

SOME EFFECTS OF INITIAL KEYBOARD EXPERIENCE ON  
THE DEVELOPMENT OF SELECTED MUSICAL SKILLS  
IN CHILDREN OF THE UPPER ELEMENTARY GRADES

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We hereby recommend that the thesis prepared under our supervision by BESSIE CONNOR entitled SOME EFFECTS OF INITIAL KEYBOARD EXPERIENCE ON THE DEVELOPMENT OF SELECTED MUSICAL SKILLS IN CHILDREN OF THE UPPER ELEMENTARY GRADES

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## CHAPTER I

### THE PROBLEM

#### Background to the Problem

An increasing awareness of the value of musical experiences in the process of developing children into emotionally sound, mentally keen, and spiritually sensitive human beings has caused music educators to seek to provide as many and as varied experiences as possible in the classroom. As a result of this, an initial keyboard experience and class piano instruction have recently been added to the music activities in many elementary classrooms.

Both an initial keyboard experience and class piano instruction offer definite contributions to the music program of the schools. Of these two activities an initial keyboard experience would seem to be the more profitable procedure in the regular classroom since it provides an introduction to a knowledge and understanding of the keyboard as an added approach to general responsiveness for all boys and girls in the regular classroom situation. It holds reasonable potential as an aid in the development of an understanding of musical symbols and provides an additional avenue for musical experience. Class piano instruction, while using the same method of approach as that employed in an initial keyboard experience, has for its purpose, among others, the development of technical

skills. Piano classes are offered in schools to small groups of six or eight students of definite musical ability who wish to make the piano a major medium for musical expression.

Much has been written concerning the value of an initial keyboard experience in the stimulation of interest in and responsiveness to the music program of the classroom. Musical values often suggested as possible outcomes of an initial keyboard experience are the following: (1) the creation of an atmosphere and confidence in playing and singing, (2) the awakening of a desire to play an instrument, (3) the provision of a natural way for the child to learn and to apply keyboard harmony, (4) the development of ability in pitch discrimination, (5) the stimulation of creative abilities, (6) the development of reading ability, (7) the provision of a good foundation for ear-training, (8) the development of pitch and rhythm perception, (9) the provision of a background for rhythmic response, and (10) the fostering of the ability to read simple and complex melodic notation. While these goals have warranted some emphasis, very little attention has been directed to the determination of the extent to which this teaching method develops definite skills relating to the musical development of elementary school children. It would seem that investigation of quantitative gains made by the inclusion of an initial keyboard experience in the music program of the

upper grades would be expedient and worthwhile.

#### Statement of the Problem

It was the purpose of this study to investigate through experimental procedure the effects of an initial keyboard experience on the development of selected musical skills in children of elementary grades. An effort was made to evaluate objectively those skills which might be developed through an initial keyboard experience.

This study has attempted to determine: (1) whether or not the inclusion of an initial keyboard experience for all children of the upper elementary grades is profitable and worthwhile as a regularly adopted procedure; (2) in what ways an initial keyboard experience during the upper elementary years may be expected to influence musical development; and (3) to what extent an initial keyboard experience may influence the development of selected musical skills. The questions for which answers were sought are the following:

- A. Is an initial keyboard experience for all children of the upper elementary grades profitable and worthwhile as a classroom procedure?
- B. In what ways may an initial keyboard experience during the upper elementary grades be expected to influence musical development?
  1. Does an initial keyboard experience contribute to

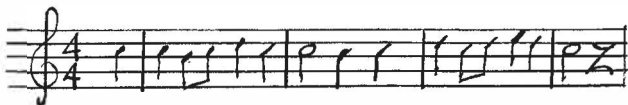


the development of the ability to hear and recognize:

a. Repeated melodic patterns?



b. Repeated rhythm patterns?

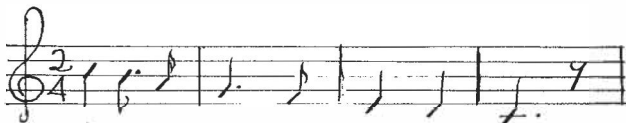


2. Does an initial keyboard experience aid in the development of the ability to hear and notate:

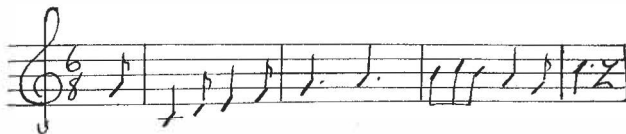
a. Rhythm patterns in  $\frac{2}{4}$ ,  $\frac{3}{4}$ ,  $\frac{4}{4}$ , and  $\frac{6}{8}$  time?



b. Melodic patterns?

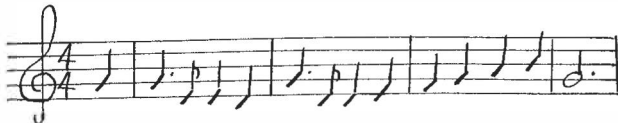


3. Does an initial keyboard experience aid in the development of the ability to recognize on the staff rhythmic and melodic patterns which are heard?

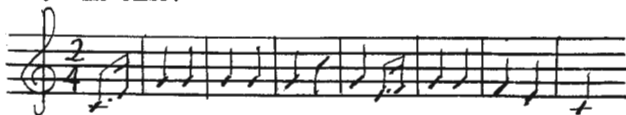


4. Does an initial keyboard experience contribute to the ability to recognize errors in familiar melodies?

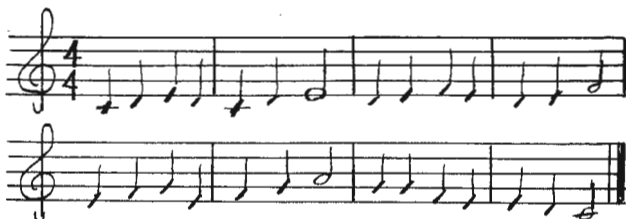
a. In pitch?



b. In time?



5. Does an initial keyboard experience influence the development of the ability to read songs of simple rhythmic and melodic character?



- C. To what extent does an initial keyboard experience contribute to the development of selected skills, namely, the aural and visual perception of rhythmic and melodic patterns?

1. To what extent does an initial keyboard experience contribute to the development of the ability to hear and recognize repeated rhythmic and melodic patterns?
2. To what extent does an initial keyboard experience aid in development of the ability to hear and notate:
  - a. Rhythmic patterns in  $\frac{2}{4}$ ,  $\frac{3}{4}$ ,  $\frac{4}{4}$ , and  $\frac{6}{8}$  time?

b. Simple melodic patterns?

3. To what extent does an initial keyboard experience aid in the development of the ability to recognize on the staff rhythmic and melodic patterns which are heard?
4. To what extent does an initial keyboard experience contribute to the development of the ability to recognize errors in time and in pitch in familiar melodies?
5. To what extent does an initial keyboard experience influence the development of the ability to read songs of simple rhythmic and melodic content?

#### Conditions of the Experiment

The children used in this study were matched groups from the fifth grades of Memorial Elementary School of Winnsboro, Texas. Information concerning the age, health record, and scholarship average of each member of the groups was obtained through conferences with the home-room teachers and from files in the school office. Some knowledge of economic status and musical background was gained through a study of questionnaires which had been prepared for the purpose and by visits in the homes. The California Short-Form Test of Mental

Maturity was given to determine native intelligence and the Revised Seashore Measures of Musical Talents, Series A, was used to measure musical aptitude. On the basis of this information, two groups of children were matched as nearly as possible and the individuals within the groups were paired, so that for each pupil in one group there was a mate in the other having similar health and scholarship records and mental and musical aptitude scores.

One of the matched groups, a control group, will hereafter be referred to as Group I. The other group, which was the experimental section, will be designated as Group II. Conditions under which both groups operated were identical in that the teacher, the classroom, and the time spent with each was the same. Both groups were given the conventional program in music but to Group II was added an initial keyboard experience as the experimental factor. For both groups the study covered a period of eighteen weeks.

#### Plan of Procedure

At the beginning of the experimental period pre-tests were given to determine the degree of musical knowledge which the children had at that time. These consisted of teacher-constructed tests covering the material to be studied during the experimental period and of portions of the Kwalwasser-Ruch

tests which applied to the study. When the results of these has been established actual testing was begun. This was done in the music room where a piano was available at all times. Throughout this period the state-adopted and other music texts were used, supplemented by flash cards and rhythm drills. For the experimental group one movable keyboard was added and for each child there was an individual cardboard keyboard and a copy of Sing and Play, the Oxford Book for Beginners.<sup>1</sup> In both groups efforts were made to reach as nearly as possible the goals set up at the beginning of the experimental period. Then at the end of the period the tests which had been used at the beginning were given again for post-experimental testing. The results of these tests were used to determine the differences in gains made by the control and the experimental groups in the selected musical skills during the period.

This thesis consists of five chapters. Chapter II is concerned with a description of the methods employed in the selection of the two groups which were used for study. Results of the questionnaire and tests are included and factors determining the pairing of the individuals within the groups are clarified. Chapter III presents a description of the music achievement tests which were given at the beginning

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<sup>1</sup>Charles J. Haake, Osbourne McConathy, Gail Martin, and Ernest Schelling, Sing and Play, the Oxford Book for Beginners (New York: Oxford University Press, Inc., 1932).

and the end of the experimental period. Copies of the tests are included, conditions under which the testing was done are described, and results of the pre-experimental testing are shown in tables. Comparisons are made of the groups and of pairs within the groups. Chapter IV is concerned with a discussion of the collection and evaluation of the data. Tables showing results of the post-experimental testing are included. Gains or losses which were determined by the differences in scores of the pre-experimental and post-experimental tests are shown in tables. In Chapter V a summary of the results of the testing is given, comparisons are made, and conclusions are drawn.

## CHAPTER II

### SELECTION OF THE GROUPS FOR STUDY

In order to establish equivalent groups to be used for experimental study, it was necessary to obtain as much information as possible concerning the mental abilities, the socio-economic and musical backgrounds, and the health and scholarship records of the individual members of the fifth grade classes of Memorial Elementary School of Winnsboro, Texas. A period of approximately three months of the fall semester was spent in the procuring of this data and in the matching of the groups.

This period of questioning and study was begun at the end of the first grading period with the giving of questionnaires to the one hundred six students in the three fifth grade classes. From the data gained from these questionnaires the appropriate information concerning the socio-economic conditions and the musical environment was obtained.

In addition to supplying the necessary information concerning the musical environment of the children, the questionnaires enabled the teacher to discover students who had had previous musical training. These students were not used in either of the groups selected for study.



Testing was begun near the close of the second grading period when the California Short-Form Test of Mental Maturity<sup>1</sup> was given to determine mental age. This was followed by the Seashore Measures of Musical Talents<sup>2</sup> which was used to measure hearing capacities for pitch, rhythm, and tonal memory. Scholarship averages and health records were obtained from home-room teachers, and visual and aural defects were discovered through a study of the current findings of the County Medical Officer on his visit to the school.

When all necessary information had been gathered, test results tabulated, and students with previous musical training or physical defects eliminated, it was found that by matching pupils in one of the classes with those of the other two sections it was possible to get fourteen pairs of students of sufficient similarity to allow for comparative study. By following this procedure it was possible to match nine pairs of boys and five pairs of girls.

The fourteen students comprising the control group, hereafter referred to as Group I, were selected from the same home-room and were given the conventional music program. The

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<sup>1</sup>Elizabeth T. Sullivan, Willis W. Clark, and Ernest W. Tiegs, California Short-Form Test of Mental Maturity, Elementary, 1950 Form (Los Angeles Test Bureau, 1950).

<sup>2</sup>Carl Seashore, Don Lewis, and Joseph G. Saetveit, Seashore Measures of Musical Talents, Series A (Camden, N. J.: Education Department, R.C.A. Victor Division, Radio Corporation of America, 1939).

experimental group, or Group II, was composed of students selected from the other two rooms. To this group an initial keyboard experience was given in addition to the conventional music program.

A table showing how the test results and other data were used in matching the groups is given below. This is followed by explanatory information relating to the method used in evaluating the data used in the pairing process.

As an aid in discovering and matching students of similar mental age and intelligence, scores from the California Short-Form Test of Mental Maturity<sup>1</sup> were used. The test was given in the three fifth grade rooms on the same day about six weeks before the beginning of the experimental period. In each case the home-room teacher remained in the room to serve as time-keeper and to maintain as far as possible the normal classroom atmosphere. The instructions to the examiner given in the test manual were followed carefully as were the instructions for administering the test.<sup>2</sup> The children seemed at ease and worked with apparent enjoyment.

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<sup>1</sup>Sullivan, Clark, and Tiegs, op. cit.

<sup>2</sup>Elizabeth T. Sullivan, Willis W. Clark, and Ernest W. Tiegs, Elementary Manual, Grades 5-6-7-8, California S-Form Test of Mental Maturity (California: California Test Bureau, 1950), p. 11.

TABLE I

FACTORS USED IN THE PAIRING OF PUPILS IN THE FIFTH GRADE MUSIC CLASSES OF MEMORIAL  
ELEMENTARY SCHOOL, WINNSBORO, TEXAS, IN THE FORMATION OF EQUIVALENT GROUPS

Pair	Group	Sex	C.A.	M.A.	I.Q.	Scholar- ship	Musical Aptitude			Environment		Health		
							Pitch	Rhythm	Tonal Memory	Social	Musical	Gen.	Eyes	Ears
						Grade	Rank	Rank	Rank					
1	I	M	129	151	117	93	9	9	10	G	P	Good	N.	N.
	II	M	131	152	116	78	10	7	9	G	P	Good	N.	N.
2	I	M	129	149	115	93	9	9	10	G	F	Good	N.	N.
	II	M	128	151	118	88	10	7	9	F	P	Good	N.	N.
3	I	M	124	149	120	93	3	4	5	G	G	Good	N.	N.
	II	M	125	149	119	98	10	4	8	G	P	Good	N.	N.
4	I	M	126	148	117	93	6	4	2	G	P	Good	N.	N.
	II	M	124	148	119	98	9	1	9	G	P	Good	N.	N.
5	I	M	127	148	115	88	10	7	10	G	P	Good	N.	N.
	II	M	130	146	112	98	10	1	5	G	P	Good	N.	N.
6	I	M	130	147	113	88	10	10	10	F	P	Good	N.	N.
	II	M	128	141	110	93	10	10	9	F	P	Good	N.	N.
7	I	M	125	138	110	83	10	10	10	G	G	Good	N.	N.
	II	M	129	139	108	93	6	2	6	G	G	Good	N.	N.

8	I	M	131	138	105	93	8	10	10	F	G	Good	N.	N.
	II	M	129	138	107	88	9	1	9	G	P	Good	N.	N.
9	I	M	132	137	104	88	10	9	10	F	F	Good	N.	M.
	II	M	134	140	104	88	10	6	10	G	F	Good	N.	N.
10	I	F	133	137	103	83	3	7	10	G	G	Good	N.	N.
	II	F	134	138	103	98	5	5	10	F	P	Good	N.	N.
11	I	F	130	138	105	88	9	7	8	G	P	Good	N.	N.
	II	F	132	132	107	88	3	10	10	F	P	Good	N.	N.
12	I	F	124	129	104	93	9	1	10	G	P	Good	N.	N.
	II	F	124	127	104	98	8	8	10	P	P	Good	N.	N.
13	I	F	134	127	95	83	10	10	9	G	P	Good	N.	N.
	II	F	130	135	96	88	10	7	10	G	P	Good	N.	N.
14	I	F	125	122	98	83	8	8	9	G	P	Good	N.	N.
	II	F	129	122	95	83	3	4	10	G	P	Good	N.	N.
Mean	I		128.5	139.86	108.54	90.85	8.14	6.71	8.71					
	II		128.6	139.14	108.29	90.85	8.07	5.21	8.86					

When all the tests had been finished, the books were collected and scored and the results tabulated. From these results the mental ages and intelligence quotients were determined, and the students showing a similarity in these factors were selected and paired. Although there was a slightly greater difference in the mean mental ages of the groups than in the mean intelligence quotients, the difference was not significant. The mean mental age was considered the more important factor in the selection of the pairs. This was because the children tested were under sixteen years of age and was in accordance with the suggestions for interpreting the test results as given in the manual which accompanied the tests.<sup>1</sup>

The scholarship grades were arrived at through consultation with the home-room teachers at the end of the second grading period. Since the grades were given in letters, with each letter having an exact numerical value, the numerical values were recorded and are shown in the table. In these grades the pairs did not show as great a similarity as in the chronological and mental ages and in the intelligent quotients, but since the factors of teacher opinion and pupil effort entered into the determining of the grades, they were considered to be less accurate and therefore of less value than were the other factors.

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<sup>1</sup>Ibid., p. 5.

The Revised Seashore Measures of Musical Talents, Series A,<sup>1</sup> which were used to determine musical aptitude consisted of three double-faced twelve-inch records designed to measure scientifically six fundamental capacities for hearing music. In order to familiarize herself with these and to insure correct procedure in their administration, the examiner gave the tests to several other classes before giving them to the fifth grades. Care was taken in choosing a machine which would reproduce the tones clearly and every effort was made to assure complete understanding of the testing procedure. All of the tests were given, but those on loudness, time, and timbre were held to be of little significance in this study and the results were not tabulated or used. Since the test on rhythm measured the ability to recognize differences in rhythm patterns, and the test of tonal memory measured the ability to recognize differences in tonal patterns, the results of these two tests and of the test on pitch were used and are shown in the table. In accordance with the instructions in the manual which accompanied the Series, the results were not averaged since each test measured a separate and distinct musical factor.<sup>2</sup>

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<sup>1</sup>Seashore, Lewis, and Sæetveit, op. cit.

<sup>2</sup>Carl E. Seashore, Don Lewis, and Joseph C. Sæetveit, Manual of Instructions and Interpretations for the Seashore Measures of Musical Talents (Camden, N.J.: RCA Victor Division, Radio Corporation of America, 1939), p. 4.

The results of these tests are shown in the table in terms of rank rather than by numbers of correct answers. Rank one represents the fewest number of mistakes and therefore indicates the highest musical aptitude, while rank ten is the lowest and indicates the greatest number of errors and the poorest musical aptitude.

Since it was necessary to know as much as possible about the socio-economic and musical backgrounds of the individual children in the groups, each child was requested to supply information asked for on a questionnaire prepared by the teacher. The questionnaire, a copy of which appears in the Appendix, consisted of fourteen items. The first three questions were asked for the purpose of discovering and eliminating all pupils who had had previous musical training. Questions four, five, and six were concerned with socio-economic conditions and the last seven questions were related to musical environment in the home. From the information gained from these questionnaires, each child's home environment was rated as "Poor", "Fair", "Good", or "Excellent" on both socio-economic and musical environment. The procedure used in arriving at these ratings, indicated in Table I by the letters "P", "F", "G", and "E", is shown below.

## Socio-economic Rating Scale for Children:

- |   |           |
|---|-----------|
| 1. Who live with one or both parents, but whose parents are unemployed                            | Poor      |
| or  |           |
| 2. Who live with neither parent   | Poor      |
| 3. Who live with one or both parents, either or both of whom are unemployed a part of the time    | Fair      |
| 4. Who live with one or both parents, either of whom has adequate employment                      | Good      |
| 5. Who live with both parents, the father having adequate employment and the mother keeping house | Excellent |

## Musical Rating Scale for Children:

- |   |           |
|---|-----------|
| 1. Who have no musical instrument except the radio and who listen largely to non-musical programs,  | Poor      |
| or  |           |
| 2. Who have a radio and other musical instrument but whose listening is non-musical   | Poor      |
| 3. Who have a radio and/or television and a musical instrument which some member of the family plays  | Fair      |
| 4. Who have a radio and/or television and other musical instrument in the home and a brother or sister who plays                                    | Good      |
| 5. Who have a radio and/or television and other musical instruments in the home and a family who listen to and participate in good musical programs | Excellent |



Examination of Table I reveals that the rating, "E", does not appear in the table. That is because no children used in this study were found to have such a rating.

To insure the selection of children with no physical defects a careful study was made of the individual health records of the previous years and of the first semester of the current year. All children whose health records showed undue absence due to illness were eliminated. In addition to this, the eyes and ears of all the fifth grade students were examined by the County Health Doctor on his visit to the school in January, 1953. No child found to have less than normal vision or hearing was selected for study. The letter "N" in the table indicates a normal vision and hearing in each child.

In studying the table it will be seen that, though there was a difference of from four to six points in the chronological and mental ages of the different pairs of children and as much as three points difference in the intelligence quotients of some of the pairs, there was less than one point of difference in the mean of the groups in any of these factors. Group I had a slightly higher mean mental age and intelligence quotient than did Group II but the difference was not significant. The scholarship averages were the same.

In the musical aptitude scores Group II showed a

slight, though not significant superiority over Group I in both Pitch and Tonal Memory but ranked lower in Rhythm.

Upon completion of the successful pairing of the twenty-eight students, the necessary preliminary measures had been taken and the groups were ready for study.

### CHAPTER III

#### ADMINISTRATION AND SCORING OF PRE-TESTS OF MUSICAL ACHIEVEMENT

In order to determine as accurately as possible the amount of musical knowledge which each of the selected students possessed at the beginning of the experimental period, the tests covering this field were given just before the close of the first semester and immediately preceding the opening of the second which marked the beginning of the experimental period. The test battery consisted of (1) selected portions of the Kwalwasser-Ruch Test of Musical Accomplishment,<sup>1</sup> and (2) a set of six tests constructed by the investigator and designed to measure selected musical skills important to the study. The latter will hereafter be referred to as Connor Achievement Tests.

The first four tests to be given were chosen from the Kwalwasser-Ruch test booklet.<sup>2</sup> These tests measured the ability to recognize errors of pitch and of time in familiar melodies and an understanding of note and rest values. Since each test was short, all four of these were given in one class period. Each class was tested in its home-room with

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<sup>1</sup>Jacob Kwalwasser and G. M. Ruch, Kwalwasser-Ruch Test of Musical Accomplishment for Grades IV-XII (Iowa City, Iowa: Extension Division, University of Iowa, 1924).

<sup>2</sup>Ibid., pp. 3, 4, and 7.

the home-room teacher present and all the children were encouraged to make an effort to answer all of the questions. The outline of testing procedure given in the manual of directions<sup>1</sup> for administering the tests was followed carefully and the exact amount of time was allowed for each test.

When the tests had been completed the test booklets were collected and scored. Results showed that all of the children were able to answer some of the questions correctly. Out of a possible seventy points, Group I made an average of 14.5 and Group II an average of 20.9 points.

A table showing the mean test scores of the groups and the individual scores of the pairs within the groups follows. A copy of the tests has been included in the Appendix.

Table II

## RAW SCORES MADE ON KWALWASSER-RUCH PRE-EXPERIMENTAL TESTS

Pair	Group	Test I Detection of Pitch Errors	Test II Detection of Time Errors	Test III Knowledge of Note Values	Test IV Knowledge of Rest Values
1	I	5	3	0	3
	II	0	0	6	0
2	I	5	6	6	3
	II	10	3	6	3

<sup>1</sup>Jacob Kwalwasser and G. M. Ruch, Manual of Directions for Kwalwasser-Ruch Test of Musical Accomplishment for Grades IV-XII (Iowa City, Iowa: Bureau of Educational Research and Service, State University of Iowa, 1927).

TABLE II--CONTINUED

Pair	Group	Test I Detection of Pitch Errors	Test II Detection of Time Errors	Test III Knowledge of Note Values	Test IV Knowledge of Rest Values
3	I	10	9	0	3
	II	5	3	6	0
4	I	0	3	6	0
	II	5	3	9	3
5	I	0	3	6	3
	II	5	9	6	3
6	I	10	6	6	0
	II	10	6	3	0
7	I	10	3	0	0
	II	10	9	3	0
8	I	5	3	6	3
	II	10	3	3	12
9	I	0	0	6	3
	II	10	6	0	0
10	I	5	6	3	0
	II	5	3	6	9
11	I	0	12	3	3
	II	5	9	9	6
12	I	5	3	0	3
	II	10	6	6	0
13	I	5	3	3	3
	II	10	6	6	0
14	I	5	6	0	0
	II	0	6	6	3
Totals	I	65	66	45	27
	II	95	72	72	42
Mean Scores	I	4.64	4.71	3.21	1.93
	II	6.79	5.41	5.41	3.21

Because of the need for a piano in the administration of the Connor Achievement Tests, these were given in the music room to each class individually and with only the music teacher present. Two or more forty-five minute class periods were required for each group to complete the tests. The children in each section were encouraged to make an attempt to participate in the testing procedure at all times, but no child of either group was able to score on questions three and four which tested the ability to notate rhythmic and melodic patterns which were heard. Only one child made a worthy attempt to read.

The first of these tests was given for the purpose of measuring the ability to recognize repeated melodic patterns which were heard. It consisted of the playing of three short two-phrase songs, in two of which the melody of the phrases was the same, and in the other the melody of the last phrase was different from that of the first. As an aid in making the instructions clear, an example was provided showing exact repetition in two identical melodic phrases. The teacher played the first phrase of this song several times, allowing the children to hum it silently if they wished. When all the children indicated that they were ready for the second part, the entire song (both phrases) was played once and the children were asked if they thought that the

melody of the last part was the same as that of the first part or different from that of the first part. Most of them thought, correctly, that the last part was the same as the first part and accordingly were instructed to print the letter "S" on the blank by the word "Example."

The same procedure was followed in testing for the recognition of repeated phrases in the other three songs, but in each of these cases no class discussion was held. The first part of each of the songs was played until the children indicated that they were ready to hear the entire song which was played once. Each time the children were instructed to print in the proper blank the letter "S" when they thought that the melody of the last part of the song was like that of the first part and to print the letter "D" when they thought that the melody of the last part was different from that of the first. Each correct answer was given a score of three points.

Test Two was the same type as Test One and the procedure was the same. Its purpose was to measure the pupil's ability to recognize repeated rhythm patterns which were heard. Again four short two-phrase songs were played and this time the children were asked to indicate by an "S" or a "D" printed on the correct blank whether they thought the rhythm of the last part was the same or different from that of the first

part. As before, the example was played for class discovery that the rhythm of the second phrase was the same as that of the first. Again a score of three points was given for each correct answer.

Test Three was constructed so as to measure the student's ability to notate rhythm patterns which were heard in  $\frac{2}{4}$ ,  $\frac{3}{4}$ ,  $\frac{4}{4}$ , and  $\frac{6}{8}$  meter. The striking of the heavy end of a baton against the teacher's desk produced the rhythm.

At the beginning of the test the children were told to listen carefully while the teacher tapped a rhythm pattern in  $\frac{2}{4}$  time. The measure, consisting of two quarter notes, was tapped several times and the children were allowed to tap the pattern on their desks lightly with their fingers as the teacher tapped. Then the teacher called for a volunteer to come to the board and draw a picture of the notes which were heard. When this had been done correctly the children copied these notes on their papers in the blank marked "Example." Then the next three patterns were tapped in the same manner, and each time the children were told to draw on the correct blank pictures of the notes which they heard. The same procedure was followed in tapping the rhythm patterns in  $\frac{3}{4}$ ,  $\frac{4}{4}$ , and  $\frac{6}{8}$  time. Each pattern correctly written was valued at three points.

Test Four was designed to measure the pupil's ability



to write on the staff familiar melodic patterns which were heard. For this test four staves were drawn on the pupil's test sheet and each staff was divided into the necessary number of measures. The correct time signature was also placed at the beginning of each staff and was followed by the first note of the melody to be heard.

At the beginning of the test the children were told that they were to hear a familiar melody played on the piano. It was to be played several times and they were to listen carefully, humming silently to themselves if they wished. Then, with the teacher's help, they were to write the melody on the example staff in Test Four. Since no member of the class was able to write the melody on the board the teacher did so and asked the children to copy it on their papers.

When this had been done the three other melodies were played several times and after the playing of each, time was given for the children to write it on the staff. None of the children were able to do this with any degree of accuracy and most of them made no attempt at all.

For scoring this test a rating scale of five divisions was prepared and a definite numerical value was applied to each division. The scale which is shown below was applied to each of the three melodies so the total possible score on this test was thirty-six points. No points were made on this test.

## RATING SCALE FOR TEST FOUR

Rating		Value
I	Correct: no errors.	12
II	Correct rhythmically and having not more than three errors in pitch, or Correct melodically and having no more than three errors in time.	9
III	Correct rhythmically and ending on the right note but containing many wrong notes, or Correct melodically but containing many errors in time.	6
IV	Containing many errors in both rhythm and melody and showing little understanding of either.	3

For Test Five the children were asked to identify melodies on the staff by numbering them correctly as they were heard. At the beginning of the test the teacher called the children's attention to a short, simple melody which was written on the example staff. She explained that she would play the melody several times while the children would be expected to follow the notes carefully as they listened. This was done until every child understood the instructions.

When the children were ready for the test the teacher told them that they would hear five other melodies but that

they would not hear them in the order in which they were printed. They were cautioned to look closely at the scores as each melody was being played, then to find the picture of the melody on one of the scores and number it correctly. Number one was to be written in the blank above the first melody played for recognition, number two on the blank by the second melody heard and so on until each melody had been numbered. Each correct number was given a value of three points.

For the sixth and last test in the Connor Achievement set, the children were given an opportunity to read a short song of simple rhythmic and melodic content which was chosen for this purpose. Every child was encouraged to make an effort to read either in class or with only the teacher present, but few children were willing to try. These were given a few minutes to look at the song before singing it, but only one child was able to make an acceptable effort. For scoring this test a rating scale, shown below, was prepared.

#### RATING SCALE FOR TEST SIX

Rating		Value
I	Correct: no errors	20
II	Melodically correct and with not more than two errors in rhythm.	15
III	Rhythmically correct and showing an understanding of melodic line but inaccurate in interval relationships.	10
IV	Poor: containing many errors.	5

At the beginning of the period when the Connor Achievement Tests were to be given each child was provided with a booklet containing all the testing material which he would need. Another booklet was prepared for the use of the teacher in giving the tests. Copies of both booklets are included in the Appendix.

Immediately following is a table showing the results of these Connor Achievement Tests. Scores are shown for each pair on each test and the total and mean scores are given for each group.

The low scoring and failure to respond in tests three, four, and six give evidence of the children's lack of training and unfamiliarity with the musical score. Because of this unfamiliarity guessing at answers on these was practically impossible. In this there were the advantages of better possibilities for gain in new experiences and a more reliable measurement of this gain.

TABLE III

RAW SCORES MADE ON CONNOR ACHIEVEMENT PRE-EXPERIMENTAL TESTS

Pair	Group	Test I Recognition of Repeated Melodic Patterns	Test II Recognition of Repeated Rhythmic Patterns	Test III Notation of Rhythmic Patterns	Test IV Notation of Melodic Patterns	Test V Aural Recognition of Melodies on Staff	Test VI Reading
1	I	6	6	0	0	6	0
	II	9	3	0	0	3	0
2	I	6	6	0	0	6	0
	II	9	6	0	0	3	0
3	I	9	3	0	0	3	0
	II	6	9	0	0	6	0
4	I	9	3	0	0	3	0
	II	6	6	0	0	3	0
5	I	3	6	0	0	6	0
	II	3	3	0	0	0	0
6	I	3	9	0	0	15	0
	II	9	3	0	0	3	0

7	I	9	6	0	0	6	0
	II	9	6	0	0	3	0
8	I	9	6	0	0	15	0
	II	9	3	0	0	3	0
9	I	6	0	0	0	0	0
	II	6	6	0	0	3	0
10	I	3	0	0	0	6	0
	II	6	6	0	0	0	5
11	I	6	0	0	0	15	0
	II	6	6	0	0	0	0
12	I	6	3	0	0	9	0
	II	9	6	0	0	3	0
13	I	9	3	0	0	3	0
	II	0	3	0	0	9	0
14	I	3	6	0	0	6	0
	II	9	6	0	0	3	0
Total	I	87	57	0	0	99	0
	II	96	72	0	0	42	5
Mean	I	6.2	4.1	0	0	7.1	0
Scores	II	6.9	5.4	0	0	3.0	.4

## CHAPTER IV

### COLLECTION AND INTERPRETATION OF THE DATA

The period of post-experimental testing was begun during the latter part of the seventeenth week of the second semester. Again the Kwalwasser-Ruch and the Connor Achievement Tests which had been used at the beginning of the semester were administered. In the giving of these, the procedure, the time allowance, and the value attached to each correct answer were the same as for the pre-tests.

After the testing had been completed, the test booklets were collected and scored. The results of these tests were recorded and are shown in the tables below. Scores are shown for each pair on each test and the total and mean scores are given for the two groups.

A study of Table IV reveals that in the Kwalwasser-Ruch Tests Group I showed a definite superiority in ability to detect errors in pitch and in an understanding of note and rest values. This group also showed a slight superiority in the ability to detect errors in time. Group I was the control and group II was the experimental group.

In studying the results of the Connor Achievement Tests it will be observed that Group II showed a greater ability to recognize repeated rhythm patterns and to notate melodic

patterns. In the other four tests Group I had higher scores but the differences in the scores was not significant. The differences in the scores made by the two groups in recognizing repeated melodic patterns and in reading were less than one point. These results are shown in Table V.

TABLE IV

RAW SCORES MADE ON KWALWASSER-RUCH POST-EXPERIMENTAL TESTS

Pair	Group	Test I Detection of Pitch Errors	Test II Detection of Time Errors	Test III Knowledge of Note Values	Test IV Knowledge of Rest Values
1	I	10	9	12	3
	II	5	15	12	6
2	I	15	15	15	15
	II	10	9	6	3
3	I	15	15	12	12
	II	15	15	9	9
4	I	15	15	12	9
	II	10	12	12	6
5	I	20	12	15	6
	II	10	15	15	6
6	I	5	12	9	12
	II	10	6	6	3
7	I	15	6	12	9
	II	10	15	9	9
8	I	15	15	12	12
	II	15	12	12	9
9	I	15	15	15	12
	II	15	15	6	6



TABLE IV--CONTINUED

Pair	Group	Test I Detection of Pitch Errors	Test II Detection of Time Errors	Test III Knowledge of Note Values	Test IV Knowledge of Rest Values
10	I	15	15	9	12
	II	10	15	15	9
11	I	5	12	12	9
	II	5	9	12	9
12	I	10	15	12	12
	II	0	12	6	12
13	I	10	12	12	6
	II	10	12	15	0
14	I	10	15	9	12
	II	15	15	6	3
Total	I	175	183	168	141
	II	140	177	141	90
Mean Scores	I	12.5	13.1	12	14.1
	II	10	12.6	10.1	6.4

TABLE V

RAW SCORES MADE ON CONJIOR ACHIEVEMENT POST-EXPERIMENTAL TESTS

Pair	Group	Test I Recognition of Repeated Melodic Patterns	Test II Recognition of Repeated Rhythmic Patterns	Test III Notation of Rhythmic Patterns	Test IV Notation of Melodic Patterns	Test V Aural Recognition of Melodies on Staff	Test VI Reading
1	I	9	6	30	6	6	5
	II	6	6	18	15	0	5
2	I	9	6	27	6	15	10
	II	9	6	18	12	3	15
3	I	6	6	30	21	6	15
	II	9	9	24	21	9	10
4	I	9	9	36	21	15	15
	II	9	6	27	9	15	10
5	I	9	6	33	12	15	5
	II	9	6	27	12	9	5
6	I	9	6	33	15	9	10
	II	9	6	27	6	9	15

7	I II	6 6	6 6	21 27	3 27	9 15	15 15
8	I II	9 9	6 9	30 30	12 21	9 15	15 10
9	I II	9 9	6 9	33 33	12 15	9 9	10 5
10	I II	9 6	6 9	27 30	27 27	15 9	15 15
11	I II	9 9	6 6	24 21	3 15	15 0	5 5
12	I II	9 9	6 9	27 27	3 24	9 9	5 5
13	I II	6 6	6 9	18 33	18 6	0 9	10 10
14	I II	9 9	6 6	27 33	9 15	15 3	5 5
Total	I II	117 114	87 102	396 375	168 225	147 114	140 130
Mean	I II	8.4 8.1	6.2 7.3	28.1 26.8	12. 16.1	10.5 8.1	10. 9.4

On Tables VI and VII, shown below, are recorded the gains or losses made by each of the pairs and by the groups in the final achievement tests. These figures show the progress made by the pairs and by the groups during the experimental period and indicate whether or not and to what extent an initial keyboard experience has been profitable and worthwhile as a classroom procedure in this particular situation. Following the tables is a discussion of these findings and their implications.

TABLE VI

## GAINS MADE ON KWALWASSER-RUCH POST-EXPERIMENTAL TESTS

Pair	Group	Test I Detection of Pitch Errors	Test II Detection of Time Errors	Test III Knowledge of Note Values	Test IV Knowledge of Rest Values
1	I	5	6	12	0
	II	5	15	6	6
2	I	10	9	9	12
	II	0	6	0	0
3	I	5	6	12	9
	II	10	12	3	9
4	I	15	12	6	9
	II	5	9	3	3
5	I	20	9	9	3
	II	5	6	9	3
6	I	-5	6	3	12
	II	0	0	3	3

TABLE VI--CONTINUED

Pair	Group	Test I Detection of Pitch Errors	Test II Detection of Time Errors	Test III Knowledge of Note Values	Test IV Knowledge of Rest Values
7	I	5	3	12	9
	II	0	6	6	9
8	I	10	12	6	9
	II	5	9	9	-3
9	I	15	15	9	9
	II	5	9	6	6
10	I	10	9	6	12
	II	5	12	9	0
11	I	5	0	9	6
	II	0	0	3	3
12	I	5	12	12	9
	II	-10	6	3	9
13	I	5	9	9	3
	II	0	6	9	0
14	I	5	9	9	12
	II	15	9	0	0
Total Group Gains	I	110	117	123	114
	II	45	105	69	48
Mean Gains in Post- Test Scores	I	7.9	8.4	8.8	12.2
	II	3.2	7.5	5	3.4

TABLE VII  
GAINS MADE ON CONNOR ACHIEVEMENT POST-EXPERIMENTAL TESTS

Pair	Group	Test I Recognition of Repeated Melodic Patterns	Test II Recognition of Repeated Rhythmic Patterns	Test III Notation of Rhythmic Patterns	Test IV Notation of Melodic Patterns	Test V Aural Recognition of Melodies on Staff	Test VI Reading
1	I	3	0	30	6	0	5
	II	-3	3	18	15	-3	5
2	I	3	0	27	6	9	10
	II	0	0	18	12	0	15
3	I	-3	3	30	21	3	15
	II	3	0	24	21	3	10
4	I	0	6	36	21	12	15
	II	3	0	27	9	12	10
5	I	6	0	33	12	9	5
	II	6	3	27	12	9	5
6	I	6	-3	33	15	-6	10
	II	0	3	27	6	6	15

7	I	-3	0	21	3	3	15
	II	-3	0	27	27	12	15
8	I	0	0	30	12	-6	15
	II	0	6	30	21	12	10
9	I	3	6	33	12	9	10
	II	3	3	33	15	6	5
10	I	6	6	27	27	9	15
	II	0	3	30	27	9	10
11	I	3	6	24	3	0	5
	II	3	0	21	15	0	5
12	I	3	3	27	3	0	5
	II	0	3	27	24	6	5
13	I	-3	3	18	18	-3	10
	II	6	6	33	6	0	10
14	I	6	0	27	9	9	5
	II	0	0	33	15	0	5
Total Group Gains	I	30	30	396	168	48	140
	II	18	30	375	225	72	130
Gains in Post-test Scores	I	2.2	2.1	28.3	12	3.4	10
	II	1.3	2.1	26.8	16.1	5.1	9

A study of the differences in gains made by the two groups, as shown in Tables VI and VII, reveals that at the end of the experimental period Group I showed a superiority in seven of the tests, Group II had made greater gains in two of the tests, and both groups showed the same gain in one test. When the "t" test of significance was applied to these scores, it was found that there were significant differences in the gains made by the two groups in three of the Kwalwasser-Ruch tests. In the first of these (the gains made by Group I in the detection of pitch errors) significance was present at the five per cent level of confidence. In the tests over the knowledge of note and rest values, Group I again showed superior scores. These were significant at the one per cent level. No significant differences were found for the other tests.

It will be observed that Group I, the control group to whom no initial keyboard experience had been given, showed the greater gains in seven of the ten tests and that the only significant gains were made by this group. These findings would seem to indicate that an initial keyboard experience for children of upper elementary grades was not a profitable and worthwhile procedure. Before definite conclusions could be drawn some examination of the final scores and their relation to the problem was necessary.



One of the first observations made upon studying the final scores was that the two tests in which Group I showed the most significant gains were tests of factual knowledge. These tests, which measured a knowledge of note and rest values, were the only ones given in the study which pertained to the mechanics of music rather than to musical meanings.

Somewhat contrary to the above finding is the fact that in the test which measured the ability to notate melodic patterns Group II made a gain in mean score of 16.1 as compared with that of 12 made by Group I. Since this test involved the ability to hear, to visualize, and to write melodic musical ideas, it required more skill than did any of the other tests. The superiority of Group II in this, the most musically complex of the tests, seems to indicate that a contribution to the development of musical skills had been made by the inclusion of an initial keyboard experience in the classroom.

A third observation which was made when comparing the differences in test results and gains was that, although Group I, to whom no initial keyboard had been given, made significant gains in three of the ten tests and minor gains in four of the other, the gains tended to become less as the tests grew in complexity. On the other hand, Group II, whose music program had included an initial keyboard experience,

made comparatively poorer gains in those tests involving factual knowledge and greater gains in those requiring more complex musical skills. The gains made by the two groups were similar in tests of moderate difficulty.

In keeping with this observation was the discovery that in those tests which required only visual or aural comprehension of melody or rhythm, Group I made better scores. On the other hand, in the two tests requiring both visual and aural comprehension of both rhythm and melody, Group II was superior.

The above findings suggested the possibility that a greater length of time for experimental study might have resulted in more significant gains by Group II. At the beginning of the semester, when finer muscular co-ordination was required of this group, as many as twelve class periods were needed for the learning and playing of one song by each member of the class. As other songs were presented the time necessary for the learning and playing of each song decreased. By the end of the semester all of the children were able to play and sing a song in one class period. This was possible because the problems of finding the correct hand position, the right keys on the piano, and the proper fingering no longer took so much of the child's attention. In all of the children muscular co-ordination had improved, so they were

able to give more thought to the music itself. It seems reasonable to assume that the acquisition of musical skills had increased and would continue to increase accordingly. It is quite possible that the presence of two pianos in the classroom and the sending of more than one child to each piano at the same time would have speeded learning and been a better procedure.

## CHAPTER V

### SUMMARY AND CONCLUSIONS

#### Summary

It was the purpose of this study to investigate through experimental procedure the effects of an initial keyboard experience on the development of selected musical skills in children of upper elementary grades.

An attempt was made to determine: (1) whether or not the inclusion of an initial keyboard experience for all children of the upper elementary grades is profitable and worthwhile as a regularly adopted classroom procedure; (2) in what ways an initial keyboard experience during the upper elementary years may be expected to influence musical development; and (3) to what extent an initial keyboard experience influences the development of selected musical skills.

To find the answers to these questions, matched groups from the fifth grade classes of Memorial Elementary School of Winnsboro, Texas, were selected for study and testing. Group I, designated as the control group, was taught in the conventional manner. Group II, the experimental group, was given an initial keyboard experience in addition to the conventional program. At the beginning of the experimental

period, both groups were given tests of musical achievement consisting of portions of the Kwalwasser-Ruch Tests and others prepared by the teacher. These tests were administered again at the end of the experimental period. Then a comparison was made of the scores of the pre-experimental and the post-experimental tests and the gains made by the two groups were determined. The differences were treated statistically, through application of the "t" test of significance. Interpretation of the data was made and conclusions were drawn.

### Conclusions

After a careful study had been made of the gains shown by the two groups at the end of the experimental period, the following conclusions were drawn:

1. The inclusion of an initial keyboard experience in the regular classroom procedure was shown to have some value in the development of musical skills of the children participating in the study.

2. The children in Group I, to whom no initial keyboard experience had been given, made significant gains in three tests in the Kwalwasser-Ruch group. These tests covered detection of pitch errors, knowledge of note values, and knowledge of rest values.

3. In those tests concerning the mechanics of music, Group I was superior to those of Group II which had the

initial keyboard experience.

4. In tests requiring either seeing or hearing of one of the elements of music (melody or rhythm) the gains of the two groups showed no significant differences.

5. In tests requiring co-ordination of both ear and eye in the comprehension of both rhythm and melody, Group II showed some superiority. These results were not statistically significant, however.

6. An initial keyboard experience appeared to make some contribution to the development of the more complex musical skills, such as notating melodic patterns and demonstrating aural recognition of melodies on the staff.

#### Recommendations

In the light of conclusions developed from the data of this study, further investigation along the lines of this experiment seem warranted. The following recommendations are made in the interest of added clarification of the contribution the initial keyboard experience is in a position to make in public school situations:

1. A similar study should be made with a longer experimental period as a means of determining to what extent significant differences between the two groups might be achieved for purposes of prediction.

2. A similar study should be made in which a larger sampling of matched groups is obtained.

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## APPENDIX

## QUESTIONNAIRE

Name \_\_\_\_\_ Date \_\_\_\_\_

Age last birthday \_\_\_\_\_ Home-room teacher \_\_\_\_\_

Do you play a musical instrument? \_\_\_\_\_ What kind? \_\_\_\_\_

Do you live with your parents? \_\_\_\_\_

What is your father's occupation? \_\_\_\_\_

What is your mother's occupation? \_\_\_\_\_

Have you any brothers and sisters? \_\_\_\_\_ How Many? \_\_\_\_\_

Does your father play a musical instrument? \_\_\_\_\_ What  
kind? \_\_\_\_\_Does your mother play a musical instrument? \_\_\_\_\_ What  
kind? \_\_\_\_\_Do your brothers and sisters play musical instruments? \_\_\_\_\_  
What kind? \_\_\_\_\_Do you have a musical instrument in your home? \_\_\_\_\_  
What kind? \_\_\_\_\_

Do you have a radio? \_\_\_\_\_

Do you have television? \_\_\_\_\_

Name two of your favorite programs:

1. \_\_\_\_\_

2. \_\_\_\_\_

# KWALWASSER RUCH TEST OF MUSICAL ACCOMPLISHMENT

## TEST 3. DETECTION OF PITCH ERRORS IN A FAMILIAR MELODY

DIRECTIONS: The song "America" is written below. One measure has been crossed out because the melody is wrong. Five other measures are wrong. Hum over the melody to yourself and cross out all five wrong measures.

Begin here:



Test 3. Number right  $\times 5 =$  Score  
[3]

## TEST 4. RECOGNITION OF TIME ERRORS IN A FAMILIAR MELODY.

DIRECTIONS: The song "America" is written below. One of the measures has been crossed out because it has the wrong number of beats. Five other measures are wrong. Hum over the song and cross out all five wrong measures.

Begin here:



Test 4. Number right  $\times 3 =$  Score







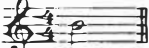























## TEST 8. KNOWLEDGE OF NOTE VALUES

DIRECTIONS: In the measures below a note has been left out of each.

You are to draw a line under the note needed to complete the measure.  
The sample is already marked as it should be.

SAMPLE:  The note needed is     

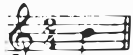





Begin here.

1		The note needed is						1
2		The note needed is						2
3		The note needed is						3
4		The note needed is						4
5		The note needed is						5







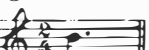





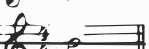











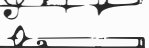





Test 8 Number right.....  $\times 3 =$  Score.....

## TEST 9. KNOWLEDGE OF REST VALUES

DIRECTIONS: The five measures below are incomplete and need a rest to complete them. You are to draw a line under the rest needed to complete the measure. The sample is already marked as it should be.

SAMPLE:  The rest needed is     

Begin here.

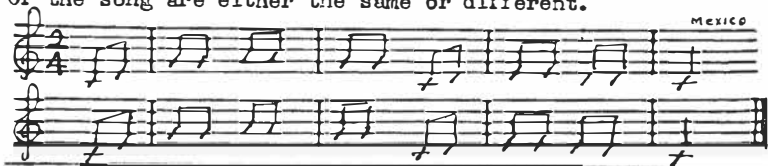
1		The rest needed is						1
2		The rest needed is						2
3		The rest needed is						3
4		The rest needed is						4
5		The rest needed is						5

Test 9 Number right.....  $\times 3 =$  Score.....

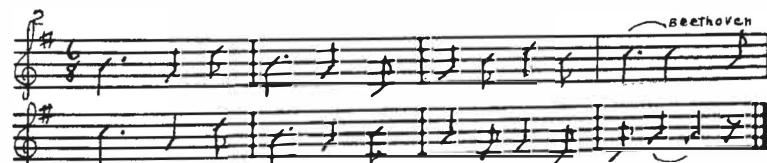
## CONNOR ACHIEVEMENT TEST: TEACHER'S COPY

## TEST I: RECOGNITION OF REPEATED MELODIC PATTERNS

Example: To be played for class discovery that both phrases of the song are either the same or different.



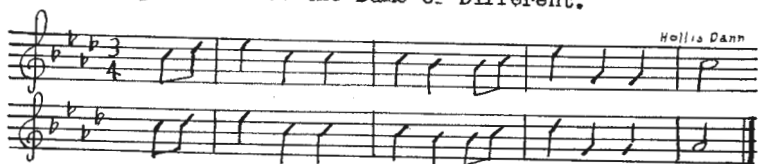
## TEST



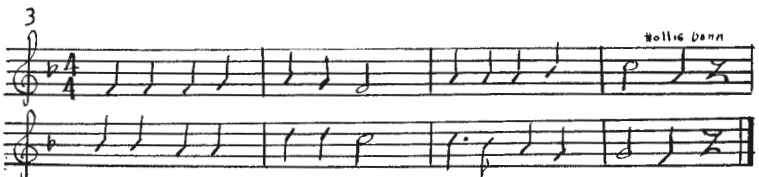
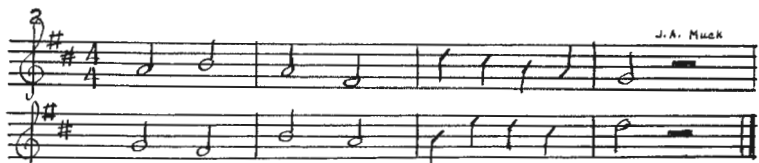
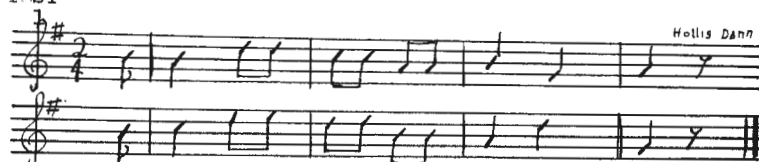
Number correct X 3=\_\_\_\_\_

## TEST II: RECOGNITION OF REPEATED RHYTHMIC PATTERNS

Example: To be played for class discovery that both phrases of the song are either the Same or Different.



## TEST


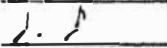



Number correct X 3 = Score \_\_\_\_\_

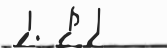
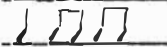
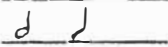


## TEST III: NOTATION OF RHYTHMIC PATTERNS


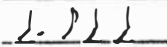

Example:  $\frac{2}{4}$  time 

Test 1   
 2   
 3 

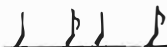


Example:  $\frac{3}{4}$  time 

Test 1   
 2   
 3 

Example:  $\frac{4}{4}$  time 

Test 1   
 2   
 3 

Example:  $\frac{6}{8}$  time 

Test 1   
 2   
 3 

Number correct X 3 = Score \_\_\_\_\_

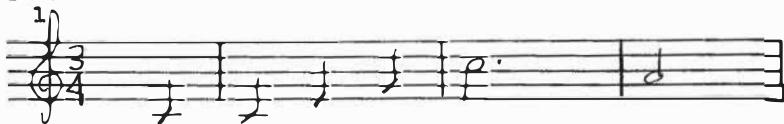
#### TEST IV: NOTATION OF MELODIC PATTERNS

**Example:**

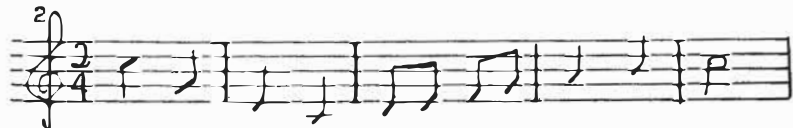


## TEST

1



2



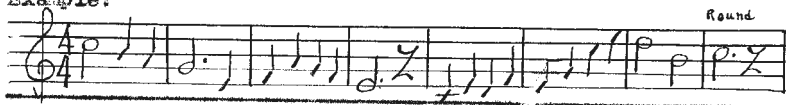
3



Number correct X 12 = score \_\_\_\_\_

TEST V: RECOGNITION OF RHYTHMIC AND MELODIC PATTERNS WHICH ARE HEARD

Example:

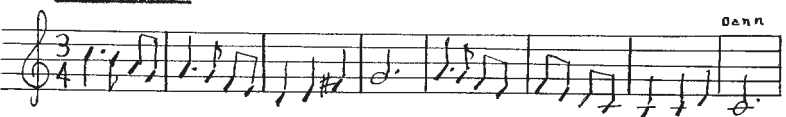


TEST

NO. 1



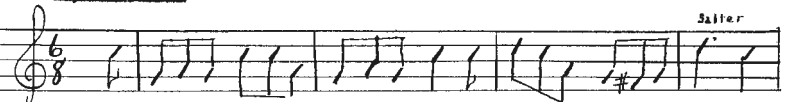
NO. 2



NO. 3



NO. 4



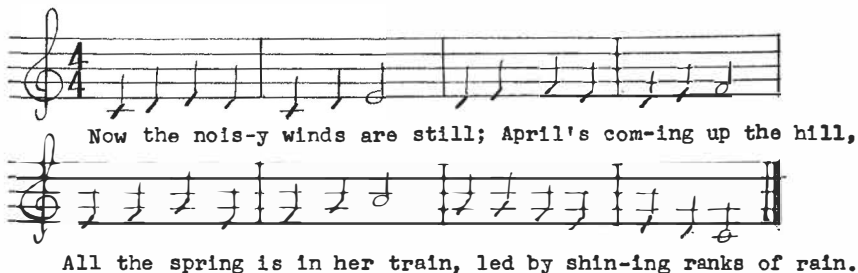
NO. 5



Number correct X 3 = score \_\_\_\_\_

TEST VI: ABILITY TO READ SONGS OF SIMPLE RHYTHMIC AND  
MELODIC CHARACTER

Now the Noisy Winds Are Still  
M.M.D. Mary Mapes Dodge



Now the nois-y winds are still; April's com-ing up the hill,  
All the spring is in her train, led by shin-ing ranks of rain.

Value = 20 points

## CONNOR ACHIEVEMENT TEST: STUDENT'S COPY

## TEST I: RECOGNITION OF REPEATED MELODIC PATTERNS (S or D)

Example:     S    

Test

1                     2                     3                     No. right X 3 = Score         

## TEST II: RECOGNITION OF REPEATED RHYTHM PATTERNS (S or D)

Example:     S    

Test

1                     2                     3                     No. right X 3 = Score         

## TEST III: NOTATION OF RHYTHMIC PATTERNS

A. In  $\frac{2}{4}$  timeExample:   /  /  1                     2                     3

B. In  $\frac{3}{4}$  time

Example: 

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

C. In  $\frac{4}{4}$  time

Example: 

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

D. In  $\frac{6}{8}$  time

Example: 

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

Number correct X 3 = score \_\_\_\_\_

## TEST IV: NOTATION OF MELODIC PATTERNS

Example:

## Test



Number correct X 12 = score \_\_\_\_\_

TEST V: RECOGNITION OF RHYTHMIC AND MELODIC PATTERNS WHICH ARE HEARD

Example:



Test:

No. \_\_\_\_\_



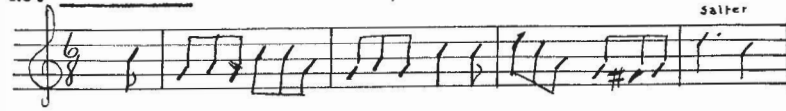
No. \_\_\_\_\_



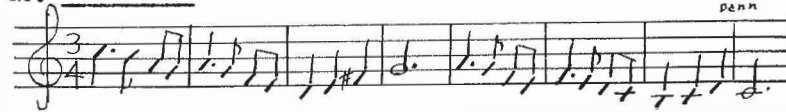
No. \_\_\_\_\_



No. \_\_\_\_\_



No. \_\_\_\_\_



Number correct X 3 = Score \_\_\_\_\_