

A STUDY TO DETERMINE THE EFFECTS OF TRAINING AND
PRACTICE ON DRAKE MUSICAL ATTITUDE TEST SCORES

by

Edwin Gordon

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Chairman: Associate Professor Neal E. Glenn
Co-chairman: Assistant Professor Leonard S. Feldt

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CHAPTER I

STATEMENT AND ANALYSIS OF THE PROBLEM

I. INTRODUCTION

Musical talent, like all other talent is a gift of nature - inherited, not acquired: in so far as a musician has natural ability in music he is born with it.... The measurement of musical capacity, therefore, concerns itself chiefly with inborn psycho-physic and mental capacities as distinguished from skill acquired in training.⁵⁷

The preceding statement made by a scholar of the calibre of Carl Emil Seashore created a momentous impact on the nature and measurement of musical aptitude. To be sure, it would not be an overstatement to maintain that the impact has not lessened with time. Dichotomous viewpoints prevailed in 1919 when Seashore's Measures of Musical Talent (59) first appeared as well as the present time with respect to the problem of measuring musical aptitude. Music educators are still not in agreement as to whether musical aptitude can be measured apart from achievement.

II. PURPOSE OF THE STUDY

The significance of this problem is of the utmost importance to the public school music educator. A music program that is predicated upon selectivity for participation may require an objective tool like a musical aptitude test that may be used in conjunction with subjective evaluations. For a young student in the intermediate grades, a musical aptitude test score may be his only means of displaying any

musical aptitude he possesses. Test scores used prognostically may eliminate as well as select students for an instrumental or choral organization. Public school music educators who are dedicated to the propositions of equal opportunity for students of equal musical aptitude and the cultivation of the potential musical aptitude of each individual child must acquire factual information about objective tools if they are going to employ them as aids in their programs. If musical aptitude tests are discovered to be in fact musical achievement tests, it cannot be gainsaid that many public school students who have had little or no musical training or an unfavorable environment but who enjoy a fair amount of musical aptitude may not attain their right of receiving a musical education commensurate with their musical aptitude.

III. MUSICAL APTITUDE TESTS

Many musical aptitude tests have appeared since the time Seashore made his early investigation into the nature of musical aptitude and its measurement. Seashore, along with Lewis and Sastveit, revised the original Measures of Musical Talent in 1939 (63) so that the test would be more related to musical discrimination than sensory discrimination. The Consonance Test was replaced by the Timbre Test as another means of affording the test more validity. Mursell (52,53,54) and Heinlein (32), among numerous other critics of the original Seashore test, were of the opinion that the Measures of Musical Talent were atomistic in nature and really sensory discrimination tests. Lowery (45) has attempted to

reconcile the omnibus theory of Mursell (51,52) and the atomistic theory of Seashore (62) by stating that both theories are useful when thought of for specific circumstances. The question of reliability and validity of musical aptitude tests, especially the original Measures of Musical Talent, have been investigated by many independent researchers either directly or indirectly. Mursell (54) reports his own findings as well as those of Wright, Gow, Bogen, Brennon, Smith and Salisbury, Mosher, Brown, Highsmith and Farnsworth with respect to the validity of the Seashore tests. The highest validity coefficients for the Seashore tests were obtained by Smith and Salisbury and Mosher. For the subtests pitch and tonal memory, Smith and Salisbury obtained a correlation of .60 and .44 and Mosher a correlation of .65 and .44 respectively when correlated with the ability to sing at sight. Validity coefficients for these subtests when correlated with teachers grades and success in music were of a lower order. Stanton (69), on the other hand, obtained high validity and reliability coefficients by correlating Measures of Musical Talent test scores with success in music and retest scores. Larson (40), and Larson (41), corroborated Stanton's findings on validity coefficients of the Seashore tests. A great portion of the investigations dealing with the reliability of musical aptitude tests have been to determine the effect of practice and training on retest scores. This will be discussed to a greater extent in the next chapter.

During the interim when the original Seashore tests appeared and when they were revised, Kwalwasser and Dykema (36) published a musical aptitude test which consisted of more subtests than the Seashore tests.

They were also more musical in nature. Lowery (43) and Mainwaring (49) produced musical aptitude tests that were designed to assess aspects of musicianship apart from sensory discrimination. Lowery emphasized exercises relating to cadences and phrasing.

Some of the more recent musical aptitude tests are those of Whistler and Thorpe (76), Kwalwasser (39), Drake (22), and Wing (82). There have been some musical aptitude tests that have been produced in conjunction with manufacturers of musical instruments which in some cases have made no provisions for reliability, validity or normative data.

IV. DESCRIPTION OF THE DRAKE MUSICAL APTITUDE TESTS

In this country, the Drake Musical Aptitude Tests have received wide public acceptance, especially in the public schools. In comparison to the six subtests of Measures of Musical Talent, the Drake tests consist of two tests with two forms of each test. In the 1939 revision, Seashore included pitch, tonal memory, time, rhythm, timbre and intensity as subtests. The two Drake subtests are musical memory and rhythm. Drake (16) and Karlin (34) are in almost total agreement with respect to the composition of musical aptitude. Karlin claims signs of three factors in musical aptitude. They are pitch, although its nature is unknown, memory of wholes and memory of isolated musical elements. Drake states that there are five and possibly more separate aptitudes constituting musical talent. Pitch and auditory memory are distinct and fundamental and should be included in any testing program. This concept

of Drake's must have loomed large when he compiled his first test, Musical Memory Test, in 1934 (14). For his new test, Drake included Rhythm as a subtest in addition to the Musical Memory Test. However, a criticism of Seashore's Rhythm Test leveled by Mursell and Glenn (51) and Heinlein (32) may also be applied to Drake's Rhythm Test. Mursell and Glenn posit the concept that any rhythm test divorced of pitch, phrasing and intensity are in essence really time tests.

The Drake subtest Musical Memory Test consists of one hundred and eight items inclusive of both equivalent forms, A and B. Unlike the Rhythm Test, either form of the Musical Memory Test can be administered to trained subjects to conserve time. Untrained or beginning music subjects should be administered both forms. The Musical Memory Test consists of recorded melodic phrases on the piano. Each phrase is repeated from two to seven times with slight variations in note, key, time or the repeated phrase may be an exact repetition of the original phrase. The subject is to designate by a letter the change that occurs. Each form has twelve phrases to which the subject must respond. Drake's Musical Memory Test encompasses more than Seashore's Tonal Memory Test. In comparison, the Tonal Memory Test consists of thirty comparisons between two sets of unrelated tones, one tone in the set being changed on repetition, the subject being required to identify the changed tone. Time, key and sameness are not present in the Seashore test.

The two unequivalent forms of Drake's Rhythm Test consist of fifty items each. On Form A, a recorded metronome is utilized to establish

time for the subject so that he can keep this time constant when the metronome stops beating. For Form B, after time is established the metronome beats a superimposed rhythm in place of the silent interval on Form A. In both forms, the subject is required to state the number of times the metronome would have beat by keeping the original beat constant in his own mind. For economy of time, Form B may be administered to trained subjects and Form A may be excluded. Seashore's Rhythm Test consists of thirty comparisons between pairs of rhythm patterns, the subject being required to judge whether the second pattern is the same as, or different than the first. The 1939 Seashore revision has two series also - A and B. Series A is designed for unselected groups and Series B should be used for musical groups and individual tests.

V. PROBLEM

In the Examiner Manual (23), Drake makes the following claims for his tests:

Neither test is an achievement test. Rather, both are positive measures of musical aptitude. They can be administered prior to any musical training, and are intended to provide the best available prediction of success in musical training.

From another section of the same source, Drake states:

The problems of fatigue and practice effect have been studied, but no significant or consistent effect of either has been observed.

The problem of this study was to determine 1) whether scores on the Drake Musical Aptitude Tests are affected by training and practice

and 2) whether initially high scoring students will retain an advantage over initially low scoring students on the Drake Musical Memory Test after training and practice. Special emphasis was placed on the Musical Memory Test. As a by-product of the study, the correlation between the Musical Memory Test and the Rhythm Test was computed.

VI. HYPOTHESIS

This study tested the hypothesis that 1) scores on the Drake Musical Aptitude Tests will improve significantly with training and practice and 2) that initially high scoring students will lose their advantage over initially low scoring students on the Drake Musical Memory Test after training and practice.

VII. LIMITATIONS OF THE STUDY

The conclusions derived from this investigation should be generalized only to adolescents in the general population who achieved scores within the range defined for this study on the Drake Musical Aptitude Tests. Secondly, as Wing (82,83) points out, musical aptitude tests do not satisfy both the psychologist and the musician. In addition to the standardized test, musicians would determine musical aptitude through actual performance and the broad aspect of music appreciation. Even though a musical aptitude test suggests that a subject has a high degree of musical aptitude, success in professional music will also depend on the subject's ability to display acceptable

intonation, phrasing and all other aspects of general musicianship. However, through the findings of many well designed studies, music educators will be able to accumulate dependable information on the nature and measurement of musical aptitude.

CHAPTER II

A REVIEW OF THE LITERATURE

I. HISTORY

Farnsworth (25), during the early stages of the measurement of musical talent, attempted to classify experiments pertaining to the effect of training. Effects of training, says Farnsworth, will have different meanings as the method of training varies. Essentially, Farnsworth noted three types of training. They were 1) the effects of practice of taking a test, 2) the effects of formal music instruction and 3) the effects of remedial training on retest scores.

Actually, the majority of the experimental literature is based on the latter two types of training with remedial training bearing the most investigation. The present study, for ease of clarification, should be thought of in the realm of remedial training.

The effects of practice when retaking a test is a function of the reliability of the test. With exceptions, Mursell (52) and Farnsworth (27), for example, reliability has been investigated by authors for their own tests. Some of the better known studies pertaining to the effects of formal training are those of Stanton (69), Drake (18,21), Larson (40), Larson (41), Kwalwasser (37), Wing (82,83), Bienstock (2,3), Wiener (80) and Tamaoka (71).

Generally, results of the effects of formal instruction are as variable as those obtained for effects of remedial training. This may

be due in part to a lack of stability and sophistication in experimental design and preconceived viewpoints. Bienstock (3) stated in 1942, after reviewing the literature from 1932 to 1940:

The status of testing and guidance in music is beginning to emerge as a subject worthy of intensive effort by both psychologists and musicians. The results, however, are far from conclusive at the present time.

Experiments that have tested the effects of remedial instruction have for the most part been directed towards pitch discrimination. Whipple (79) conducted a pioneering study in 1903 to establish whether pitch discrimination could be improved with remedial training and practice. After training one adult for an extended period of time, Whipple evidenced the progress of his subject to differentiate pitch on the tone variator but this talent did not transfer to pitches when played on the piano. Buffum (6), Cameron (8), Capurso (9), Connette (11), Seashore (66), Smith (68), Wolner and Pyle (84) Bright (85) and Wyatt (86) to name a few, have all made similar investigations to Whipple's. The results of these studies were variable since criterions of improvement in some cases were objective standardized tests and in other cases subjective evaluations were utilized. Practice sessions differed with respect to length of time, content of material, methodology of training, group and individual instruction and number of subjects. When statistical tools were used they were not utilized well. Due to these facts, the issue of whether pitch discrimination is innate or a result of achievement is to this day still debatable.