying on task
Has not found singing voice yet	Parents have difficulty speaking
Cannot locate pitch teacher sings on the piano	Inconsistently motivated
Sings correct contours but inaccurate pitches	Child's attention problems limit achievement and maybe test taking skills
Cannot distinguish between high and low	Boys do not speak English; predict they will have difficulties following test directions
Inaccurate singer	
Monotone singer	
Sings easy intervals flat	
Has difficulties distinguishing same and different, and high and low	
Has a limited vocal range	
Sings inaccurately	



Table 4  
 Descriptions of Students with Highest and Lowest Rhythm Music Aptitude Estimates

Musical behaviors	Non-musical behaviors
Highest rhythm estimates	
Dances to beat Understands rhythm concepts Is physically coordinated Constantly drumming Moves to steady beat consistently Classically trained in piano Has high overall music achievement Excels at rhythm Moves naturally Distinguishes same and different well Moves to Macrobeats in unusual meters [5/8 or 7/8] with little practice Models rhythms for peers	Has a good attitude Highly motivated to achieve musically Participates Confident piano player Learns quickly (new songs, patterns, and movements)
Lowest rhythm estimates	
Physically uncoordinated, especially fine motor skills Has low sensitivity to music Imitates rhythm patterns inaccurately Has difficulties maintaining a steady pulse (even if I am tapping her shoulders) Chants inaccurately Moves inaccurately to Macrobeats and Microbeats Performs rhythm patterns below average Claps patterns inaccurately, even simple quarter note patterns Performs others' improvised patterns inaccurately Relies on others' movements to find steady beat; still inaccurate	Shy Refuses my help Lacks concentration Lacks focus Lacks confidence with music skills Does not follow directions Moody Does not seem to pay attention Easily frustrated

## Transforming Understanding

*Applications for new understanding.* Teachers transformed their understanding of music aptitude in ways they believed would affect their future teaching. Celia said,

I allowed a lot of unrealized prejudices to seep in, such as the ability to understand verbal directions, attention spans, and behaviors of the students. . . . [I will] spend more time encouraging those who aren't participating as much; not letting the way they behave get in the way of my encouraging them to achieve musically. . . . I underestimated a child who didn't speak English. Since he had difficulties following directions, I thought he would have trouble discriminating musical sounds.

In Sally's interview, she communicated a transformed interpretation of highly estimated students who scored low on the tests: "Estimates show who is achieving well, even if they didn't do well on the test. [Pause.] Don't give up on them just because they scored low, because they can still achieve."

*IMMA scores lend objectivity to the teaching process.* Teachers consider *IMMA* to be an objective measure of a covert construct: music aptitude. Sophie said, "I'm not really objective. I see them every day and the test may see something I don't and measure what I can't. I'm human and I see what I see." Saehee said, "Estimates are outside the student and *IMMA* scores are inside the student." Teachers in this study favor using their judgments and students' music aptitude scores together rather than either by itself to plan instruction and evaluate music learning.

*Transformations include uncertainties.* Even within transformed understandings, questions linger. Jaehee said,

I realize that everybody can't express their ability in class, and so I might miss someone. Music aptitude comes from both nature and environment . . . it is one's sensitivity, feelings, and reactions to music . . . but the definition of aptitude is not clear [to me]. . . . *IMMA* is useful for catching those who might get lost.

Sally said,

I think, 'How well are they demonstrating to me?' I think *that* is music achievement, but I think that there are ways they are achieving that I can't measure. . . . I think [music aptitude is] any potential to audiate. But I'm not sure. . . . Tonal music aptitude is being able to remember what is heard and comparing it with another thing, or, 'Can I remember one thing?'

Sophie summarizes, "I feel like there are more questions than answers."

We illustrate transformed understanding and uncertainty with a final excerpt from Sophie's interview.

Sophie: I say, 'Okay, be different from me,' and they do the same thing. And I ask, 'Was that the same or different?' and they say, 'Same.' If I ask them to be different, and say [to them], 'Dog,' they say 'Cat.' That's easy [for the students].

Reynolds: Why is that easy?

Sophie: They like words. Words are easy.

Reynolds: Why are they easy?

Sophie: Because they've been saying them all of their lives. [Her voice registers a new, *Transformed Understanding* as she finishes that sentence.]

Reynolds: And how long have they been coming to music?

Sophie: . . . I don't think a person can measure music aptitude really and truly, can they?

[*Uncertainty*] I could have never guessed [that to be the case].

*Considering Individuals.* Teachers described focusing on individual children during this study in ways they previously had not. The importance of attending to individuals overarches all findings within this study, and represents teachers' most-shared transformation. Soogil said, "[Now,] I can think of the possibility of each student." Dan said, "...not just thinking of the group as 2M—[instead,] it's 22 students who are completely different [from each other], and I need to pay attention to each and every one of them, not just think of . . . second grade." Jane said, "It was an eye-opening process to get the end results. The two ways made me think about each student, rather than just giving the test and looking at what they got. Estimating helped me think about their strengths and weaknesses, or what I thought they were."

Teachers did not wish to judge students too quickly, and therefore welcomed knowing an individual's music aptitude scores. They said that now they will be able to view some of their students more positively, and even said they would increase their respect for some students as musicians. All expressed a commitment to musical

aspects of individual students while planning, implementing, and evaluating instruction and assessing music learning.

*Perceived need for continued professional development.* To understand music aptitude, most teachers selected unsystematic observations or recollections of their students' music achievement, but all teachers relied on IMMA to legitimize their impressions. Most were interested in applying their new understandings for music aptitude in their future teaching, yet not all were certain what to do next. Sungsook said that since she did not have ways to teach to individual differences, knowing scores only labeled students. All of the teachers wanted to learn more specifically what music aptitude is.

Teachers perceived a need for better ways to (a) assess what individual students are achieving, and communicate that information to students and parents; (b) identify and learn to measure aspects of music achievement that are most related to the covert construct of music aptitude, (c) consider individual differences despite being constrained by a lack of time, resources, and rich out-of-school environments; and (d) acknowledge their own biases and avoid labeling students.

Teachers described some ways they would adapt instruction as a result of this study. Teachers in South Korea said they would plan more opportunities to observe individuals, and would allow their students more freedom in their movement, tonal responses, and rhythm responses. Two who had already done so informally observed students' increased confidence and interest in music activities. Some teachers in the United States planned to balance tonal and rhythm activities, as they realized during their chosen estimation processes that they had devoted more time to one than the other. Teachers in both countries also identified a need to raise their expectations and provide more challenging music lessons.

## Discussion and Recommendations

To summarize, teachers selected their own ways to estimate their students' music aptitude, and then agreed to administer a standardized music aptitude test to the same students. The researchers were interested in teachers' understanding of music aptitude when they considered their students based on classroom interactions, their estimations, and students' scores on a standardized test of music aptitude. The teachers selected, checked, suspended, regrouped and transformed their understanding of music aptitude in ways that were meaningful to them in the context of their classrooms.

After first estimating and then obtaining music aptitude scores for their students, teachers found that they had not previously paid sufficient attention to individual children's music potential. Instead, they recognized they had attended to non-musical behaviors such as students' gender, attitudes, participation, temperaments, attention spans, compliance, academic achievement, and language abilities during their estimation processes.

Kingsbury (1988) suggests that understanding "human musicality—whether it be under the rubric of musical 'aptitude,' musical 'intelligence,' or talent—will surely be riddled with difficulties as long as the focus is on the individual rather than social interaction" (p. 63). His emphasis underscores Blumer's observations that "... people act toward things on the basis of the meaning that these things have for them, not on the basis of the meaning that these things have for the outside scholar" (1969, p. 51). That is, teachers previously might have learned *about* music aptitude, but through their interactions with their students and using standardized tests of music

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aptitude, they began to form their understanding of music aptitude relative to students in their classroom setting.

In this study, teachers' interpretive processes were remarkably similar to each other's. Their processes stemmed from reflecting on the dynamic relationship between their teaching and students' learning, and from considering students as individuals, each of whom possesses music potential. Teachers' transformed commitment to attend to individuals' musical potential reinforces our belief that understanding music aptitude—its components and its assessment—is important to teachers in both countries.

We are curious about whether teachers in this study, during their next year of teaching, continued their dynamic and interpretive processes for understanding music aptitude and its assessment. Did teachers' commitment to focus on individuals continue into the next year? What did teachers do differently? Has their new teaching affected music learning? A follow-up study of these teachers might produce useful information about what factors contribute to the success and failure for a teacher who is considering the construct of music aptitude within a new approach to teaching. We are also curious whether teachers from other countries who have access to music aptitude tests would have responded with similar interpretive processes, and how the results of a similar study would differ if teachers administered a music aptitude test other than *IMMA*.

Teachers in this study asked to learn more about music aptitude. We recommend that they also learn more about how to interpret their estimates and standardized test scores, and how to estimate the relationship between the two. Further, there were inconsistencies in their understanding about the extent to which their estimates or their students' *IMMA* scores may have been inaccurate.

We recommend that researchers continue to explore teachers' understandings of music aptitude. Because there is evidence that considering standardized music aptitude test scores can positively effect students' music achievement (Culver, 1965; Froseth, 1971; Gordon, 1967, 1970, 1984; Hatfield, 1967; Harrington, 1969; Young, 1976), we encourage researchers to continue to investigate the predictive validity of music aptitude tests and the effects of a teacher's knowledge of his students' music aptitude scores on both the teachers' understanding of music aptitude, and the students' music achievement. We also encourage researchers to continue to develop ways to measure music aptitude. It might be that results from such efforts will help teachers best decide the contexts in which music aptitude tests are most effective. In the meantime, preservice and inservice teachers interested in learning more about music aptitude might benefit from engaging in similar procedures outlined in this study.

Finally, in both countries, we recommend using music education conferences and in-service sessions, from the local to national level, to give music teachers information and skills related to aptitude and achievement assessment—and to encourage them to make wise use of that information to individualize instruction.

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