



**Title:** Edwin Gordon's Impact on the Field of Music Aptitude

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# Edwin Gordon's Impact on the Field of Music Aptitude

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**E**dwin Gordon has spent approximately the last 30 years exploring music aptitude in individuals. His work in this, as in other fields, has taken a broad approach to the topic.

Gordon's work in aptitude can be divided into the areas of definitions, theories, and measurement. Of course these are all closely interrelated subjects, but Gordon has made unique contributions in each of them.

## Definition of Music Aptitude

Gordon has endeavored to define music aptitude. His definition grows out of his belief that music aptitude is made up of both Gestalt and atomistic features. Music aptitude is atomistic in that it involves more than one distinct dimension. It is Gestalt-like in that Gordon believes music aptitude is best measured as a totality of smaller parts. Therefore, aptitude for music is not a general factor but a many-faceted ability one possesses.

Gordon has identified at least 20 dimensions of stabilized music aptitude (Gordon, 1987, p. 36). Of these diverse dimensions, tonal and rhythm aptitude appear to be the most dominant. Further, since aptitude is a general factor, it is possible to be strong in one dimension while weak in another.

This reasoning has a rich tradition starting with the classic work of Seashore in 1919. Gordon differs in that he feels these dimensions are perceived in a Gestalt musical framework; atomistic dimensions such as pitch differences must be perceived in a musical context to be valid.

Another characteristic aspect of Gordon's definition of music aptitude is the statement that "Recall, not imitation, is the basis of music aptitude" (Gordon, 1987, p. 15). Interestingly, the recall referred to is not

recall for specific pieces of music, but instead it is the recall process based upon musical characteristics that is the basis of music aptitude. His reasoning is that the skill of recalling a specific piece of music is more closely aligned with musical achievement than aptitude. To demonstrate music aptitude, one must reconstruct musical stimuli through the process of what Gordon calls audiation. This audiation is based upon the perception of specific characteristics in the music. The accuracy of this audiated image

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is the basis of one's music aptitude.

This belief is in line with current cognitive theories regarding the formation of concepts which organize and interpret incoming stimuli. In psychological terms, what Gordon calls the "characteristics" of a stimulus are referred to by others (Rumelhart, Lindsay, & Norman, 1972) as the "properties" of a stimulus. It is one's ability to focus on, and to extract meaning from these properties which will ultimately determine the depth of the perception. It seems logical that this skill would therefore be related to music aptitude.

## Theories of Music Aptitude

Gordon recognizes that all children are not born with the same innate capacity for

music. Indeed, it is believed that music aptitude is normally distributed in the general population, similar to intellectual aptitude. This would mean that “approximately 14 percent have above-average music aptitude, approximately 14 percent have below-average music aptitude, approximately 2 percent have high music aptitude, and 2 percent have low music aptitude” (Gordon, 1987, p. 12). This, in itself, is nothing that has not been theorized and debated before. Gordon believes, however, that the music aptitude with which a child is born will be maintained only if the child is exposed to favorable musical experiences soon after, or even before birth. In other words, one may be born with a high degree of aptitude, but if early experiences are lacking one loses this potential forever. Conversely, although the level of music aptitude present at birth will decrease through lack of musical experiences, that level of music aptitude can never be exceeded by enriched experiences. Gordon calls music aptitude during this time frame “developmental aptitude.”

Quality musical experiences, both formal and informal, are most critical during the period of developmental aptitude (between the ages of birth and 9 years). At approximately 9 years of age a child stabilizes (either by maintaining or descending) at their life's level of music aptitude. This level is referred to as the “stabilized” music aptitude.

In a way, Gordon has attempted to respond to the nature versus nurture question with the answer of “both.” He has done so in a way that attempts to explain the interaction between the aptitude with which a person is born and the musical environment in which he is raised. If Gordon's theorized developmental and stabilized music aptitudes, and corresponding time frames, turn out to be true, then this may be the most important contribution of all of Gordon's work.

It is still too early to determine if this is indeed true. Gordon's theory is supported by longitudinal studies that show MAP scores of an individual remaining stable (in normed equivalents) from age 9 onward, whereas individual scores on the *Primary Measure of Musical Aptitude* (PMMA) and *Intermediate*

*Measure of Musical Aptitude* (IMMA) seem to fluctuate. There are many other competing hypotheses as to why this may occur, but Gordon's theory has stood up to initial tests. As difficult as it is to find paradigms that can truly prove or disprove this theory, this task is probably one of the more important challenges in music education today.

### **Gordon's Tests of Music Aptitude**

The most widespread and immediate impact of Gordon's work has been in the acceptance and use of his tests of music aptitude. For example, a review of dissertations completed between 1965 and 1987 revealed that there were 56 dissertations completed which either used or tested one of the three Gordon batteries. In that time span, 31 articles which directly used or tested his batteries appeared in the major music education research journals.. One is hard pressed to think of anything else in music education research that has been so widely explored and discussed. Since Gordon's tests are so closely aligned with his theories, acceptance of the tests in many ways constitutes an acceptance of the theories.

### **Tests of Stabilized Music Aptitude**

The first music aptitude test designed by Gordon was the *Musical Aptitude Profile* (Gordon, 1965). This test was released in 1965 to measure stabilized music aptitude in children who are in fourth through twelfth grade. The MAP is divided into three sections called Tonal Imagery, Rhythm Imagery, and Musical Sensitivity. The first two sections each have two subtests (Melody/Harmony and Tempo/Meter). The third section, Musical Sensitivity, has three subtests called Phrasing, Balance, and Style.

In the Tonal Imagery section, students are asked to listen to two short phrases and decide if the second is a variation of the first. In the Rhythm Imagery section, students hear a musical phrase which is followed by a musical answer. They must decide if the musical answer is the same or different. (If it is different, it is because the tempo or meter has been altered.) In this way, the student is not dependent upon remembering specific patterns but instead on the ability to audiate the meter or tempo of the original phrase.

Despite the test's widespread acceptance, one must appreciate that these first two sections are highly dependent on the acceptance of the importance of the Gordon principle of audiation. The tasks in both sections require the test-taker to audiate the original melody while undertaking a comparison procedure which is based on the ability to isolate and perceive specific characteristics in music. This supposedly eliminates the need for the student to memorize the phrases, thus measuring music aptitude rather than achievement. This implies, however, that one has basically discounted the importance of tonal memory as measured and defined in other tests, such as those created by Seashore, Wing, and Drake in favor of the audiation process.

The third part of the MAP is the Test of Musical Sensitivity. This section is reliant on the personal preference of the individual. Thus, it does not have the dependence on audiation that the first parts do. Although this section of the test claims to be neither achievement-oriented nor culturally influenced, it is hard to believe that the values and practices of Western culture do not influence the listener's choices in some manner. Existing research does little to address this concern. Schoenoff (1973) and Sell (1976) found the MAP appropriate for use with German and Finnish students respectively. Likewise, Romine (1973) found it appropriate for American students living in Germany. Still, the test apparently has not been examined with students of non-Western backgrounds. With the recent influx of Asian students to the United States, it would seem that the validity of the test for students with non-Western backgrounds should be explored.

These concerns aside, it is obvious that the MAP is thorough to a fault. Both the extensive prepublication research and follow-up research have produced a tool of exceptional utility. The MAP has even been found useful in populations for which it was not originally intended. The MAP has been examined with groups having differing backgrounds and abilities, from culturally deprived (Gordon, 1967) to educable mentally retarded children (Bixler, 1968; Gordon, 1968; Rice, 1970); and with populations as diverse in age as college

freshmen (Schleuter, 1983) to the elderly (Gibbons, 1982). Under all of these conditions, the test's reliability and validity have remained acceptable.

Despite this body of research showing the diversity and utility of the MAP with different age groups, Gordon recently developed an aptitude test specifically for college-age students. This test, the *Advanced Measures of Music Audiation* (Gordon, 1989a) boasts superior validity and reliability when used with this important population.

### Tests of Developmental Aptitude

There are three Gordon tests currently available to measure developmental music aptitude (the aptitude of a child prior to age 9). The tests are the *Primary Measures of Music Audiation* (PMMA) (Gordon, 1979), the *Intermediate Measures of Music Audiation* (IMMA) (Gordon, 1982), and *Audie* (Gordon, 1989b). The PMMA is intended for children ages 5 to 8 (grades K-3). The IMMA is an advanced version of the PMMA and is appropriate for children ages 6 through 9 (grades 1-4). *Audie* is intended for use with 3- and 4-year-olds.

The PMMA was published in 1979 after eight years of preliminary research. The IMMA was published in 1982. The primary difference between the two tests is the difficulty of the items. Both tests are composed of two sections, Tonal and Rhythm. Unlike the MAP, the tonal and rhythm sections are not holistic. In other words, the examples are not musical phrases; the tonal phrases are performed with a constant rhythm and the rhythm section is performed with one constant pitch. In each pair of phrases, the child is asked to indicate whether the second phrase is the same or different from the first.

These tests are still too new to have generated as extensive an amount of research as the MAP. Still, like the MAP, these two tests have been examined with different populations and under differing conditions. The PMMA was found to have acceptable reliability with English children (Holahan & Thompson, 1981) and learning-disabled children (Bell, 1981). The test has been confirmed independently to have the necessary validity and reliability to be of use.

In 1989, Gordon released an aptitude test which will measure developmental music aptitude in children who are 3 and 4 years old. This test, called *Audie: A Game for Understanding and Analyzing Your Child's Music Potential* (Gordon, 1989b), is presented in the form of a game which should be attractive to young children. It is intended to be administered by the parents of the child.

There is concern among educators about the appropriateness of parents administering, and interpreting, such a test. Gordon has worked to make the instructions clear and to explain the purpose of the test to a nonmusician audience. There is further concern about the practice of "classifying" children in terms of music aptitude at such a young age. If Gordon's theories are correct, however, this may be the most important musical test a youngster ever takes.

### Conclusion

There is no doubt that Gordon's work in music aptitude is a powerful force in music education research and methodology. It appears that his major contribution is in the area of the theory and measurement of aptitude, although his impact may reach much further.

Gordon's theory of aptitude—that individuals are born with a degree of music aptitude that must be reinforced to remain constant—is a unique contribution to the field of music aptitude. It is one of the first theories to systematically unify nature and environment instead of placing them in opposition.

The theory has profound implications for music education. It implies that perhaps the most important stage for music education is from birth to grade three, yet this is the time when organized music education is often at its weakest. Rare is the preschool and kindergarten music specialist, and music instruction in the primary elementary grades can be described in many places as minimal at best.

If convincing proof of the validity of this theory is forthcoming, it should have major ramifications for the entire structure of music education. Research to date that has attempted to test this theory has tended to support it, although much more can be done.

This topic deserves the serious attention of the research community in music education.

It is clear that Gordon has provided very strong tools for measuring music aptitude. The extensive use of his tests is testimony to both the perceived quality of, and need for, such measurements.

Still it seems that there is much more room for research which examines the validity of the developmental tests. For starters, research is needed to determine what constitutes musicality in a 5-year-old. For example, the degree of expressiveness inherent in children's free vocal improvisations in the preschool years must certainly be related to music aptitude in some way. The need of some children to express themselves rhythmically through chant must also be related to music aptitude. The source of these seemingly natural musical behaviors is not measured by Gordon's developmental tests. As Boyle and Radocy point out, the "low correlations [of the PMMA scores] with academic achievement and intelligence indeed do indicate that the test is measuring something" (1989, p. 152), but whether it is measuring the whole of music aptitude in youngsters is still far from established.

In addition to his work on aptitude theory and testing, Gordon has made a significant contribution to music education by demonstrating how to systematically develop, test, and then apply a theory. All of his research, and much of the research of his students, have had a clear focus because of the strong link between the experiments and theory. Like the aptitude tests he creates, the research has grown out of the theory. This is a refreshing trend. Far too often, one suspects that a piece of research started with the methodology and moved backward in search of a theory to explain it. If Gordon's only contribution to our field is to show how complex questions such as "What is music aptitude?" can be answered through systematic and persistent research, then his contribution is great indeed.

It is interesting that the fact that Gordon has inspired (and probably encouraged) his students to test different aspects of his theories through their own research has prompted some of the harshest criticism of his work. It may be true that most of the

support for his theories has been generated through the work of his students, but the research community must not jump to the conclusion that the research is therefore unobjective or invalid. If one questions the finding of a piece of research, the proper procedure is replication, not outright rejection.

There is more that Gordon has demonstrated in regard to the process of theory formation. Gordon's work exemplifies the attempt to take theory and improve instruction. Never in Gordon's writings is there theory without practical application and implication. It is clear that Gordon's main purpose for developing his theories is a sincere desire to improve the musical education of youngsters. It is difficult to feel anything but respect for one who devotes 30 years of a career to that premise.

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