

A COMPARISON OF THE MUSICAL ABILITY OF SEVENTH GRADE
STUDENTS FROM TWO JUNIOR HIGH SCHOOLS LOCATED
IN DIFFERENT SOCIO-ECONOMIC AREAS

by

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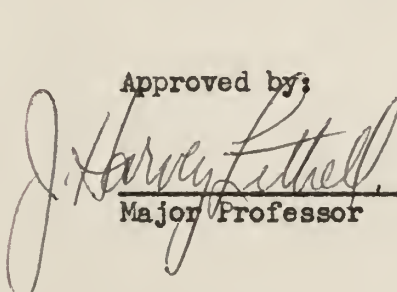
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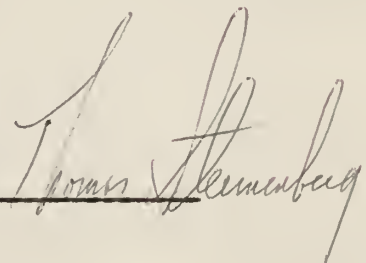
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INTRODUCTION

Is there any difference in the musical ability of students from two different socio-economic areas? The author, having had the opportunity to teach in schools of two very different socio-economic areas, has pondered this question at length. In his teaching experience, the author has found that students from both economic areas were interested in music. He has had the opportunity to attend several musical concerts at both schools. Invariably, after a concert at the lower economic area school, one of the audience would come up and say, "They didn't do badly considering where they are from," or, "That wasn't bad, considering where they live." Does the economic area in which a student lives, or the economic status of his family effect his musical ability? This is the main question to which the author would like to give consideration.

THE PROBLEM

Statement of the Problem

The purpose of this study was (1) to determine whether there were statistically significant differences in the various aspects of musical ability of students in two different socio-economic areas, (2) to determine whether there were statistically significant differences in the various aspects of musical ability of students when they are classified into three ranges of intelligence, and (3) to determine whether there were statistically significant differences in the various aspects of musical ability of students who have taken private lessons, as opposed to the students who have not taken private lessons.

Hypotheses

For this study, twenty-three null hypotheses were formulated and tested. These hypotheses can be grouped as follows:

1. There is no statistically significant difference between the scores of students in School A and School B on (a) the composite test of Tonal Imagery, or its components of (b) Melody, and (c) Harmony.

2. There is no statistically significant difference between the scores of students in School A and School B on (a) the composite test of Rhythm Imagery, or its components of (b) Tempo, and (c) Meter.

3. There is no statistically significant difference between the scores of students in School A and School B on (a) the composite test of Musical Sensitivity, or its components of (b) Phrasing, (c) Balance, and (d) Style.

4. There is no statistically significant difference between the scores of students in School A and School B on the composite scores of the Musical Aptitude Profile test.

5. There is no statistically significant difference between the composite scores on the Musical Aptitude Profile test of students in School A, or in School B, when the students are divided into three ranges of intelligence; (a) below average, (b) average, and (c) above average.

6. There is no statistically significant difference between the composite scores on the Musical Aptitude Profile test of students in School A and School B, when the students are divided into three ranges of intelligence; (a) below average, (b) average, and (c) above average.

7. There is no statistically significant difference between the composite scores on the Musical Aptitude Profile test of students in School A, or students in School B, when they are divided into three ranges of musical

training; (a) no private lessons, (b) less than six months of private lessons, and (c) more than six months of private lessons.

8. There is no statistically significant difference between the composite scores on the Musical Aptitude Profile test of students in School A and School B when each school is divided into three groups of musical training; (a) no private lessons, (b) less than six months of private lessons, and (c) more than six months of private lessons.

Limitations

Seventh grade students from two selected junior high schools were used in this study. One of the junior high schools was located in an upper-lower class section of town, and the other was in an upper-middle class section of town. The assumption was made that all of the students enrolled in each of the junior high schools were in the social class used to describe the school. The Musical Aptitude Profile test by Houghton Mifflin, 1965, was used for the study. The test was administered to all seventh grade students present on the dates selected for administering the test. A total of 309 students took the test and were used in the study.

Definition of Terms

Musical Aptitude Profile. A test which acts as an objective aid in the evaluation of students' basic musical aptitude.

Upper-middle class. This social class is made up of active, ambitious people. They are, for the most part, white collar workers. They are interested in building family traditions, education is of utmost importance, and their central theme is "career."¹

¹Robert J. Havighurst and Bernice L. Neugarten, Society and Education (Boston: Allyn and Bacon, 1962), pp. 24-25.

Upper-lower class. This social class is primarily the blue collar workers. Education is not important to this group, and their central theme is "to get by."²

Tonal Imagery. The ability to hear the likeness of musical notes or sounds.

Rhythm Imagery. The ability to hear strong and weak beats, or the speed of a song.

Melody. A rhythmical succession of single tones producing a distinct musical phrase or idea.

Harmony. Any simultaneous combination of tones.

Meter. The unit of measurement for a piece of music.

Tempo. The rate of speed at which a song moves.

Phrasing. A division of a composition, commonly a passage of four or eight measures.

Balance. To arrange, adjust, or apportion the parts.

Style. A particular, distinctive or characteristic mode or form of construction or execution in any art or work.

Description of the Musical Aptitude Profile Test

Used in the Study

The test battery for the Musical Aptitude Profile consists of three main tests; Tonal Imagery, Rhythm Imagery, and Musical Sensitivity. All tests, subtests, and instructions were recorded on tape. Each of the main tests was divided into at least two subtests. Test I, Tonal Imagery, was divided into Melodic Variations and Harmonic Variations. In the first

²Ibid., pp. 28-29.

subtest, Melodic Variations, two melodies were played on a solo violin. The students were to decide whether or not the second melody was the same as the first melody. Also, if the student was not certain, or had some doubt concerning his answer, he could mark the question mark column. All of these instructions were explained on the tape. The student was not asked which of the two melodies he preferred, but rather, was the second melody the same, or different, from the first melody. Therefore, this was not a preferential test. This subtest included twenty pairs of items, or forty questions. The second subtest under Test I, Tonal Imagery, was Harmonic Variations. The principle used for this subtest was quite similar to the previous subtest. It was not a preferential test, there were twenty pairs of items, or forty questions, and all questions and instructions were recorded on the tape. This subtest, however, required the student to compare the harmony parts, rather than the melody parts. Again, two songs were played, the melody was played by the violin, and the harmony was played by the cello. The violin part, or melody part, was the same in both examples. The student was to listen only to the harmony part, and again decide whether the second song was the same, or different, from the first song.

Test II, Rhythm Imagery, was also divided into two subtests. Each of these subtests had twenty pairs of questions, and were recorded by a violinist. Again, as in Test I, these were not preferential tests, the student listened to two songs, and then marked his answer as to whether the second song was the same, or different, from the first song. Also, a blank was made in case the student was not sure of his answer. In the first subtest, Tempo, the student was to determine whether the tempo on the end of the second song was the same, or different, from the tempo on the end of

the first song. In the second subtest, Meter, the student was to determine if there had been a meter change in the second song, from what had been used in the first song.

Test III of the Musical Aptitude Profile involves the area of Musical Sensitivity. This test was divided into three subtests. All of these differed from the previous subtests because these subtests were preferential. In other words, the student had to listen to the examples and then make a personal evaluation of which example sounded best to him.

The scoring of these items was arrived at by asking ten professional musicians to make judgments. Unless nine of the ten professionals agreed upon a given preference, the item was discarded. Further study of the items was made through the techniques of analysis after each administration of the test battery.³

The first subtest was entitled Phrasing. This subtest consisted of twenty pairs of songs in which the phrasing of the first song was different from the phrasing of the second song. These songs were performed by both the violin and the cello. The students were asked to mark the song which sounded best to them. Also, a blank was provided for the students who were not sure of their answer. The second subtest in Musical Sensitivity was Balance. Again, this was twenty pairs of songs recorded by a violinist. The examples played had contrasting rhythmic and melodic endings, and the students were to determine whether they preferred the style of the first song, or the style of the second song. The different styles of performance were accomplished through changing the tempo.

The Musical Aptitude Profile had several unique aspects. These were:

³Vernon V. Tarrell, "An Investigation of the Validity of the Musical Aptitude Profile," Journal of Research in Music Education, XIII (Winter, 1965), 196.

1. "The tests contain original musical examples."⁴ In other tests where musical examples were used, the test authors used familiar examples by famous composers.
2. "The test items were tape recorded by professional musicians of international reputation."⁵ Professional musicians have not been used for this purpose in any other test.
3. "The violin and cello were used as recording instruments."⁶ String instruments had not been used as musical stimuli in previous musical aptitude tests.
4. "The Musical Aptitude Profile is the only American standardized test to include preference tests in its battery."⁷ The only other test which used preference tests came from England.

REVIEW OF THE LITERATURE

The Musical Aptitude Profile is a very recent test which was published in 1965. Consequently, the amount of literature available at this time, other than the literature which was published with the test by Houghton Mifflin Company, was rather limited. Tarrell reached the following conclusions concerning the Musical Aptitude Profile:

- 1.) The Musical Aptitude Profile will materially assist teachers in the identification of students enrolled in grades 4 through 12 who might profit most from special music instruction.

⁴Ibid., p. 195.

⁵Ibid.

⁶Ibid.

⁷Ibid.

2.) The Musical Aptitude Profile appears to be a consistently stable test battery for all students who are enrolled in grades 4 through 12.

3.) Intercorrelation analyses of the various subtests in the battery reveals substantial relationships for each with the composite test. Relationships between subtests within each part-test are also relatively high; however, there was no evidence that any particular subtest was sufficiently related to any other subtest as to duplicate it in function.⁸

In a recent dissertation, Fosha also found the Musical Aptitude Profile test to be valid. He found that between the test scores and musical performance the validity coefficients were statistically significant at the 5 per cent level of confidence in seven of the nine cases. Fosha also asserted that evidence has been found to support the assumption that formal music training does have a negligible effect on the Musical Aptitude Profile test scores. He also stated, "Therefore, it is further concluded that the Musical Aptitude Profile, used intelligently, could be utilized for purposes of identifying musically talented students who will be successful in musical performance."⁹

Parker in his study found that there is no significant difference in the relationship of musical sensitivity to socio-economic status when musical ability and intelligence are held constant.¹⁰

⁸Ibid., p. 203.

⁹Revone L. Fosha, "A Study of the Concurrent Validity of the Musical Aptitude Profile" (unpublished Doctoral dissertation, The State University of Iowa, 1964), Dissertation Abstracts Vol. XXV, p. 5319.

¹⁰Olin G. Parker, "A Study of the Relationship of Aesthetic Sensitivity to Musical Ability, Intelligence, and Socioeconomic Status" (unpublished Doctoral dissertation, The University of Kansas, 1961), Dissertation Abstracts Vol. XXII, p. 2416.

TECHNIQUES USED AND RESULTS OF THE STUDY

Description of the Population

The test, Musical Aptitude Profile, was given in a mid-western city with a population of approximately 120,000. The public schools of this particular city have districts which are drawn near the school. The student must attend the school in the district in which he lives. Consequently, some districts are going to be in higher socio-economic classes than other districts. Two junior high schools were selected for this study which were located in two quite different areas.

The first junior high was located in a lower financial region of the city. This was obvious by the living conditions which prevailed in this section. Most of the people living in this section could be classified as members of the upper-lower socio-economic class. This school will be referred to as School A in the study.

The second junior high school used in this study was located in a higher financial region of the city. This again was obvious by the living conditions which prevailed in this section. People living in this section could be classified usually as middle class, or even upper-middle class socio-economically. This school will be referred to as School B in the study.

These schools were selected for the obvious differences in the socio-economic levels of the patrons. The seventh grade students from both of these junior high schools were selected because these were the most probable of any grade to have approximately the same musical experiences. This was believed to be the case, as all students had had some musical experience in the elementary school, but students in eight and ninth grades would have had the junior high musical experience that was different since in School A, music

was required of some students, and in School B, music was not required of any students. Most of the seventh grade students came from self-contained classrooms where classroom teachers, not music teachers, were giving musical instruction.

The intelligence scores of students from both schools is shown in Table I. These intelligence scores were taken from the Henmon-Nelson Intelligence Test, which all of the students took as sixth graders. The author has classified these scores into three categories; (a) below average, (b) average, and (c) above average. The average intelligence range was considered to be a score of 90-110 on the Henmon-Nelson test. The below average range consisted of scores of 89 and below, while the above average range consisted of scores of 111 and up on the Henmon-Nelson test. School A had 28 per cent of its seventh grade students in the below average range, 54 per cent of its seventh grade students in the average range, and only 18 per cent of its seventh grade students in the above average range. School B's students definitely scored higher on the intelligence test as is shown by the fact that only 4 per cent of its seventh grade students scored in the below average range, 33 per cent of its seventh grade students scored in the average range, and 63 per cent scored in the above average range.

The author utilized a questionnaire in attempting to determine the home musical environment of students from both School A and School B. This questionnaire was mainly concerned with (a) the number and type of instruments in the home, and how often these instruments were used, (b) the number and type of records in the home, (c) whether or not the students have taken private lessons, and if so, for what length of time they have taken private lessons, and (d) if the students' families attend or watch musical programs or performances.

TABLE I
PER CENT OF STUDENTS IN THREE INTELLIGENCE RANGES IN EACH
OF THE TWO SCHOOLS USED IN THE STUDY

Intelligence Ranges	School A	School B
89 and below	28%	4%
90 through 110	54%	33%
111 and up	18%	63%

From Table II, it is possible to ascertain the per cent of students from each school who have taken private lessons. From the entire seventh grade population of school A, only 29 per cent have ever taken private lessons of any kind. Other information gained from Table II is that of the 29 per cent of the seventh grade students in School A who have taken private lessons, 56 per cent have taken private lessons for more than six months. In contrast, 60 per cent of the entire seventh grade population of School B have taken private lessons, and of this 60 per cent, 81 per cent have taken lessons for more than six month.

Table III compares the per cent of students, from both School A and School B, who have instruments in their homes. School B ranks higher than School A in all of the categories. The instrument where there is the smallest differential is that of a television. School B ranks only 3 per cent higher in this area than does School A. In other words, 100 per cent of the seventh grade students at School B have television sets in their homes, and only 97 per cent of the seventh grade students at School A have television sets in their homes. This differential gradually increases until it peaks with the percentage of homes which have a piano. School B ranks 35 per cent higher in this category than does School A.

Tables IV, V, and VI show the amount of use each of the instruments listed in Table III receives. Table IV shows the use of these instruments by the families of students in School A, and Table V shows the use of these instruments by the families of students in School B. Table VI compares the use of television sets in the homes of both School A and School B. Possibly the most important section in these tables is the section on the use of the piano in the home. It appears, from information accumulated in the questionnaire, the pianos in the homes of School B were used more than the pianos

TABLE II
PER CENT OF STUDENTS FROM EACH SCHOOL WHO HAVE TAKEN PRIVATE LESSONS
AND THE LENGTH OF TIME THEY HAVE TAKEN LESSONS

Musical Experience	School A	School B
Private lessons	29%	60%
No private lessons	71%	40%
Private lessons for less than six months	44%	19%
Private lessons for more than six months	56%	81%

TABLE III
PER CENT OF STUDENTS HAVING VARIOUS MUSICAL INSTRUMENTS
OR SOURCES FOR MUSIC LISTENING IN EACH OF THE
TWO SCHOOLS USED IN THE STUDY

Instruments	School A	School B
Piano	13%	48%
Record player	83%	94%
A.M. Radio	78%	96%
F.M. Radio	51%	72%
Television	97%	100%
Tape recorder with music tapes	8%	13%

TABLE IV

PER CENT OF HOMES OF STUDENTS IN SCHOOL, A USING SEVERAL SOURCES
FOR MUSIC FOR VARIOUS LENGTHS OF TIME

Instrument	Less than two hours per week	Between two and four hours per week	Between four and six hours per week	Between six and eight hours per week	Between eight and ten hours per week	More than ten hours per week
Piano	40%	20%	20%	0%	0%	20%
Record player	28%	12%	16%	12%	9%	23%
A. M. radio	25%	15%	14%	10%	10%	26%
F. M. radio	44%	16%	16%	8%	3%	13%
Tape recorder	60%	10%	10%	10%	10%	0%

TABLE V
PER CENT OF HOMES OF STUDENTS IN SCHOOL B USING SEVERAL SOURCES
FOR MUSIC FOR VARIOUS LENGTHS OF TIME

Instrument	Less than two hours per week	Between two and four hours per week	Between four and six hours per week	Between six and eight hours per week	Between eight and ten hours per week	More than ten hours per week
Piano	24%	28%	19%	12%	4%	13%
Record player	31%	16%	15%	8%	13%	17%
A. M. radio	19%	10%	10%	13%	10%	38%
E. M. radio	41%	17%	12%	7%	6%	18%
Tape recorder	75%	13%	8%	0%	0%	4%

TABLE VI
PER CENT OF TELEVISION USAGE IN BOTH SCHOOLS

	Less than ten hours per week	Between ten and twenty hours per week	Between twenty and thirty hours per week	Between thirty and forty hours per week	More than forty hours per week
School A	2%	18%	18%	23%	39%
School B	5%	14%	19%	24%	38%

in the homes of School A. The remainder of the categories were relatively close in percentages.

Table VII compares the percentage of students in School A that had records in their homes with the percentage of students in School B that had records in their homes. It was quite evident from this table that there was a much higher percentage of homes from School B that had records than there were in School A. The author also divided the records into three categories; (a) classical, (b) semi-classical and show tunes, and (c) popular. In other words, of the 96 per cent of the homes in School B that had records, 98 per cent had classical records. Of the 61 per cent of the homes of School A, only 55 per cent had classical records. As shown by the table, School B ranked higher than School A in all of the categories.

The number of records in the homes of both School A and School B are shown in Table VIII. Of the students who had records in their homes, there appeared to be relatively small difference in the number of records in the homes as shown by the table.

Table IX shows the number of records in several categories that were found in the homes of students from both schools. Again, it shows a relatively small difference between the population of the two schools in respect to records they possessed from different categories.

From Table X, it is possible to ascertain that more students' families from School B attended or watched musical programs. School B rates considerably higher in two of the five categories, and slightly higher than School A in yet another two areas. School A, however, does rate considerably higher in the category of watching musical programs on educational television.

School A had 165 students in the study, and School B had 144 students in the study.

TABLE VII
PER CENT OF STUDENTS IN EACH OF THE TWO SCHOOLS HAVING RECORDS
IN THEIR HOMES AND PER CENT OF THESE STUDENTS
HAVING EACH OF SEVERAL TYPES OF RECORDS

Records in homes	School A	School B
Records	61%	96%
Classical	55%	98%
Semi-classical and show tunes	61%	99%
Popular	90%	100%

TABLE VIII
NUMBER OF RECORDS FOUND IN HOMES OF STUDENTS
IN THE TWO SCHOOLS USED IN THE STUDY

Number of records	School A	School B
Less than 25	10%	15%
Between 25 and 50	23%	24%
Between 51 and 75	15%	18%
Between 76 and 100	21%	11%
Between 101 and 150	14%	9%
Between 151 and 200	9%	8%
More than 200	8%	15%

TABLE IX
PER CENT OF STUDENTS IN BOTH SCHOOLS WHO HAVE RECORDS AND
THE NUMBER OF EACH TYPE OF RECORD

Number of records	CLASSICAL		SEMI-CLASSICAL AND SHOW TUNES		POPULAR	
	School A	School B	School A	School B	School A	School B
Less than 25	72%	83%	63%	59%	38%	55%
Between 25 and 50	13%	9%	25%	24%	21%	24%
Between 51 and 75	9%	2%	8%	10%	21%	7%
Between 76 and 100	4%	2%	2%	3%	12%	4%
More than 101	2%	5%	2%	4%	8%	10%

TABLE X
PER CENT OF FAMILIES IN BOTH SCHOOLS USED IN THE STUDY
WHO ATTEND OR WATCH MUSICAL PROGRAMS

Programs	School A	School B
Community Concerts	9%	22%
Civic Symphony Concerts	8%	11%
College Fine Arts Series	2%	4%
Educational Television Music Programs	47%	36%
Leonard Bernstein Music Programs	23%	34%

Procedures

A questionnaire was distributed to each of the students at School A and School B. This questionnaire attempted to establish some of the home environment of the students. Also, it was used to help establish the importance of music in the students' homes. This questionnaire was distributed to the students during the early part of the week, and they were asked to return this before the end of the week.

The Musical Aptitude Profile test, written by Dr. Edwin Gordon, published by Houghton Mifflin in 1965, was used in this study. The test, as recommended by the publisher and author, was administered in three separate periods.

The test was given at School A during the early afternoon on three consecutive days. Each session was fifty minutes long. This allowed for rest periods during the test.

School B took the test during the early afternoon on three consecutive days a week after School A. Again, each session was fifty minutes in length, which allowed for rest periods.

The directions, as outlined by the publisher and author, were followed explicitly, by the same administrator in both cases. Each test was administered with the aid of a tape recorder and three tapes.

The test was then scored by the author by using the answer sheets provided by the Houghton Mifflin Company, and the charts of raw scores and percentile ranks also supplied by the publishers. Each test was scored individually. These scores were then listed beside the students' names on a class record sheet. The students' intelligence scores were then taken from each student's cumulative folder which is filed in each of the schools.

The author then proceeded by establishing twenty-three hypotheses in eight major categories which were stated previously. Finally, the author developed the data by the use of a t score.

Data

The results of the test in School A and School B were compared in three different ways; 1) raw scores, 2) musical training, or private lessons, and 3) intelligence quotient ranges.

The data received from the raw scores was the first comparison to be made. The first part of the test, Tonal Imagery, was divided into two subtests, Melody and Harmony. School A had 165 students take the entire Tonal Imagery test. This compared with 144 students from School B.

From Table XI, it was ascertained that there was a significant difference in the musical ability of students in School A and School B on the composite test of Tonal Imagery, and on its components of Melody and Harmony. This was shown on the Melody subtest by the fact that School B had a mean that was 5.33 higher than the mean of School A. By the use of a t score, this figure was found to be significant at the one per cent level of confidence. School B also scored higher than School A on the second subtest which was Harmony. This was shown by the fact that School B had a mean that was 4.40 higher than the mean scored by School A. For the composite score on the Tonal Imagery section of the test, School B had a mean that was 3.67 higher than School A. All of these differences were found to be significant at the one per cent level of confidence.

From Table XII, it was found that there was also a significant difference between the scores of School A and School B on the composite test of Rhythm Imagery, and its components of Tempo and Meter. On the subtest of

TABLE XI

STATISTICS DERIVED FROM STUDENTS' SCORES FROM BOTH SCHOOLS USED
IN THE STUDY ON TONAL IMAGERY COMPOSITE AND ITS
COMPONENT PARTS OF MELODY AND HARMONY

	Melody	Harmony	Composite
<u>School A</u>			
Mean	48.14	47.53	49.38
Standard deviation	8.65	9.80	8.40
Standard error of the mean	.677	.773	.656
<u>School B</u>			
Mean	53.57	51.93	53.05
Standard deviation	8.60	8.60	7.75
Standard error of the mean	.719	.719	.648
Difference of means	5.33	4.40	3.67
Standard error of the difference of the means	.987	1.05	.922
t score	5.40	4.19	3.98
	Significant at one per cent level	Significant at one per cent level	Significant at one per cent level

TABLE XII

STATISTICS DERIVED FROM STUDENTS' SCORES FROM BOTH SCHOOLS USED
IN THE STUDY ON RHYTHM IMAGERY COMPOSITE TEST AND ITS
COMPONENT PARTS OF TEMPO AND METER

	Tempo	Meter	Composite
<u>School A</u>			
Mean	44.56	41.69	44.24
Standard deviation	7.68	8.77	7.48
Standard error of the mean	.600	.683	.584
<u>School B</u>			
Mean	54.02	51.61	52.71
Standard deviation	8.10	7.50	7.10
Standard error of the mean	.677	.627	.594
Difference of means	9.46	9.92	8.47
Standard error of the difference of the means	.883	.930	.771
t score	10.46	10.30	10.17
	Significant at one per cent level	Significant at one per cent level	Significant at one per cent level

Tempo, School B had a mean that was 9.46 higher than the mean scored by School A. The second subtest was that of Meter, and School B scored a mean that was 9.92 higher than School A. For the composite test of Rhythm Imagery, School B had a mean that was 8.47 higher than the mean scored by School A. By the use of a t score, it was discovered that these figures were significant at the one per cent level of confidence.

The composite scores of School A and School B on the composite test of Musical Sensitivity, and on its components of Phrasing, Balance, and Style were shown in Table XIII. Again, it was ascertained that there was a significant difference between the scores of School A and School B on this section also. This was shown on the subtest of Phrasing by the fact that School B had a mean that was 12.40 higher than the mean of School A. On the subtest of Balance, School B had a mean that was 9.18 higher than School A. Style was the name of the third subtest, and School B also scored higher on this part. This time, School B scored 8.32 higher than School A. On the composite score of the Musical Sensitivity section, School B had a mean that was 9.88 higher than the mean of School A. By the use of a t score, it was again determined that the difference was significant at the one per cent level of confidence.

From Table XIV it was ascertained that there was a significant difference in the musical ability of students in School A and School B on the Composite score for the entire Musical Aptitude Profile test. This was shown by the fact that School B had a mean that was 8.18 higher than School A. By the use of a t score, this difference was found to be significant at the one per cent level of confidence.

Table XV shows the Composite scores of the students of School A, when they were divided into three intelligence ranges; 1) below average, 2) average,

TABLE XIII

STATISTICS DERIVED FROM STUDENTS' SCORES FROM BOTH SCHOOLS USED IN THE
STUDY ON MUSICAL SENSITIVITY COMPOSITE TEST AND ITS
COMPONENT PARTS OF PHRASING, BALANCE, AND STYLE

	Phrasing	Balance	Style	Composite
<u>School A</u>				
Mean	41.32	44.84	43.48	43.07
Standard deviation	8.40	9.20	8.94	7.27
Standard error of the mean	.656	.719	.698	.568
<u>School B</u>				
Mean	53.72	54.02	51.80	52.95
Standard deviation	9.60	9.30	8.40	7.80
Standard error of the mean	.805	.780	.705	.655
Difference of means	12.40	9.18	8.32	9.88
Standard error of the difference of the means	1.04	1.06	.992	.867
t score	11.95 Significant at one per cent level	8.65 Significant at one per cent level	8.39 Significant at one per cent level	11.40 Significant at one per cent level

TABLE XIV

STATISTICS DERIVED FROM STUDENTS' SCORES FROM BOTH SCHOOLS
 USED IN THE STUDY ON COMPOSITE OF THE ENTIRE
MUSICAL APTITUDE PROFILE TEST

	Composite scores
<u>School A</u>	
Mean	45.12
Standard deviation	6.60
Standard error of the mean	.535
<u>School B</u>	
Mean	53.30
Standard deviation	6.50
Standard error of the mean	.549
Difference of means	8.18
Standard error of the difference of the means	.762
t score	10.68
	Significant at one per cent level

TABLE XV

STATISTICS DERIVED FROM STUDENTS' COMPOSITE SCORES
FROM SCHOOL A WHEN DIVIDED INTO THREE
INTELLIGENCE RANGES

89 and below			90 through 110		
Mean	42.60		Mean	45.03	
Standard deviation	6.04		Standard deviation	6.00	
Standard error of the mean	.944		Standard error of the mean	.676	
90 through 110			111 and up		
Mean	45.03		Mean	49.40	
Standard deviation	6.00		Standard deviation	7.06	
Standard error of the mean	.676		Standard error of the mean	1.412	
Difference of means	2.43		Difference of means	4.37	
Standard error of the difference of the means	1.17		Standard error of the difference of the means	1.563	
t score	2.08		t score	2.80	
Significant at five per cent level			Significant at one per cent level		

and 3) above average intelligence. The scores of the students with average intelligence scores, 90-110, were compared to the scores of those students who had below average intelligence scores, 89 and below, and to the scores of those students who had above average intelligence scores, 111 and up. Class 2, the students with average intelligence scores, had a mean that was 2.43 higher than the mean of Class 1, the students with below average intelligence scores. By use of a t score, it was determined that this difference was significant at the five per cent level of confidence. Class 3, those students with above average intelligence scores, had a mean that was 4.37 higher than the mean scored by Class 2. By the use of a t score, it was ascertained that this figure was significant at the one per cent level of confidence.

Table XVI shows the Composite scores of the students of School B, when they have been divided into the same three intelligence ranges as was done in Table XV. Class 2, or the average range, had a mean that was 4.60 higher than the mean of Class 1, the below average group. This was significant at the five per cent level of confidence. Also, Class 3, or the above average range, had a mean that was 3.65 higher than the mean of Class 2, the average group. By the use of a t score, this difference was found to be significant at the one per cent level of confidence.

Table XVII compares the Composite scores of students in School A with the Composite scores of students in School B who ranked in the same intelligence range. The students from School B that were in the below average intelligence range had a mean that was 4.40 higher than the mean from School A. This figure was found to be significant at the five per cent level of confidence. Of the students from both schools who had average intelligence scores, the students from School B had a mean that was 6.57 higher than the same

TABLE XVI

STATISTICS DERIVED FROM STUDENTS' COMPOSITE SCORES
FROM SCHOOL B WHEN DIVIDED INTO THREE
INTELLIGENCE RANGES

89 and below			90 through 110		
Mean	47.00		Mean	51.60	
Standard deviation	3.24		Standard deviation	5.40	
Standard error of the mean	1.453		Standard error of the mean	.814	
90 through 110			111 and up		
Mean	51.60		Mean	55.25	
Standard deviation	5.40		Standard deviation	6.60	
Standard error of the mean	.814		Standard error of the mean	.719	
Difference of means	4.60		Difference of the means	3.65	
Standard error of the difference of the means	1.733		Standard error of the difference of the means	1.086	
t score	2.65		t score	3.36	
Significant at five per cent level			Significant at one per cent level		

TABLE XVII

STATISTICS DERIVED FROM STUDENTS' COMPOSITE SCORES FROM BOTH SCHOOLS
USED IN THE STUDY WHEN BOTH SCHOOLS ARE DIVIDED
INTO THREE INTELLIGENCE RANGES

<u>School A - 89 and below</u>			<u>School A - 90 through 110</u>			<u>School A - 111 and up</u>		
Mean	42.60		Mean	45.03		Mean	49.40	
Standard deviation	6.04		Standard deviation	6.00		Standard deviation	7.06	
Standard error of the mean	.944		Standard error of the mean	.676		Standard error of the mean	1.412	
<u>School B - 89 and below</u>			<u>School B - 90 through 110</u>			<u>School B - 111 and up</u>		
Mean	47.00		Mean	51.60		Mean	55.25	
Standard deviation	3.24		Standard deviation	5.40		Standard deviation	6.60	
Standard error of the mean	1.453		Standard error of the mean	.814		Standard error of the mean	.719	
Difference of means	4.40		Difference of means	6.57		Difference of means	5.85	
Standard error of the difference of the means	1.733		Standard error of the difference of the means	1.058		Standard error of the difference of the means	1.585	
t score	2.31	Significant at five per cent level	t score	5.66	Significant at one per cent level	t score	3.80	Significant at one per cent level

group from School A. This was significant at the one per cent level of confidence. In the above average intelligence range, School B had a mean that was 5.85 higher than School A. This figure was also found to be significant at the one per cent level of confidence.

Table XVIII shows the Composite scores of students in School A, when they have been divided into three categories of musical training; 1) no private lessons, 2) less than six months of private lessons, and 3) more than six months of private lessons. The Composite of students with no private lessons were compared to the Composite scores of both those students with less than six months of private lessons, and those students with more than six months of private lessons. Class X, those students with no private lessons, had a mean that was .47 higher than Class Y, those students that had had less than six months of private lessons. However, by use of a t score, this figure was found to be not significant. Class Z, those students with more than six months of private lessons, had a mean that was 3.12 higher than Class Y. Again, however, this figure was found to be not significant.

Table XIX shows the Composite scores of the students of School B, when they were divided into the same three categories of musical training as was done in Table XVIII. The difference between Class X and Class Y was not significant, although Class X had a mean that was .75 higher than the mean of Class Y. However, Class Z scored a mean that was 4.66 higher than the mean of Class Y. By use of a t score, this was found to be significant at the one per cent level of confidence.

Table XX compared the Composite scores of students in School A with the Composite scores of students in School B who were in the same category of musical training. Class X from School B had a mean that was 5.60 higher than the mean scored by the same group from School A. Class Y from School B

TABLE XVIII

STATISTICS DERIVED FROM STUDENTS' COMPOSITE SCORES
FROM SCHOOL A WHEN DIVIDED INTO THREE
LEVELS OF MUSICAL TRAINING

No private lessons	Less than six months private lessons	More than six months of private lessons
Mean	Mean	Mean
Standard deviation	Standard deviation	Standard deviation
Standard error of the mean	Standard error of the mean	Standard error of the mean
Less than six months of private lessons	More than six months of private lessons	
Mean	Mean	Mean
Standard deviation	Standard deviation	Standard deviation
Standard error of the mean	Standard error of the mean	Standard error of the mean
Difference of means	Difference of means	Difference of means
Standard error of the difference of the means	Standard error of the difference of the means	Standard error of the difference of the means
t score	t score	t score
	Not significant	Not significant

STATISTICS DERIVED FROM STUDENTS' COMPOSITE SCORES
FROM SCHOOL B WHEN DIVIDED INTO THREE
LEVELS OF MUSICAL TRAINING

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TABLE XX

STATISTICS DERIVED FROM STUDENTS' COMPOSITE SCORES FROM BOTH SCHOOLS
USED IN THE STUDY WHEN BOTH SCHOOLS ARE DIVIDED
INTO THREE LEVELS OF MUSICAL TRAINING

<u>School A - No private lessons</u>		<u>School A - Less than six months of private lessons</u>		<u>School A - More than six months of private lessons</u>	
Mean	45.28	Mean	44.81	Mean	47.93
Standard deviation	4.33	Standard deviation	6.41	Standard deviation	7.26
Standard error of the mean	.422	Standard error of the mean	1.434	Standard error of the mean	1.423
<u>School B - No private lessons</u>		<u>School B - Less than six months of private lessons</u>		<u>School B - More than six months of private lessons</u>	
Mean	50.88	Mean	50.13	Mean	54.79
Standard deviation	6.16	Standard deviation	4.74	Standard deviation	6.34
Standard error of the mean	.831	Standard error of the mean	1.224	Standard error of the mean	.764
Difference of means	5.60	Difference of means	5.32	Difference of means	6.86
Standard error of the difference of the means	.93	Standard error of the difference of the means	1.88	Standard error of the difference of the means	1.61
t score	6.02	t score	2.82	t score	4.26
Significant at one per cent level		Significant at one per cent level		Significant at one per cent level	

had a mean that was 5.32 higher than the mean scored by the same group from School A. Class Z from School B scored a mean that was 6.86 higher than the same group from School A. All of the above figures, with the use of a t score, were found to be significant at the one per cent level of confidence.

CONCLUSIONS

The following conclusions were drawn from the data determined from the questionnaire used in the study and from the test results.

Questionnaire - Instruments

1. A greater per cent of students from upper-middle class families had a piano, record player, A. M. radio, F. M. radio, television, and tape recorder in their homes than did the students from upper-lower class families.
2. Of the instruments or musical listening devices located in the home, piano, A. M. radio, record player, F. M. radio, television, and tape recorder, there was little difference in the amount of time these instruments were used in upper-middle class homes and the amount of time they were used in upper-lower class homes.

Questionnaire - Records

3. A much greater per cent of homes of the students from upper-middle class families had records than did the homes of the students from upper-lower class families. Also, of the homes that had records, a greater per cent of homes of students from upper-middle class families had classical records, semi-classical and show tune records, and popular records, than did the homes of students from upper-lower class families.
4. Of the homes from both areas that had records, there was little difference in the number of records found in each home.

5. When the records were divided into three categories, 1) Classical, 2) Semi-classical and Show tunes, and 3) Popular, there was still little difference in the number of records found in each of the categories in the homes that had records.

Questionnaire - Private Lessons

6. A much greater per cent of students from upper-middle class families had private lessons than had students from upper-lower class families. Also, of those students that had taken private lessons, a greater per cent of students from upper-middle class families had studied for more than six months than had students from upper-lower class families.

Questionnaire - Musical Programs

7. Students from upper-lower class homes watched musical programs on educational television more than did the students from upper-middle class homes.

8. A greater per cent of upper-middle class families attended musical programs than did upper lower class families. Also, more upper-middle class families watched Leonard Bernstein programs than did upper-lower class families.

Test Information - Intelligence

9. A greater per cent of students from upper-middle class families had above average intelligence quotients than did the students from upper-lower class families.

Test Scores (All differences stated were found to be statistically significant.)

10. Students from upper-middle class families had higher musical ability in the area of Tonal Imagery, and its components of Melody and Harmony, than did the students from upper-lower class families.

11. Students from upper-middle class families had higher musical ability in the area of Rhythm Imagery, and its components of Tempo and Meter, than did the students from upper-lower class families.

12. Students from upper-middle class families had higher musical ability in the area of Musical Sensitivity, and its components of Phrasing, Balance, and Style, than did the students from upper-lower class families.

13. Students from upper-middle class families had more musical ability, as indicated by the Composite test scores, than did the students from upper-lower class families.

Test Scores - Intelligence

14. When students from upper-middle class families were divided into three intelligence groups, below average, average, and above average, the students in the average range had more musical ability than did the students in the below average range, and also, students in the above average range had more musical ability than did the students of the average intelligence group. The same conclusions were reached when students from upper-lower class families were divided in a like manner.

15. Students of below average intelligence from upper-middle class families had more musical ability than did students of below average intelligence from upper lower class families.

16. Students of average intelligence from upper-middle class families had more musical ability than did students of average intelligence from upper-lower class families.

17. Students of above average intelligence from upper-middle class families had more musical ability than did students of above average intelligence from upper-lower class families.

Test Scores - Private Lessons

18. In the upper-lower class families there was no difference in the musical ability of students who had had no private lessons, and those students who had taken less than six months of private lessons.

19. Also, in upper-lower class families, there was no difference in the musical ability of those students who had taken private lessons for less than six months, and the musical ability of those students who had taken private lessons for more than six months.

20. In upper-middle class families, there was no difference in the musical ability of those students who had taken no private lessons and the musical ability of those students who had taken less than six months of private lessons.

21. Students from upper-middle class families who had taken private lessons for more than six months had more musical ability than did those students from upper-middle class families who had taken private lessons for less than six months.

22. Students who had not taken any private lessons from upper-middle class families had more musical ability than did those students of upper-lower class families who had not taken any private lessons.

23. Students who had taken less than six months of private lessons, from upper-middle class families, had more musical ability than did those students from upper-lower class families who had taken private lessons less than six months.

24. Students from upper-middle class families, who had taken more than six months of private lessons, had higher musical ability than did those students from upper-lower class families who had taken lessons more than six months.

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APPENDIX

SURVEY OF MUSICAL EXPERIENCES
OF JUNIOR HIGH SCHOOL STUDENTS

Please return this questionnaire to the music room of the junior high school which you attend.

Please check the appropriate answers.

1. Name _____
2. Grade _____ 3. Homeroom _____
4. Age _____ 5. Home Address _____
6. School last attended _____
7. Father's Occupation _____
8. Mother's Occupation _____
9. Check each of the following instruments which you have in your home.
 - _____ 9.1 Piano
 - _____ 9.2 Record Player
 - _____ 9.3 A.M. Radio
 - _____ 9.4 F.M. Radio
 - _____ 9.5 Television
 - _____ 9.6 Tape Recorder with Music Tapes
 - _____ 9.7 List below any other instruments which you have in your home.
10. If you have a piano in your home, approximately how often is it used?
 - _____ 10.1 Between 0 and 2 hours per week.
 - _____ 10.2 Between 2 and 4 hours per week.
 - _____ 10.3 Between 4 and 6 hours per week.
 - _____ 10.4 Between 6 and 8 hours per week.
 - _____ 10.5 Between 8 and 10 hours per week.
 - _____ 10.6 More than 10 hours per week.

11. If you have a record player in your home, approximately how often is it used?
- ☐ 11.1 Between 0 and 2 hours per week.
 - ☐ 11.2 Between 2 and 4 hours per week.
 - ☐ 11.3 Between 4 and 6 hours per week.
 - ☐ 11.4 Between 6 and 8 hours per week.
 - ☐ 11.5 Between 8 and 10 hours per week.
 - ☐ 11.6 More than 10 hours per week.
12. If you have an A.M. radio in your home, approximately how often is it used?
- ☐ 12.1 Between 0 and 2 hours per week.
 - ☐ 12.2 Between 2 and 4 hours per week.
 - ☐ 12.3 Between 4 and 6 hours per week.
 - ☐ 12.4 Between 6 and 8 hours per week.
 - ☐ 12.5 Between 8 and 10 hours per week.
 - ☐ 12.6 More than 10 hours per week.
13. If you have an F.M. radio in your home, approximately how often is it used?
- ☐ 13.1 Between 0 and 2 hours per week.
 - ☐ 13.2 Between 2 and 4 hours per week.
 - ☐ 13.3 Between 4 and 6 hours per week.
 - ☐ 13.4 Between 6 and 8 hours per week.
 - ☐ 13.5 Between 8 and 10 hours per week.
 - ☐ 13.6 More than 10 hours per week.
14. If you have a television set in your home, approximately how often is it used?
- ☐ 14.1 Less than 10 hours per week.
 - ☐ 14.2 Between 10 and 20 hours per week.
 - ☐ 14.3 Between 20 and 30 hours per week.
 - ☐ 14.4 Between 30 and 40 hours per week.
 - ☐ 14.5 More than 40 hours per week.
15. If you have a tape recorder with music tapes in your home, approximately how often is it used?
- ☐ 15.1 Between 0 and 2 hours per week.
 - ☐ 15.2 Between 2 and 4 hours per week.
 - ☐ 15.3 Between 4 and 6 hours per week.
 - ☐ 15.4 Between 6 and 8 hours per week.
 - ☐ 15.5 Between 8 and 10 hours per week.
 - ☐ 15.6 More than 10 hours per week.

16. Check the approximate number of records in your collection at home. (Include a tape recording as a record.)

____ 16.1 Less than 25 records.
____ 16.2 Between 25 and 50 records.
____ 16.3 Between 51 and 75 records.
____ 16.4 Between 76 and 100 records.
____ 16.5 Between 101 and 150 records.
____ 16.6 Between 151 and 200 records.
____ 16.7 More than 200 records.

17. Check the approximate number of each type of record which you have in your home. (Include a tape recording as a record.)

A. Classical

____ A.1 Less than 25 records.
____ A.2 Between 25 and 50 records.
____ A.3 Between 51 and 75 records.
____ A.4 Between 76 and 100 records.
____ A.5 More than 100 records.

B. Semi Classical and Show Tunes

____ B.1 Less than 25 records.
____ B.2 Between 25 and 50 records.
____ B.3 Between 51 and 75 records.
____ B.4 Between 76 and 100 records.
____ B.5 More than 100 records.

C. Popular

____ C.1 Less than 25 records.
____ C.2 Between 26 and 50 records.
____ C.3 Between 51 and 75 records.
____ C.4 Between 76 and 100 records.
____ C.5 More than 101 records.

18. Have you ever taken lessons on a musical instrument?

____ 18.1 Yes
____ 18.2 No

19. If your answer to question number 18 was yes, then state which instrument.

20. How long have you taken lessons? (If you have studied more than one instrument, write the name of the instrument in the space provided after the length of time which you have studied each instrument.)

____ 20.1 Less than 6 months. _____
____ 20.2 Between 6 months and 1 year. _____
____ 20.3 Between 1 year and 2 years. _____
____ 20.4 Between 2 years and 3 years. _____
____ 20.5 Between 3 years and 4 years. _____
____ 20.6 More than 4 years. _____

21. Check each of the following members of your family, other than yourself, who play or have played, a musical instrument. (If you have more than one brother or sister who plays or has played a musical instrument, write the number in the blank.)

____ 21.1 Father
____ 21.2 Mother
____ 21.3 Sister(s)
____ 21.4 Brother(s)

22. If you checked one or more of the blanks in question number 21, list the instruments played by these members of your family.

22.1 Father _____
22.2 Mother _____
22.3 Sister(s) _____
22.4 Brother(s) _____

23. If you checked one or more of the blanks in question number 21, did any of these members of your family play in a school orchestra or band? (If more than one member has, write the number in the blank.)

____ 23.1 Yes
____ 23.2 No

24. Does any member of your family including yourself play in a band or orchestra now? (If more than one does, write the number in the blank.)

____ 24.1 Yes
____ 24.2 No

25. Have you ever taken private singing lessons?

____ 25.1 Yes
____ 25.2 No

26. Check each of the following members of your family other than yourself who has taken, or is now taking, private singing lessons. (If more than one brother or sister has, write the number in the blank.)

____ 26.1 Father
____ 26.2 Mother
____ 26.3 Sister(s)
____ 26.4 Brother(s)

27. Do you sing in any musical organization outside of school?

____ 27.1 Yes
____ 27.2 No

28. Check each member of your family, other than yourself, who is now singing or has sung in any musical organization ~~other~~ than school organizations.

_____ 28.1 Father
_____ 28.2 Mother
_____ 28.3 Sister(s)
_____ 28.4 Brother(s)

29. Are you enrolled in chorus at the present time?

_____ 29.1 Yes
_____ 29.2 No

30. Check each member of your family, other than yourself, who took chorus or glee club when they were in school. (If more than one brother or sister is, or has, write the number in the blank.)

_____ 30.1 Father
_____ 30.2 Mother
_____ 30.3 Sister(s)
_____ 30.4 Brother(s)

31. Do you or your parents attend the Community Concerts?

_____ 31.1 Yes
_____ 31.2 No

32. Do you or your parents attend the Civic Symphony Concerts?

_____ 32.1 Yes
_____ 32.2 No

33. Do you or your parents attend the Washburn Fine Arts Series?

_____ 33.1 Yes
_____ 33.2 No

34. Do you like to sing?

_____ 34.1 Yes
_____ 34.2 No

35. What kind of songs do you like best?

- #6 Do you enjoy listening to records?

_____ 36.1 Yes
_____ 36.2 No

37. If the answer to question number 36 was yes, to what kind of records do you enjoy listening?

38. If the answer to question number 36 was yes, why do you enjoy listening to records?

- #9 Do you have a public library card?

____ 39.1 Yes
____ 39.2 No

40. If the answer to question 39 was yes, have you ever used the fine arts section of the library?

____ 40.1 Yes
____ 40.2 No

41. If the answer to question number 40 was yes, has your family ever checked out records from the library?

____ 41.1 Yes
____ 41.2 No

42. List the three radio or television programs which you like best.

- 43 Have you or your family ever watched the Educational Television which originates from Washburn University?

____ 43.1 Yes
____ 43.2 No

44. If the answer to question number 43 was yes, have you ever watched one of the musical programs on Educational Television?

____ 44.1 Yes
____ 44.2 No

45. Do you or your family watch the Leonard Bernstein Youth Concerts on television?

 45.1 Yes
 45.2 No

46. List the things you enjoy most in school.

Please return this questionnaire to the music room of the junior high school which you attend.

A COMPARISON OF THE MUSICAL ABILITY OF SEVENTH GRADE
STUDENTS FROM TWO JUNIOR HIGH SCHOOLS LOCATED
IN DIFFERENT SOCIO-ECONOMIC AREAS

by

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B. M. E., Baker University, 1963

AN ABSTRACT OF A MASTER'S REPORT

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

Department of Music

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1967

The purpose of this study was (1) to determine whether there were statistically significant differences in the various aspects of musical ability of students from two different socio-economic areas, (2) to determine whether there were statistically significant differences in the various aspects of musical ability of students when they were classified into three ranges of intelligence, and (3) to determine whether there were statistically significant differences in the various aspects of musical ability of students who had taken private lessons, as opposed to the students who had not taken private lessons.

The seventh grade students of two junior high schools located in very different socio-economic areas of a town of 120,000 were selected to be used in this study. The first junior high was located in a lower socio-economic region of the city. This was obvious by the living conditions which prevailed in this section. Most of the people living in this section could be classified as members of the upper-lower socio-economic class. The second junior high used in this study was located in a higher socio-economic region of the city. This again was obvious by the living conditions which prevailed in this section. People living in this section could be classified usually as middle class, or even upper-middle class socio-economically.

A questionnaire was distributed to each of the students at both schools. This questionnaire attempted to establish some of the home environment of the students. Also, it was used to help establish the importance of music in the students' homes.

The Musical Aptitude Profile test, written by Dr. Edwin Gordon, published by Houghton Mifflin in 1965, was used in this study. The test was given at both schools on three consecutive days, each period being fifty minutes in length.

The t score was used to establish the significance of the statistics from the questionnaire and the test results.

The results of the questionnaire showed that a greater per cent of the homes of upper-middle class families contained musical instruments and sources for listening to music than the homes of upper-lower class families.

The per cent of upper-middle class homes which had records was also greater than upper-lower class homes. A greater per cent of students from upper-middle class homes had taken private lessons and a greater per cent of its families attended and watched musical programs. However, a greater per cent of upper-lower class families had watched musical programs on educational television. Finally, a greater per cent of students from upper-middle class families had above average intelligence quotients than did the students from upper-lower class families.

From the test data, it was found that students from upper-middle class homes scored significantly higher on all parts of the test and also on the composite scores of the test.

When the students were divided into three intelligence ranges, below, average, average, and above average, students from upper-middle class homes still scored significantly higher than did the students from upper-lower class homes. The composite scores were compared on this basis.

Lastly, the students were divided into three levels of musical experience, no private lessons, less than six months of private lessons, and more than six months of private lessons, and the composite scores compared on this basis. Again, the students from upper-middle class families scored significantly higher than did the students from upper-lower class families.