AN INVESTIGATION OF THE DIAGNOSTIC VALIDITY

OF THE <u>MUSICAL</u> <u>APTITUDE</u> <u>PROFILE</u>

WITH RESPECT TO INSTRUMENTAL MUSIC PERFORMANCE

by

Warren Gates Hatfield

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Thesis supervisor: Associate Professor Edwin Gordon
Thesis co-supervisor: Professor Leonard S. Feldt

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Problem of the Study

The purpose of this study was to gather information pertaining to the validity of the diagnostic use of the Musical Aptitude Profile with instrumental music students. The specific problems of the study were to investigate:

1. The relationships between Musical Aptitude Profile subtest scores and general musical behaviors of instrumental music students.

2. The relationships between Musical Aptitude Profile subtest scores and musical behaviors specific to instrumental music students.

3. The relationships between combined Musical Aptitude Profile subtest scores and overall musical behaviors of instrumental music students.

Design of the Study

The Musical Aptitude Profile was administered to 105 members of the South Dakota State University Bands at Brookings. Then students' performances of seven specially composed musical examples which were designed to measure the following eleven general musical abilities and abilities related specifically to instrumental performance were tape recorded:

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Ability 1:  Improvise a variation
Ability 2:  Create a new ending
Ability 3:  Improvise a lower part to a given melody
Ability 4:  Perform with consistent tempo
Ability 5:  Demonstrate rhythmic understanding
Ability 6:  Comprehend meter
Ability 7:  Sight-read rhythmic patterns
Ability 8:  Perform with accurate intonation
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Ability 9: Perform with suitable tone quality
Ability 10: Perform with appropriate phrasing and expression
Ability 11: Perform with appropriate tempo and style

Independent ratings of the tape-recorded performances by qualified judges constituted the validity criteria. Judges' combined ratings for each of the eleven performance abilities were intercorrelated with scores on each of the seven Musical Aptitude Profile subtests. Similarly, ratings for various combined abilities were intercorrelated with the three Musical Aptitude Profile total test scores and with the Musical Aptitude Profile composite test score.

Results

As hypothesized, the Tonal Imagery subtests were found to correlate highest with those abilities related to tonal and creative behaviors. Correlation coefficients for the Tonal Imagery-Melody test and the Tonal-creative Abilities were approximately .50. For the Tonal Imagery-Harmony test, correlations were approximately .50 with the Tonal-creative Abilities. The Tonal Imagery-Total test also correlated highest (.62) with all Tonal-creative Abilities and .58 with all eleven abilities combined.

The relationships between the Rhythm Imagery subtests and the Rhythmic Abilities were not as strong as were those between the Tonal Imagery subtests and the Tonal-creative Abilities. The Rhythm Imagery-Tempo test correlated approximately .35 and the Rhythm Imagery-Meter test approximately .20 with the various Rhythmic Abilities. The correlation between the Rhythm Imagery-Total test and all Rhythmic Abilities was .39 and .44 for this total test and all eleven abilities combined.

In contrast, the correlation between the Tonal Imagery-Total test and all Rhythmic Abilities was .51.

As hypothesized, the Musical Sensitivity subtests correlated highest with all Sensitivity Abilities; .40 for the Musical Sensitivity-Phrasing, .20 for the Musical Sensitivity-Balance, and .20 for the Musical Sensitivity-Style test. The Musical Sensitivity-Total test also correlated highest (.47) with all Sensitivity Abilities and .46 with all eleven abilities combined. Overall, the Musical Aptitude Profile composite test correlated .62 with all eleven abilities combined.

Conclusions

The findings of this study supported the conclusion that Musical Aptitude Profile scores can serve as an objective aid to the music teacher in his efforts to adapt instrumental music students. The Tonal Imagery scores can best serve to diagnose students' strengths and weaknesses in regard to tonal and creative aptitudes of a general nature, and those specific to instrumental performance as defined in this study. The Musical Sensitivity results can serve a similar purpose with respect to the creative-expressive aptitudes.

The writer was unable to adequately interpret the results pertaining to diagnostic validity of the Rhythm Imagery tests. Therefore, it can only be suggested that, until further research is forthcoming, scores on both the Tonal Imagery and Rhythm Imagery total tests should be employed for identifying students with strengths and weaknesses in overall rhythmic aptitude.

CHAPTER I

PURPOSE OF THE STUDY

Introduction

The recently published Musical Aptitude Profile[1] was designed to
satisfy five specific educational purposes. These purposes, as stated
in the test manual are:

1. To encourage musically talented students to participate
    in music performance organizations.

2. To adapt music instruction to meet the individual needs
    and abilities of students.

3. To formulate educational plans in music.

4. To evaluate the musical aptitude of groups of students.

5. To provide parents with objective information.[2]

Several studies have been designed to investigate the concurrent

and predictive validity (relative to purpose number one stated above)

of the MAP* battery. Tarrell[3] investigated the relationship of MAP

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1. Edwin Gordon, Musical Aptitude Profile (Boston: Houghton Mifflin
    Company, 1965).

2. Edwin Gordon, Manual, Musical Aptitude Profile (Boston: Houghton
    Mifflin Company, 1965), 2-3.

3. Vernon V. Tarrell, "An Investigation of the Validity of the Gordon
    Musical Aptitude Profile" (Unpublished Ph. D. dissertation, Uni-
    versity of Iowa, 1964).

    *For convenience, the Musical Aptitude Profile will hereafter be
    referred to as MAP.

test scores to performance in instrumental and vocal music and found that musical achievement and musical aptitude, as defined by MAP, were highly correlated. Fosha[4] obtained additional evidence that MAP might be a useful tool for identifying musically talented students. The most comprehensive investigation of the predictive validity of MAP is a unique study by Gordon.[5] This three-year longitudinal study provided a wealth of evidence on the accuracy with which MAP results may be used to predict elementary school students' success in instrumental music.

Compared to concurrent and predictive validity, research pertaining to the diagnostic validity of MAP (relative to the second purpose of the test) is sparse. Only one investigation (the Lincolnwood-Rochester study[6]) has concerned the diagnostic properties of MAP. The results substantiate the validity of MAP subtest scores as diagnostic tools for efficiently and objectively evaluating the specific musical aptitudes of elementary general music students. However, this study does not bear on the validity of using MAP for diagnostic purposes with instrumental music students.

Purpose of the Study

The potential of MAP test scores for diagnosing the musical strengths and weaknesses of public school instrumental music students

4. R. Leon Fosha, "A Study of the Concurrent Validity of the Musical Aptitude Profile" (Unpublished Ph. D. dissertation, University of Iowa, 1964).

5. Edwin Gordon, A Three-Year Longitudinal Predictive Validity Study of the Musical Aptitude Profile (Iowa City: University of Iowa Press, 1967).

6. Gordon, Manual, op. cit., 73-79.

now emerges as an important issue worthy of investigation. If MAP could be shown to demonstrate such diagnostic validity, an instrumental music teacher could save valuable time in evaluating students' individual musical strengths and weaknesses. The teacher could immediately, then, concern himself with adapting instruction to meet the individual needs and abilities of all of his students. For example, students in vocal music who receive relatively low scores on the Melody test of the MAP battery usually have difficulty in establishing tonality or singing in tune. Possessing this knowledge, the vocal teacher might concentrate on adapting group and individual instruction to help such students find their singing voices and to improve their intonation. Similar approaches might be utilized in conjunction with the other subtests, which are designed to measure six distinct basic musical aptitudes.

Similarly, instrumental students who score low on the Melody test would benefit from instruction specifically designed to compensate for their specified weaknesses. Such remedial instruction could not be expected to improve the basic musical aptitude of the student, but it could be employed to help him compensate for his musical weaknesses.

An investigation of the diagnostic validity of MAP, utilizing elementary instrumental music students, would be difficult to execute. Most elementary instrumental students do not possess sufficient technical command of an instrument to perform various musical criteria required for evaluative purposes. In addition, understandings such as improvisation, creativity, harmony, phrasing, expression, style, and rhythm, for example, are generally not sufficiently developed in a

young student to permit valid evaluation. However, Lee[7] has found MAP as reliable with college students as Gordon found the test battery to be with public school students. Thus, it seems feasible that the diagnostic validity of MAP, with respect to instrumental music students, could be investigated through the use of college instrumental music students. By utilizing college instrumental music students, an investigator would not necessarily need to concern himself with these technical and theoretical limitations of younger students. Furthermore, although the findings should prove to have pedagogical value for college instrumental music students, it is expected that the results of such a diagnostic study could also prove useful for developing the musical abilities of elementary and secondary school instrumental students.

Problem of the Study

The specific questions which constitute the major problem of this study are:

1. Are the relationships between general musical behaviors and MAP subtest scores for instrumental music students similar to those found for vocal music students?

2. What are the relationships between MAP subtest scores and specific musical behaviors peculiar to instrumental music students?

3. What are the relationships between combined musical behaviors and combined MAP subtest scores for instrumental music students?

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7. Robert E. Lee, "The Adaptation of the Musical Aptitude Profile for College and University Students" (Unpublished Ph. D. dissertation, University of Iowa, 1966).

Description of the Musical Aptitude Profile

The Musical Aptitude Profile is a unique musical aptitude test which measures melody, harmony, rhythm, and musical sensitivity in a purely musical fashion. The basic musical factors measured by MAP are classified into three total tests: Tonal Imagery, Rhythm Imagery, and Musical Sensitivity. There are two separate subtests in each of the nonpreference total tests: Tonal Imagery and Rhythm Imagery. They are Melody and Harmony for the former and Tempo and Meter for the latter. The preference test, Musical Sensitivity, consists of three separate subtests. They are Phrasing, Balance, and Style. The entire battery of seven tests, including practice selections and directions, is recorded on high fidelity magnetic tape. The tests consist of short original musical selections, composed for violin and cello by the author, and are performed by professional musicians. There are 250 items in the entire battery.

MAP was nationally standardized during the 1964-65 school year. A total of 12,805 students enrolled in Grades 4 through 12 in 20 school systems in 18 states were included in the norms sample. Since the test battery was administered to all students in every participating school, the sample upon which the grade norms were based represents the natural proportions of musically select and unselect students.

Normalized standard scores and percentile rank equivalents for each of the seven subtests of MAP are based on the test results of all of the students who participated in the standardization program. The standard score scale has a mean of 50 and a standard deviation of 10.

Split-halves reliability coefficients for all tests, for students

in each grade, and for musically select students were derived from the standardization data. The reliability coefficients, reported in the test manual, range in the .70's and .80's for the various subtests, in the .80's and .90's for the total tests, and in the .90's for the composite test.[8] These coefficients are comparable to those generally reported for academic aptitude tests.

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8. Gordon, Manual, op. cit., 50.

CHAPTER II

REVIEW OF RELATED STUDIES

Introduction

Many studies have been conducted to investigate the concurrent
validity of various musical aptitude tests. However, to the writer's
knowledge, no study has ever been specifically designed to investigate
the diagnostic validity of MAP nor any other test of musical aptitude
for use with instrumental music students. The only study which bears
directly on diagnostic validity is the Lincolnwood-Rochester study
which relates only to the diagnostic use of MAP with general music
students.

The Lincolnwood-Rochester Study[9]

The Lincolnwood-Rochester study was designed to investigate the
relationships of MAP subtest, total test, and composite test scores to
the seven most important aspects of students' musical behavior with
which an elementary school general music teacher must be concerned.
This study was conducted with 364 elementary school students enrolled
in grades 4 through 6 in Rochester, Minnesota, and was cross-validated
with 164 fourth grade students and 151 fifth grade students in Lincoln-
wood, Illinois.

Prior to the administration of MAP, the music teacher rated

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9. Gordon, Manual, op. cit., 74-75.

students (using a seven-point scale) on the following seven musical

abilities:

Ability 1 - Ability to Sing

Students were classified through the use of dialogue and
echo songs.

1 - Poor:	Non-singer
2 - Fair:	Partial singer
3 - Below Average:	Out-of-tune singer (melodic direction)
4 - Average:	Out-of-tune singer (intonation)
5 - Above Average:	Inconsistent singer
6 - Good:	Consistent singer
7 - Excellent:	Musical singer

Ability 2 - Ability to Sing in Parts

Students were classified through the use of part songs, rounds,
descants, chants, counter-melodies, combinable songs, and
choral accompaniments.

1 - Poor:	Non-singer
2 - Fair:	Non-part singer
3 - Below Average:	Out-of-tune part singer (melodic direction)
4 - Average:	Out-of-tune part singer (intonation)
5 - Above Average:	Inconsistent part singer
6 - Good:	Consistent part singer
7 - Excellent:	Musical part singer

Ability 3 - Ability to Perform with a Consistent Tempo

Students were classified through the use of melodic and rhythmic
activities.

1 - Poor:	Lacks a command of tempo
2 - Fair:	Lacks a consistent command of tempo
3 - Below Average:	Consistently rushes and slows the tempo
4 - Average:	Consistently rushes or slows the tempo
5 - Above Average:	Performs sometimes with consistent tempo
6 - Good:	Performs with consistent tempo
7 - Excellent:	Performs musically with consistent tempo

Ability 4 - <u>Ability to Comprehend Meter</u>

Students were classified through the use of rhythmic echos, rounds, rondos, and chants.

1 - Poor: Lacks a command of meter
2 - Fair: Lacks a consistent command of meter
3 - Below Average: Performs sometimes in either duple or triple
                           meter
4 - Average: Performs sometimes in both duple or triple
                           meter
5 - Above Average: Performs in either duple or triple meter
6 - Good: Performs in both duple and triple meter
7 - Excellent: Performs musically in both meters

Ability 5 - <u>Ability to Perform with Musical Expression</u>

Students were classified through the use of dialogue and echo songs.

1 - Poor: Lacks an understanding of expression
2 - Fair: Lacks a command of expression
3 - Below Average: Performs sometimes with either rhythmic or
                           dynamic contrasts
4 - Average: Performs sometimes with both rhythmic and
                           dynamic contrasts
5 - Above Average: Performs with either rhythmic or dynamic
                           contrast
6 - Good: Performs with both rhythmic and dynamic
                           contrast
7 - Excellent: Performs with superior tone quality and
                           rhythmic and dynamic contrasts

Ability 6 - <u>Ability to Perform with Melodic and Rhythmic Creativity</u>

Students were classified through the use of rondo and dialogue songs.

1 - Poor: Lacks an understanding of creativity
2 - Fair: Lacks a command of creativity
3 - Below Average: Performs sometimes with either melodic or
                           rhythmic creativity
4 - Average: Performs sometimes with both melodic and
                           rhythmic creativity
5 - Above Average: Performs with melodic or rhythmic creativity
6 - Good: Performs with both melodic and rhythmic
                           creativity
7 - Excellent: Performs with unusual melodic and rhythmic
                           creativity

Ability 7 - <u>Ability to Perform with an Appropriate Tempo and Rhythmic Style</u>

1 - Poor:	Lacks an understanding of appropriate tempo and rhythmic style
2 - Fair:	Lacks a command of appropriate tempo and rhythmic style
3 - Below Average:	Performs sometimes with either an appropriate tempo or rhythmic style
4 - Average:	Performs sometimes with both an appropriate tempo and rhythmic style
5 - Above Average:	Performs with an appropriate tempo or rhythmic style
6 - Good:	Performs with both an appropriate tempo and rhythmic style
7 - Excellent:	Performs with an appropriate tempo and unusual rhythmic style

After the Rochester students were evaluated, teacher ratings of each student's seven abilities were recorded. Next, ratings on Abilities 1 and 2 were summed to form a combined rating. Similarly, the ratings on Abilities 3 and 4, and the ratings on Abilities 5, 6, and 7 were combined to obtain a second and third rating. Finally, scores for all abilities were added together to yield a composite rating. Ratings were combined in this fashion in order to have representative ability ratings for all scores derived from MAP.

The test manual states:

> To facilitate interpretation, the highest scoring 20 percent of the (364) students and the lowest scoring 20 percent of the (364) students were identified. Mean scores on the tests and the scale for high-scoring and low scoring students could then be compared to each other and the mean scores obtained by the total group.[10]

The students who scored at approximately the 80th percentile or above on MAP were rated considerably higher by the teacher than were

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10. <u>Ibid</u>., 77.