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MISSOURI JOURNAL OF RESEARCH IN MUSIC EDUCATION

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N.B. All contributors are advised to keep a copy of any manuscript submitted. The Editorial Committee cannot be responsible for loss of manuscripts.

PREFACE

The *Missouri Journal of Research in Music Education*, published as a Bulletin of the State Department of Education, is devoted to the needs and interests of the school and college music teachers of Missouri and the nation. This issue, Volume III, Number 1, is the eleventh to appear in as many years.

The members of the Editorial Committee are grateful to those readers who have written suggestions concerning the content of past issues and request that criticisms and suggestions, always welcome and never unheeded, again be sent to the Editor concerning the content of this issue. We strive for a reasonable balance among music theory, history, philosophy or aesthetics, and pedagogy. It is difficult to judge how successful we are without reader response.

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— THE EDITOR

THE PARKER ROAD PROJECT: AN EXPERIMENT ON THE EFFECTS OF YOUNG AUDIENCE CONCERTS AND A RELATED CURRICULUM ON THE COGNITIVE AND AFFECTIVE DEVELOPMENT OF ELEMENTARY SCHOOL CHILDREN

*John Milak
Washington University, St. Louis*

PURPOSE

Young Audience Chapters have become well established in many areas of the country. These groups provide an important community function by providing high quality musical performances by small ensemble groups of professional musicians for schools. To gain more information concerning the effects of these concerts on the children who are exposed to them, the St. Louis Chapter of Young Audience, with the financial support of the Missouri State Council on the Arts and the Ferguson-Florissant School District, proposed a systematic study to elicit information regarding the effectiveness, both cognitively and affectively, of Young Audience Concerts and a special curriculum designed in coordination with these concerts. The scope of this project was to determine the effects of the concerts and the special curriculum on the sixth grade students of the Parker Road School, an elementary school in the Ferguson-Florissant District. Information gained from this study would be used in planning future Young Audience Concerts and a supporting curriculum.

PROJECT DESIGN

A curriculum based on the dimensions of music was written by Sister Tobias Hagan (See Appendix A.) It consists of a twelve-week program with two meetings each week and was designed to coordinate with six Young Audience Concerts. (See Appendix B.) The format of this curriculum is flexible and it could easily be modified for use with other types of Young Audience Concert programs.

Under the direction of Dr. Wynne Harrell, music supervisor of the Ferguson-Florissant School District, four sixth grade classes of about thirty students each were selected from the Parker Road School for the purpose of this project which was done during the spring semester of the 1971-1972 school year. The principal of the school reported that the classes were randomly assigned at the beginning of the school year so the groups were considered randomized in respect to all variables. All four classes were instructed by Elizabeth Hutcherson, the regular music teacher, who was thoroughly prepared to teach the special curriculum. In order that the effects of the concerts and the special curriculum could be separated for purposes of analysis, the classes were given the following combinations of variables:

Class A — Treatment and Concerts. This group was taught the special curriculum and heard six Young Audience Concerts during the twelve weeks.

Class B — Concerts Only. This group received the traditional music instruction of the school rather than the treatment of the special curriculum. They heard the six Young Audience Concerts, but not in the same audience with Class A.

(The reason for having Classes A and B in separate audiences is that the inductive approach used by Young Audience musicians creates a situation in which the students can, in a sense, teach each other. Therefore, comments by students in Class A could prejudice the test results of students in Class B, particularly if Class A students were significantly influenced by their special curriculum. Both audiences included additional students.)

Class C — Treatment Only. The third group was given the special treatment of the curriculum given Class A, but did not hear the Young Audience Concerts. Only recordings were used for listening experiences.

Class D — No special treatment or concerts. This group was taught only the traditional music instruction of their school district.

TEST PROCEDURES

The four classes were given identical pre and post tests which had been designed to measure the cognitive change; i.e., the subject matter learning which occurred as a result of the various treatments and the affective change; i.e., the change in the students' attitude towards music which occurred during the course of the study.

The tests designed to measure cognitive changes (See Appendix C.) were as follows:

1. Experimental Curriculum Test (15 points)

These questions were derived from the special curriculum and were used to measure the effectiveness of this curriculum.

2. Regular Curriculum Test (15 points)

These questions were derived from the regular school music curriculum and were used to measure the effectiveness of this curriculum.

3. General Knowledge Test (15 points)

These questions were derived from areas of overlap between the special and regular curriculums and from material taught in previous courses.

4. Music Achievement Test (15 points)

These questions are part of the Richard Colwell "Music Achievement Test" and are designed to measure the ability to recognize and identify the sound of instruments both in solo and orchestral context.

5. Instrumental Recognition Test (20 points)

The students were shown pictures of musical instruments and asked to write down their correct names. The purpose of this test was to measure the students' ability to visually recognize and recall the names of the instruments.

The first three tests were based upon the curriculums used in this study and were combined into one test in the final format. The music teacher did not know the questions on these tests to prevent any type of teaching prejudice. In general, all five parts of the tests together involved about 50% recall answers and 50% recognition answers.

The tests designed to measure affectual change (See Appendix D.) were as follows:

1. General Music Attitude (18 statements)

This test consisted of an attitude rating scale which determined each student's amount of agreement or disagreement for both positive and negative attitudes towards music.

2. Attitude Towards Performing Groups (6 statements)

This test consisted of an attitude rating scale which determined each student's like or dislike for the groups which performed in the Young Audience Concerts.

3. Instrument Preferences (20 instruments)

This test consisted of an attitude rating scale which determined each student's like or dislike for certain musical instruments. These instruments were further defined as those which the students thought were used in "classical" music or "popular" music or in both types of music.

The General Music Attitude Test was designed by carefully selecting those attitudes which were considered as positive attitudes towards music and those which were considered as negative attitudes towards music. For example, the statement, "I wish I could hear more classical music," was considered a positive attitude whereas the statement "Listening to any music is a waste of time," was considered a negative attitude. The statements were phrased so that many of the negative attitudes appeared

to be stated in a positive manner. This was done to prevent the students from giving biased answers. The grading scale which was used to evaluate the answers was a +3 through -3 scale with an inferred 0 point. If a student agreed very much (MA) with a positive attitude statement, then his answer was scored with a +3; if a student agreed very much (MA) with a negative attitude statement, then his answer was scored with a -3. A student who did not wish to rate the statement or did not understand its meaning, was given a score of 0. The final analysis composed the differences in these numerical scores on each statement between the pre and post tests.

The Attitude Towards Performing Groups Test was included in the last part of the General Music Attitude Test and consisted of statements about each of the performing groups. The same grading technique used in the previous test was used to evaluate the answers on this test.

The Instrument Preference Test used the same type of grading scale but on a like-to-dislike continuum. The purpose of this test was to obtain a measure of how student's preferences for various types of instruments changed during the course of the different treatments. In order to interpret the results of this test, the students were asked to classify each instrument into three general categories; popular, classical, and both. If the student thought that the instrument was used only in popular music, (which includes folk, rock, and musicals) then he would classify the instrument as a "popular" instrument. If the student thought that the instrument was used only in classical music, (general definition intended) then he classified the instrument as a "classical" instrument. If the student thought that the instrument was used in both types of music then he classified the instrument as a "both" instrument. These classifications made by each student were tallied and the instruments were grouped in these corresponding categories.

The first form of the attitude tests included statements about subjects other than music. The reason for this format was to make the students unaware of the purpose of this test to prevent prejudice. The final question on the first part of this form was a question about the nature of the test. Only two out of one hundred thirty-one students who took the pre-test reported that they thought the statements were about music. However, because of the nature of some of the questions with reference to politics and current events, some of the parents of the students expressed great concern about the test, and it was decided that the more controversial subjects be omitted from the final version of the test. Unfortunately, the students were aware of the nature of the test at the time of the post-test. This awareness may have caused a prejudice which affected the results of the attitude tests.

TEST RESULTS — COGNITIVE TESTS

Figures 1 through 5 show the average in raw scores for the cognitive tests. Using the t-test significance, it was found that no significant difference (.05 level) existed between the means of the pre-test scores. This information reinforces the original assumption that the groups were randomized, at least in terms of their musical achievement.

The total difference between the pre- and post-test means are as follows:

Class A = 13.16
Class B = 8.44
Class C = 12.94
Class D = 6.00

D = 2.00 at .01*

*This is an algebraic solution of the t-test of significance formula. D equals the least amount of difference between the means which is necessary to exceed the .01 level of confidence. Differences equal to or greater than this amount can be considered statistically significant.

The following statements can be made about the cognitive tests in general.

1. A significant difference in the amount of learning as defined by the cognitive tests, did occur between the groups.
2. The classes which received the special curriculum significantly out-performed those classes which received the regular curriculum.
3. The classes which received the concerts significantly out-performed the classes which did not hear the concerts but not as greatly as those classes which received the curriculum.
4. The class which received the special curriculum and the concerts slightly out-performed (not significantly) all the other classes.

Figures 6 through 10 show the classes grouped with respect to the concert and the curriculum variables. The average of Classes A + B as compared with the average of Classes C + D gives results with respect to the concert variable and the average of Classes A + C as compared with the average of Classes B + D gives results with respect to the curriculum variable. Each chart also contains the algebraic solution of the t-test of significance for its .01 level of confidence. Differences which equal or exceed this amount are significant at the .01 level. Those comparisons that are significant are marked with an asterisk.

The following statements can be made about the specific cognitive tests.

1. The difference of means with respect to the curriculum variable for the experimental curriculum was significant.
2. The difference of means with respect to the curriculum variable for the general knowledge test was significant.
3. The difference of means with respect to the curriculum variable for the instrumental recognition test was significant.

INTERPRETATION — COGNITIVE TESTS

Although the analysis of the total difference of the means produced significant results for both the concerts and curriculum, individual analysis by test shows that the special curriculum had a much greater effect on the amount of learning which occurred during the treatments. As these tests were designed around the two curriculums and not the concerts, it is possible that the tests were not sensitive to any learning which occurred during the concerts. It is interesting to note two more things about the results.

1. The classes which received the regular curriculum did not outperform those classes which received the special curriculum on the regular curriculum test.
2. The scores on the music achievement test, which involved recognizing the sound of instruments, were higher for the classes which received the concerts, however, this difference was not significant.

In summary, the Young Audience Concerts and the special curriculum did have a significant affect on the cognitive development of the sixth grade students of the Parker Road School. The curriculum affected the amount of learning to a greater degree than the concerts. The best results were obtained by the class which received the curriculum and the concerts but these results did not differ significantly from the class which received only the curriculum.

TEST RESULTS — AFFECTIVE TESTS

Figures 11 through 14 are the test results for the attitude tests with respect to the average number of students who gained attitude points for each question and the average number of attitude points gained or lost for each question. Bars which extend to the left indicate negative gains and bars which extend to the right indicate positive gains. Figures 13 and 14 are the results of the instrumental preference test with respect to overall scores, and with respect to sub-scores on each of the instrument classifications mentioned above. The total difference between the pre- and post-test means with respect to average gain for each question are as follows:

Class A = +16.35
Class B = -13.1
Class C = -12.4
Class D = -14.5

D = 4.00 at .01*

*See note above under cognitive scores.

The following statements can be made about the attitude tests in general.

1. The class which received the special curriculum and the concerts was the only class that had an overall improvement in attitude.

2. The difference between the means of Class A as compared to the other classes is significant.

INTERPRETATION — ATTITUDE TESTS

The results of the general music attitude test (Figure 11) showed that all the classes had negative average gains. These negative gains were equally distributed for both the positive and negative attitude statements. In other words, the students did not only agree less with "positive" attitude statements but also agreed more with the "negative" attitude statements.

Classes A and C had the least amount of negative gains and the highest amount of students who showed a positive gain. Further analysis showed that the curriculum had a significant effect on this test.

The results of the Attitude Towards Performing Groups test showed that Classes A and B, those which received the concerts, were the only classes which had a positive gain in attitude points. These classes also had the higher number of students which moved in a positive direction. Further analysis showed that the classes which received the concerts significantly improved their attitude towards the performing groups over those classes which did not receive the concerts.

The result of the Instrumental Preference test showed that Class A, the class which received the special curriculum and the concerts, showed a large positive gain in attitude toward instrument preference; all the other classes had negative gains. Class A also had the largest amount of positive gain in "classical" instruments, and the largest amount of students who improved for each question. Further analysis indicated that Class A significantly improved its attitude toward musical instruments over all the other classes. The only treatment to have an effect on this test was the concerts in combination with the special curriculum.

In summary, the Young Audience Concerts and the special curriculum did have an affect on the affective development of the sixth grade students at the Parker Road School. However, this effect was in certain areas negative in nature. Several possible assumptions are forwarded as reason for these results.

1. The conditions under which the post-test was given were different than the pre-test. This is explained earlier in the paper.
2. The students' attitudes may have been measured too closely to the treatments. The students were saturated with six concerts in a short period of time. It may take some time before the effects of these concerts have influenced the students' attitudes.
3. Since it is very difficult to measure attitudes, the tests may not have been sensitive to the affectual changes that it was designed to measure.

Whatever the reasons for these results, the meaning of the significance between the groups becomes less powerful. The only class that produced any significant attitude change in a positive direction was the class that received the special curriculum in combination with the concerts; however, even this class had a negative gain on one of the tests.

One assumption for the reasons the attitude tests indicated negative gains was that the post-test was administered too soon after the treatments ended. To test this assumption the affective tests were administered again to the same students in the following fall semester of the 1972-1973 school year. The results of this test were as follows:

1. No significant changes occurred in any of the class averages for all of the three tests.
2. None of the negative gains were reversed, and none were increased significantly.
3. The number of students who had positive gains slightly varied, but not significantly.
4. The students who had positive gains increased these gains an average of 1.5 points for each statement.
5. The students who had negative gains increased these gains an average of 1.4 points for each statement.

These results indicate that the only change noted in the attitude of the students which occurred during the six-month interval between the post-test and the retest was that the students who had a positive gain increased their gain and the students who had a negative gain increased their gain. An analysis of individual statements indicated that there was no significant changes between the distribution of negative gains for both the positive and negative attitude statements. The results did not indicate a statistical regression of any sort.

SUMMARY

Meaningful information was obtained about the effects of the Young Audience Concerts and the special curriculum. The results indicated that the class which received the concerts in combination with the curriculum achieved the higher overall test scores, especially on the attitude tests. The class which received the special curriculum only slightly outperformed the class which received the concerts. The class which received only the regular curriculum scored the lowest on the tests. From this information it is possible to deduce that the Young Audience Concerts had more impact on the students when they were combined with a related curriculum.

The results also indicated a need for further investigation in the areas of attitude development. Because this project was done in only one school and the curriculums were taught by only one teacher, it is not valid to generalize these findings to a larger population. However, the designs and tests used in this project could serve as a model for more detailed and larger investigation in this area.

Experimental Curriculum Scores (Average)

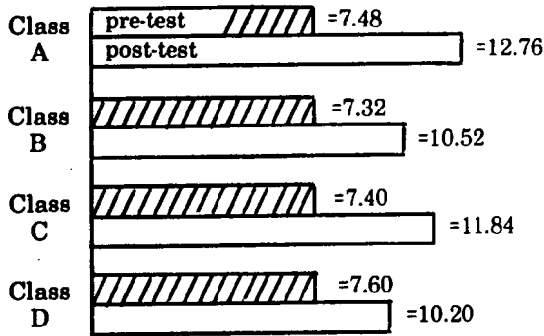


Figure 1

Regular Curriculum Scores (Average)

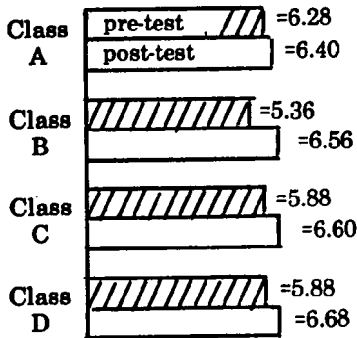


Figure 2

General Knowledge Scores (Average)

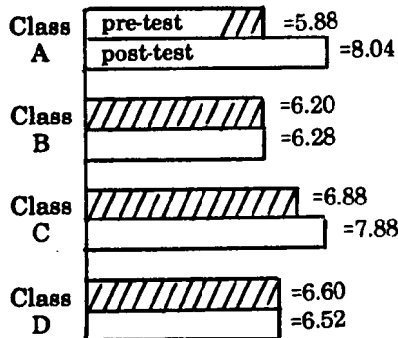


Figure 3

Music Achievement Scores (Average)

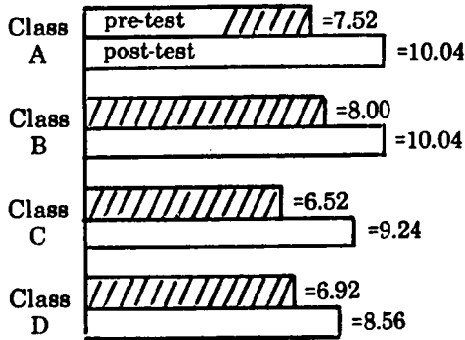


Figure 4

Instrument Recognition Scores (Average)

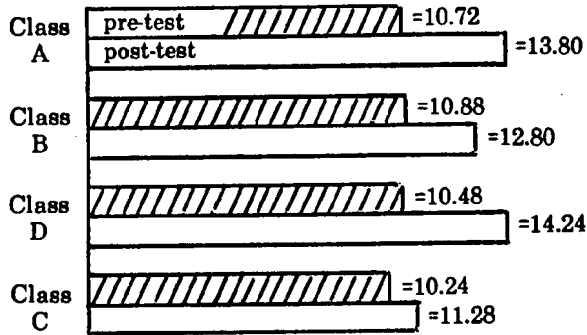


Figure 5

Experimental Curriculum D=1.2 at .01

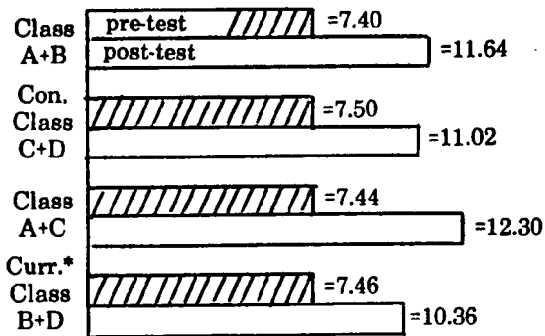


Figure 6

Regular Curriculum D=1.2 at .01

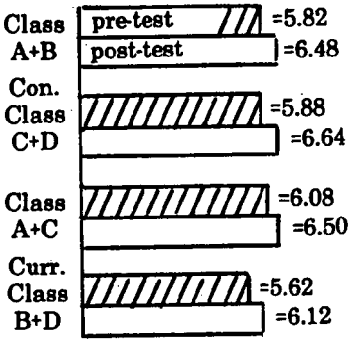


Figure 7

General Knowledge D=1.2 at .01

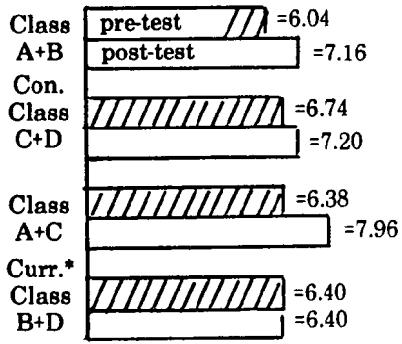


Figure 8

Music Achievement D=1.2 at .01

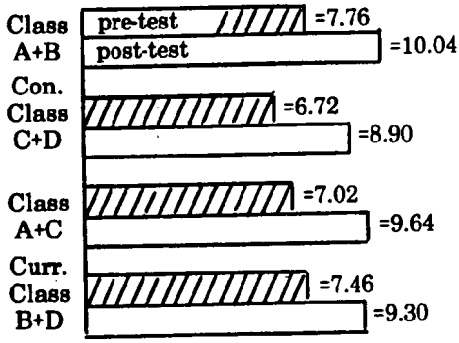


Figure 9

Instrument Recognition D=1.9 at .01

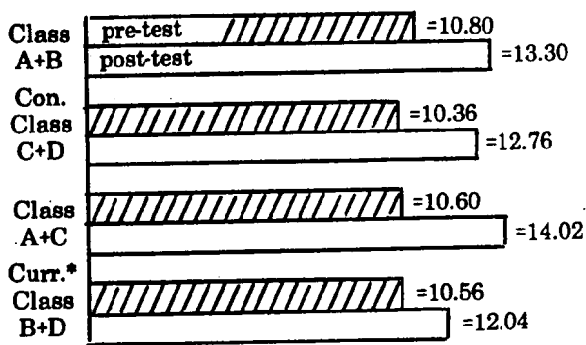


Figure 10

General Music Attitude

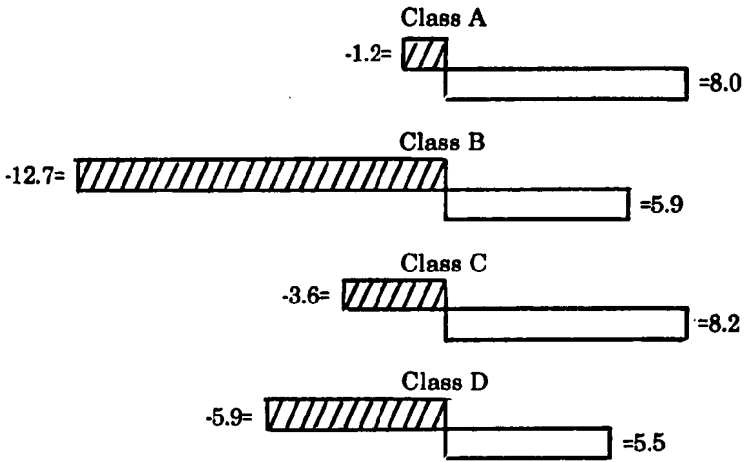


Figure 11

Attitude Towards Performing Groups

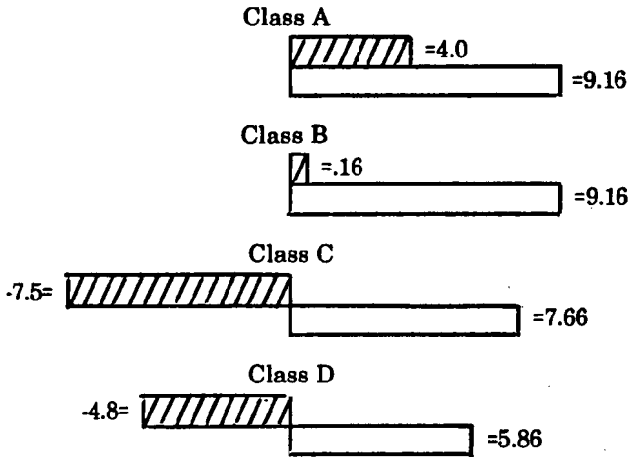




Figure 12

 = Average number of attitude points gained or lost for each question.

 = Average number of students who moved in a positive direction for each question.

Instrumental Preferences

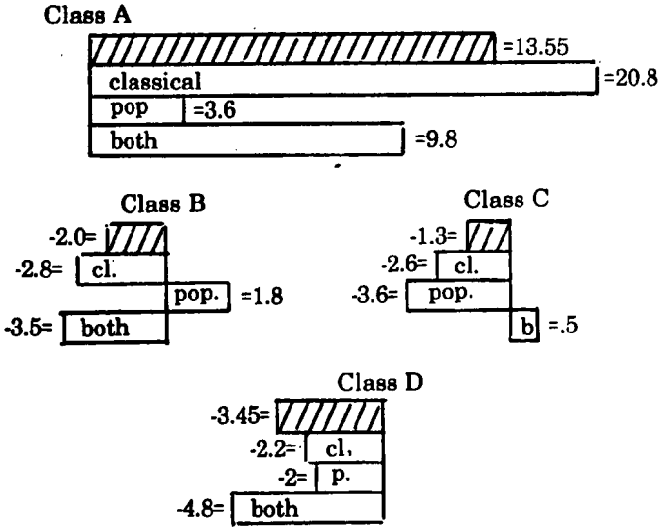


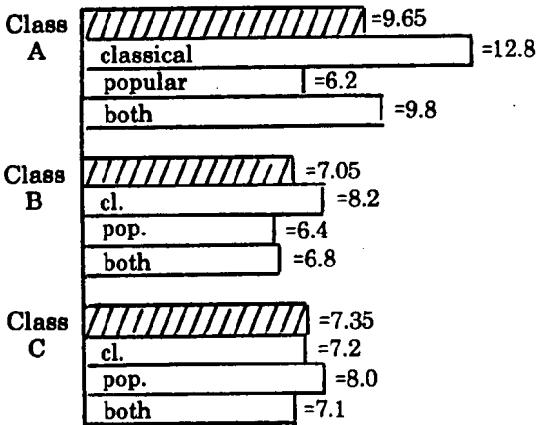


Figure 13

 = Average number of total attitude points gained or lost for each instrument.

 = Average number of attitude points gained or lost by classification of instrument.

Instrumental Preferences



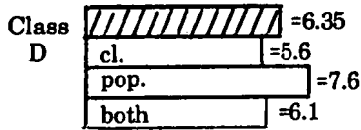




Figure 14

 = Average number of students who improve for each question.

 = Average number of students who improve for each question by classification of instrument.

APPENDIX A

SPECIAL CURRICULUM

CURRICULUM TO ACCOMPANY YOUNG AUDIENCES CONCERTS

Developed for use from January through March, 1972

Parker Road School

Sixth Grades

by Sister M. Tobias Hagan

General Purpose: to intensify the experience of Young Audience Concerts by related classroom activity.

Behavioral objectives for the students: that the students will be able to identify orchestral instruments aurally and visually;

that the students will use an expanded vocabulary based on understanding of specific ideas in musical situations related to those of the concert experiences.

Sequence of activities:

1. Survey of Jazz Styles
2. Characteristics of Jazz
3. Jazz Concert
4. Follow-up Activity — Worksheet and Discussion
5. Instrument Families
6. Filmstrip on Brass Instruments
7. Brass Concert
8. Use of Brass Instruments in Popular Music
9. Music for Percussion Instruments
10. Percussion Instruments in Latin American Music
11. Percussion Concert
12. Percussion Instruments in African Music
13. Filmstrip on Percussion Instruments
14. Use of Instruments in Symphonies and Concertos
15. Music for Woodwind Instruments
16. String Quartet
17. Strings Concert

18. Music for Cello and Voice
19. Opera Study — 1st part
20. Opera Study — 2nd part
21. Bel Canto Concert
22. Filmstrip on Woodwind Instruments
23. Woodwind Concert
24. Recognition of Instruments in Music

N.B. Lessons three, seven, eleven, seventeen, twenty-one, and twenty-three are concerts.

Lesson One: Survey of Jazz Styles

AIMS: recognition of jazz as a style of music in which a great amount of variety exists;

recognition of the historical origins and progress of jazz playing

EQUIPMENT: books and recordings — MAKING MUSIC YOUR OWN, Grade 8, copyright 1971 (enough copies of the books for each student to use one)

PROCEDURE: Have the students read the first two paragraphs of Chapter 5. Explain that they may encounter words they do not understand. Ask them to list these on a piece of paper, telling them that they should be able to find the meaning of these words in the study of the next few classes.

Proceed to cover as much of the information and music in Chapters 5 and 6 as possible.

Make the records and books available to the students so that they can listen to some selections again or listen to more selections as they wish. Encourage them to do this. Possibly a listening station might be set up in the library.

Lesson Two: Some Characteristics of Jazz

AIM: recognition of some specific aspects of jazz playing

EQUIPMENT: books and recordings — MAKING MUSIC YOUR OWN, Grade 8, copyright 1971

PROCEDURE: Use the suggested procedure in Chapter 4 regarding Timbre and Improvisation. Read, discuss, and listen to recorded examples to clarify understanding of these aspects of jazz playing.

If time permits, study syncopation and blue notes as suggested in the book.

At the end of class, give the students the summary sheet attached. Ask them to complete it and have it ready for discussion at the next class meeting. If syncopation and blue notes were not considered, omit these from the

summary sheet. The last question is a research challenge question. "Scat singing" will probably not be covered in the students' exposure to jazz. Challenge them to find this information from an outside source. Make the recordings and booklet "The Origins and Development of Jazz," Album L25, Follett Publishing Company, available as a resource.

JAZZ WORKSHEET

1. Where did jazz originate?

When? Give approximate dates.

With what people?

- 2.a. What is improvisation?
- b. What is syncopation?
- c. What are blue notes?
- d. How are mutes used in jazz playing?
3. Name three important jazz musicians and tell what instrument each plays.
4. Name an important jazz musician connected with St. Louis and tell why he is connected with St. Louis.
5. What is "scat-singing?"

Lesson Four: Follow-up Activity

AIMS: to confirm some ideas about jazz;

to give the students experience in exercising independent judgment about musical facts

EQUIPMENT: completed summary sheets about jazz (See Lesson Two.)

PROCEDURE: Divide the students into groups of about six. Have the groups choose leaders to conduct discussion of the questions on the summary sheet. Have the students share their responses to the questions, discussing them until a response satisfactory to the group is determined. The teacher should supervise the groups, acting as a resource check for groups that need information or moderation.

If the discussion does not consume the entire class time, conclude by playing selections of "New Orleans Suite" by Duke Ellington (Atlantic SD 1580).

Lesson Five: Instrument Families

AIMS: recognition of symphonic instruments in families:

recognition of a variations form

EQUIPMENT: recording of "Young Person's Guide to the Orchestra" by Benjamin Britten (Columbia ML5768);

listening plan as suggested in the lesson for each student

PROCEDURE: Tell the class that they will hear a work written especially for young people, "Young Person's Guide to the Orchestra," by Benjamin Britten. Britten has written many works that are becoming part of the standard concert repertoire. This present work was written in 1945 for a student concert in London. It is based on a dance written by Henry Purcell, an English composer of the 17th century.

Another name for the work is "Variations and a Fugue on a Theme by Henry Purcell." Purcell's little melody is played by various groups of instruments; the work then culminates in a fugue played by the entire orchestra. The tune is presented six times at the beginning of the work by different families of instruments: whole orchestra, woodwinds, brass, strings, percussion, and whole orchestra. Use of Columbia ML 5768 is suggested because it does not have narration. Some recordings do and the point of the lesson is foiled if the narration gives clues to the sections. After discussing the above material with the class, have them listen to the first section, trying to identify each family of instruments as they are heard.

Then give each student a prepared listening plan. Begin the recording again, telling the students to listen intently to check themselves on their recognition of the instruments. Have them hear the whole work without interruption. Check the students' reactions at the end of the session to gain some idea of their success or lack of it. Tell them that they will have a chance to do this exercise again after they have had further experiences with symphonic instruments. The experience will consist then in their straightening out a scrambled listening plan while hearing the music. That will be a real test of their ability to identify the instruments.

Listening plan for "Young Person's Guide to the Orchestra"

1. the beginning tune played by orchestra
2. " " " " " woodwinds
3. " " " " " brasses
4. " " " " " strings
5. " " " " " percussion
6. " " " " " orchestra

Thirteen variations of the tune

Instruments	Meter	Description
7. 2 flutes and piccolo	3/4	very fast
8. 2 oboes	4/4	slow
9. 2 clarinets	6/8	medium fast
10. 2 bassoons	4/4	fast, march like
11. violins	3/4	high, brilliant
12. violas	3/4	the same speed but sounding lower
13. cellos	3/4	a bit slower, sounding even lower
14. basses	2/4	begins slowly then gets faster
15. harp	4/2	majestically
16. 4 horns	3/2	the same speed as before
17. 2 trumpets	2/4	fast
18. 3 trombones, tuba	4/4	fast and pompous
19. percussion	6/8	medium

The Fugue

20. A new melody played fast with all the instruments coming in the same order as above. Listen for each to check yourself.

Lesson Six: Filmstrip on Brass Instruments

AIM: aural and visual recognition of brass instruments

EQUIPMENT: "Shining Brass" from Musical Sound Books for Children, filmstrip and recording from Society for Visual Education, A679-SAR

PROCEDURE: Show the filmstrip to the class. Prepare them by asking them to look and listen to the four instruments in the brass family that are considered standard.

When the filmstrip is finished, list their suggestions on the chalkboard. The responses should be narrowed to trumpet, trombone, French horn,

and tuba. Ask the students to name them in order from highest to lowest, giving a reason for their arrangement. They should name trumpet, French horn, trombone, and tuba respectively, giving the relative size of the instruments as one reason for their pitch difference.

In preparation for the next class, ask the students to locate some recordings of popular music, current rock, etc., that use brass instruments and bring them to the next class.

Lesson Eight: Use of Brass Instruments in Popular Music

AIM: recognition of various ways of playing brass instruments;

EQUIPMENT: recordings brought by students;

recordings of "Patton" Theme, played by Henry Mancini's orchestra, (RCA LSP-4350). "Spinning Wheel" played by Blood, Sweat, and Tears (Columbia CS-9720) and "Portrait of Louis Armstrong" played by Duke Ellington (Atlantic SD-1589)

PROCEDURE: Have the students determine which brass instruments are used in the three pieces listed above and three selections from records which they brought. Listen to each selection in turn, asking the students to write down the brass instruments they hear in each piece. When all six have been played, check the responses. Discuss incorrect responses, replaying selections which posed difficulties. When the complete list of correct responses has been compiled, play as many of the selections again as possible to confirm the correct responses.

Correct responses:

"Patton" Theme: trumpet, French horn, trombone, tuba; the trumpet plays a solo part

"Spinning Wheel": trumpet, trombone; the trumpet is the most prominent;

"Portrait of Louis Armstrong": trumpet solo; trumpet and trombone are included in the accompaniment

Lesson Nine: Music for Percussion Instruments

AIMS: recognition of percussion instruments as a family of instruments;

recognition of the main melody where simultaneity occurs

EQUIPMENT: recordings of "Liza" by George Gershwin, played by Theolonius Monk, et al. (Riverside Rs 3047); "Theme and Variations for Percussion Quartet" by William Kraft (Bowmar Orchestral Library #83);

a selection of one each of as many different percussion instruments as possible or pictures of percussion instruments

PROCEDURE: Play "Liza" for the class, asking them to identify the instruments which produce the sounds. They should readily respond piano, drums, and bass. They will probably use drums for the identification for all the percussion instruments used. Tell them that it would be better to use the term "percussion" to refer to all the instruments other than bass and piano in this piece.

Ask the students which instrument plays the most. There will probably be some disagreement about this, but the percussion solo is slightly longer than the piano solo, so the percussion instruments play the most. Having determined this, ask the class to decide which instrument is the more prominent. They should respond that the piano is the more prominent because it plays the main melody while the other instruments accompany.

Then play the first selection of "Theme and Variations for Percussion Quartet." Elicit from the students that the xylophone plays the main melody while the tympani and cymbals add accompanying rhythmic accents.

Play "Variations I and II" for the class. Ask individuals to select from the assortment of percussion instruments available any instruments which they heard or instruments similar to those they heard. Have each one demonstrate the instrument he selects. Through demonstration and discussion, help the students to generalize that percussion instruments are those instruments that are struck, shaken, rubbed, or scratched. Conclude the lesson by playing all of "Theme and Variations for Percussion Quartet."

Lesson Ten: Percussion Instruments in Latin American Music

AIMS: aural and visual recognition of instruments used in Latin American music;

recognition that the timbre of a sound is affected by the way the sound making material is activated, e.g., striking, scraping, or shaking

EQUIPMENT: recording of "La Conga de Media Noche" from Danzas Afro-Cubanas by Ernesto Lecuona, arranged for orchestra by Morton Gould (RCA Victor LSC-2768);

temple blocks, cowbells of different pitches, congo drum, maracas, tom-toms of different pitches, a guiro, and castanets

PROCEDURE: Play "La Conga de Media Noche" asking the class to listen to decide which family of instruments seems to be the most important in this piece. After hearing it, they should respond "the percussion family."

Have the temple blocks, cowbells, congo drum, tom-toms, maracas, and castanets displayed prominently. Ask the class if anyone can pick from the display one of the instruments he heard. When a student selects an in-

strument, have him play it so that the rest of the class can check his choice against their remembrance of the recorded sound. Continue this until all of the instruments have been selected and sounded.

In discussion assist the children to generalize about the material of which these instruments are made and the way they are played.

Listen to "La Conga de Media Noche" again to help them get the feel of the Latin American rhythm. Tell them to check their decisions about the percussion instruments they heard.

Let a few children select instruments and prepare piece for percussion instruments to play for the class. They should not try to write their piece, but simply improvise. They will need to get a strong drum rhythm going and can then add other sounds as they desire.

They may want to listen to more of the pieces on the recording used. Make it available to them if possible.

Lesson Twelve: Percussion Instruments in African Music

AIMS: recognition of tempo change;

recognition of repetition and contrast;

EQUIPMENT: recording of "Drums for the Niegpadoudo Dance," "Chorus for the Whissegnikon Dance," "Rhythm: Asoukablo," and "Rhythm: Niegpadoudo" from Anthology of Music of Black Africa (Everest 3254/3);

bongo drum, conga drum, cowbell and mallet;

a metronome

PROCEDURE: Play "Drums for the Niegpadoudo Dance" for the class. Ask them whether there is any change in the drumming throughout the three minutes it is heard. They will notice a slight change in tempo several times. Ask them to listen to hear whether there are any other changes in the music, specifically changes in loudness. The only change they should hear is a slight fading at the end of the recording.

Have several children set up patterns for bongo drum, conga drum, and cowbell with mallet, e.g.,

bongo drum	♪	♪♪	♪	♪♪
conga drum	♪	♪	♪	♪
cowbell	♪	♪	♪	♪

Have them play their patterns for one minute, asking them and the class to notice the problems they may have in doing this. If the group is able to repeat the patterns accurately for one minute, they will probably get louder and faster as they play. Discuss this with the class, noting that most people tend to get louder and faster as they repeat anything. Compare this with the African drum beat just heard. The players kept the drumming at the same dynamic level despite changes in tempo. They were skillful enough to control their playing very carefully.

Have the drum players try their patterns again, repeating them for a minute, but being very careful to control both tempo and loudness so that they do not change. If the class is not able to perceive any change in tempo, check the players with a metronome to assure them that they are keeping a consistent tempo.

Tell the class that "Drums for the Niegpadoudo Dance" was recorded at an actual festival in Abomey, capital of the African kingdom of Dahomey. If possible, have them locate this on the map.

Play "Chorus for the Whissegnikon Dance" asking the children to make any comments about it that they wish to make. Someone should notice the repetition of the chant, the chorus repeating what the leader sings.

Play "Rhythm: Asoukablo" and "Rhythm: Niegpadoudo," explaining that the chanters are reciting word patterns which help them remember the drum rhythms for these dances. After the four pieces have been heard, encourage the children to discuss them freely, remarking about any aspect of the pieces which they noticed.

Lesson Thirteen: Filmstrip on Percussion Instruments

AIM: reiteration of information about percussion instruments

EQUIPMENT: "The Beat of the Drum" from Musical Sound Books for Children, filmstrip from Society for Visual Education (A679SAR)

PROCEDURE: Show the filmstrip to the class without detailed introduction or reiteration.

Lesson Fourteen: Use of Instruments in Symphonies and Concertos

AIMS: recognition of the difference in the use of media in a symphony and a concerto;

aural and visual recognition of French horn and bassoon

EQUIPMENT: a French horn and a bassoon or pictures of same;

recordings of "Rondo" from Concerto for Horn and Orchestra, #3, K. 447, by W. A. Mozart (Columbia MS 6785); First movement of "Classical Symphony" by Serge Prokofiev (Columbia MS 6545);

"Rondo" from Bassoon Concerto in B flat Major, K. 191, by W. A. Mozart, (Musical Heritage Society 10415); "The Fourth of July" from Holidays Symphony by Charles Ives (Turnabout Vox 341465)

PROCEDURE: Put the words "symphony" and "Concerto" on the chalkboard. Ask the class if they know what these two words mean. Accept all responses, recording key words under each of the given terms. Explain that each of these is a long piece of music, usually divided into three or four sections. One way to define the terms is to say what plays in each.

To determine this, play "Rondo" from Mozart's Horn Concerto for the class. When it is finished ask the children to say what instruments they heard. Write correct responses on the chalkboard. In discussion lead the students to understand that the French horn was a solo instrument and that the other instruments may be grouped under the heading "orchestra." Thus this rondo is a piece for solo horn and orchestra. Recall that the French horn is a brass instrument, lower than the trumpet, higher than the tuba, a middle voice in the brass family. Show the instrument or a picture of it. Leave the picture or instrument in a place where the children may look at it closely during their free time.

Play the first movement of Prokofiev's "Classical Symphony." Again ask the children to say what instrument they heard, record these on the chalkboard, and generalize that they can be grouped under the heading "orchestra." The reason for this is that no one instrument plays a solo part consistently throughout the piece. There are some short solos, but the instruments play all together most of the time. Thus, this symphony is a piece for an orchestra with no outstanding solo instrument.

If there is time, use "Rondo" from Mozart's Bassoon Concerto and "Fourth of July" in the same manner as the pieces above.

After studying the selections, aid the class to formulate definitions of "symphony" and "concerto" with results similar to those below:

symphony — a long piece of music, usually in sections, played by an orchestra

concerto — a long piece of music, usually in sections, played by a solo instrument and an orchestra

NOTE: The above definitions are quite limited. Expanded consideration of these two types of music should occur later.

Lesson Fifteen: Music for Woodwind Instruments

AIMS: recognition of various meters;

recognition of woodwind instruments

EQUIPMENT: recordings of "Sonata for Bassoon and Piano" by Paul Hindemith (Musical Heritage Society ORH-292); First Movement of "Clarinet Concerto in A Major" by W. A. Mozart (Vox STPL 511. 110); First Movement of "Sonata in B Minor for Oboe and Harpsichord" by George Telemann (Amphion CL 2147); "Pendulum" by William Fischer (Embryo SD 520)

PROCEDURE: Give each piece a letter name, concealing the titles of the pieces from the students, e.g.,

Piece A = Sonata for Bassoon and Piano (a short portion)

Piece B = Clarinet Concerto (Use only a short portion of this first movement.)

Piece C = Oboe and Harpsichord Sonata (first movement)

Piece D = "Pendulum" (entire piece)

Give the students the following worksheet to complete as you play each piece for them. When they have finished, if there is time, discuss the responses, checking those parts on which they had difficulty by hearing enough of the piece in question to determine correct answers.

WORKSHEET

Select responses to the questions below from this list or the choices given in the questions. You may not need to use all of the words listed.

woodwind	oboe	sonata
bassoon	concerto	flute
piano	clarinet	trumpet
harpsichord	orchestra	brass

Piece A: 1. This piece is played by a bassoon and a piano

2. The bassoon has the main melody.

Piece B: 3. This piece is played by a solo clarinet and an orchestra

4. It is the first movement of an extended piece called a Concerto

5. The meter of the piece is (a) $3/4$ (b) $4/4$ (c) $6/8$ (d) $1/4$.

Piece C: 6. The solo instrument in this piece is an oboe. It is accompanied by a harpichord.

7. The meter of this movement is (a) $4/4$ (b) $2/4$ (c) $3/4$ (d) $12/8$.

Piece D: The only woodwind instrument heard in this piece is the flute.

9. The dynamic level of this piece is generally

(a) loud (b) very loud (c) medium soft (d) soft.

Correct answers are written in this copy for the teachers' convenience. They would not be included in the students' copies.

Lesson Sixteen: String Quartet

AIMS: recognition of a string quartet;

exposure to microtonal music

EQUIPMENT: recording of "Four Pieces for String Quartet" by Hans Kox (Tricesimoprimal Music, Washington University, St. Louis, Mo.); a keyboard instrument;

five small drinking glasses of the same size with varying amounts of water in them

PROCEDURE: Write the title "Four Pieces for String Quartet" on the chalkboard. Ask the class to define a quartet. After they respond that it is a set of four, ask them to speculate on what a string quartet is. They may respond correctly that it is two violins, viola, cello, and bass. Have them listen to the first part of "Four Pieces" to check their response. In discussion clarify that they are hearing a standard string quartet consisting of two violins, viola, and cello. The lack of very low sounds should lead them to conclude that they do not hear a bass.

Explain that these pieces are written in a scale system different from those with which they may be acquainted. Refer to the fact that the distance between keys on a piano is a half step. Have someone play each key from middle C to the C above, counting the half steps in an octave. There are twelve.

The pitch sequence that "Four Pieces" uses has thirty-one tones in the octave, so the tones that are adjacent to each other are much closer than the ones of the piano. These tones are called microtones. To illustrate microtones, tones smaller in distance apart than a half step, fill two of the drinking glasses with water so that they sound exactly a whole tone apart when struck with a mallet. Place the other glasses between the first two and fill them so that they sound tones between the two that are a whole tone apart. This tuning, though probably not exact, divides the whole step into quarter tones. An octave divided into quarter tones would have twenty-four divisions. This approaches the thirty-one tone division. Discuss as much information about microtones with the class as you have time for.

Conclude by listening to the "Largo" of "Four Pieces" again so that the students can become accustomed to the sound.

Lesson Eighteen: Music for Cello and Voice

AIMS: recognition that the timbre of a sound is affected by the way the sound maker is activated;

recognition of ternary form (A B A)

EQUIPMENT: recording of Bachianas Brasileiras No. 5 by Heitor Villa-Lobos (Angel 35547)

PROCEDURE: Tell the class that Heitor Villa-Lobos was a Brazilian composer. Have them locate his country on the map. Villa-Lobos wrote nine Bachianas Brasileiras in honor of the great composer Johann Sebastian Bach. The class will hear and study one movement of #5 in this lesson. It is for a soprano and eight celli.

The first movement, "Aria" is a Brazilian lyric song. Listen to a portion of it with the class so that the students can become aware of the smooth flow of the melody. Ask the children to notice that the singer and one cello sound very smooth. The other cello players are plucking the strings of their instruments. This is called playing *pizzicato*. Not only do the celli play in several ways, bowing and plucking, but the singer also uses her voice in several ways. Play the entire movement, telling the children to listen carefully to the sound makers. Possibly they can determine some structural pattern in the music by noticing how the instruments and the singer are making their sounds.

When the piece is finished the following pattern should evolve from discussion of the sections. Put it on the chalkboard.

A
singer sings "ah"
1 cello bows
other celli pluck

B
singer uses words
all celli bow

C
singer hums
1 cello bows
other celli pluck

Play the movement again, asking the children to check the pattern as they hear the music. Also ask them whether the melody of the second A section is the same as the melody of the first A section. It is, although the second A has no repeats and so is much shorter than the first A.

If there is time, play the second movement for the class. After it is completed, stimulate subjective discussion of the piece.

Lessons Nineteen and Twenty: Opera

NOTE: These lessons are one continuous unit of work. The material will take at least two class periods.

AIMS: recognition of the media of an opera;

recognition of vocal ensembles and solo voice types

EQUIPMENT: recording of "Amahl and the Night Visitors" by Gian Carlo Menotti (RCA LSC-2762);

PROCEDURE: Tell the students that they will hear part of an opera. Ask them what they know about opera. Accept any responses they offer. Explain that opera is the fusion of drama and music. Music, with action and lyrics, conveys the idea the writer and the composer want to communicate.

Tell the class that they will hear a popular television opera. "Amahl and the Night Visitors." Either elicit the story from them (they may have seen it on television) or give them these few hints about the story: Amahl is a crippled boy with a keen imagination. His mother is constantly after him about his fantastic lies. The family is very poor. The Three Kings, on their way to see the baby Jesus, stop at Amahl's house for the night.

Tell the class that the rest of the story will unfold as they hear the opera. Give them a list of characters:

Amahl
his mother
first king, Melchior
second king, Kaspar
third king, Balthasar
page

The class will not hear Balthasar or the page immediately. Ask them to listen to the recording, up to and including Kaspar's aria, "This is my box." They should note whether these characters have high or low voices. They should also note any other sounds they hear in the music.

When they have heard this half of the opera, discuss the results of their notes. They should have the following voice classifications:

Amahl — high
his mother — high
first king — low
second king — low

Other elements heard were men's chorus, various orchestral instruments, and knocking. Briefly note that when Amahl and his mother sing together the piece can be called a duet. Elicit the term quartet for the parts when the three kings and their page sing together.

Discuss with the class the name for a woman's high voice, soprano; a man's high voice, tenor; a man's low voice, bass. Ask them what type voice Amahl has. Conclude that he is a soprano, a boy's voice. Have the students notice that his soprano voice does not sound like his mother's soprano voice. Listen to a portion of the first section again so that the students perceive this.

To find out about the rest of the story, direct the class to the score. Show them how to follow it. They will need some instruction on the scanning of five or six simultaneous staves.

With the class, listen to the remainder of the opera, having them follow in the score as they are able.

Lesson Twenty-two: Woodwind Filmstrip

AIM: aural and visual recognition of woodwind instruments

EQUIPMENT: "Woodwinds" from Musical Sound Books for Children, filmstrip from Society for Visual Education A679SAR;

outlines for students

PROCEDURE: Explain to the class that they will view a filmstrip about woodwind instruments. Because the woodwind instruments are divided into several kinds, they should use the outline provided to guide their viewing. As they watch, they should fill in the blanks on the outline. There are no extra blanks, but all instruments, even the uncommon ones, are included.

Group 1: The Flutes or instruments like them

1. C flute
2. piccolo
3. alto flute
4. bass flute

Group 2: The Clarinets

1. Eb Clarinet
2. Bb clarinet
3. A clarinet
4. Eb alto clarinet
5. bass clarinet
6. contra-bass clarinet

Group 3: The Double Reeds

- 1. oboe
- 2. bassoon
- 3. contra-bassoon
- 4. English horn

Group 4: The Saxophones

- 1. soprano
- 2. alto
- 3. tenor
- 4. baritone
- 5. bass

Have the students check their outlines by checking against a list of correct answers that you post on the chalkboard or bulletin board. Answers are written here for the teacher's convenience. They should not be on the students' outlines.

Lesson Twenty-Four: Recognition of Instruments in Music

AIMS: aural recognition of symphonic instruments;

recognition of a variations form

EQUIPMENT: recording of "Young Person's Guide to the Orchestra" by Benjamin Britten (Columbia ML5768);

worksheet for each student as suggested below

PROCEDURE: Recall with the students that they heard and followed a listening plan of "Young Person's Guide to the Orchestra" several weeks ago. (Lesson Five) Since that time they have had a number of experiences with symphonic instruments which should have aided their recognition of the sounds of those instruments.

Introduce the matching worksheet. As they listen to the recording again without interruption, tell them to match the instruments to the numbers as the sections occur. Grade the papers at the end of the session, each one grading his own.

Matching Worksheet

- | | |
|---------------------------------------|---------------|
| 1. the beginning tune played by _____ | a. brass |
| 2. " " " " " _____ | b. orchestra |
| 3. " " " " " _____ | c. strings |
| 4. " " " " " _____ | d. orchestra |
| 5. " " " " " _____ | e. woodwinds |
| 6. " " " " " _____ | f. percussion |

13 Variations

7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. the fugue played by all the instruments

- a. violas
- b. 3 trombones and tuba
- c. violins
- d. 2 flutes and piccolo
- e. 2 oboes
- f. percussion
- g. 2 clarinets
- h. basses
- i. harp
- j. 4 horns
- k. 2 bassoons
- l. cellos
- m. 2 trumpets

APPENDIX B

CONCERTS

1. Jazz Quintet
2. Brass Quintet
3. Percussion Ensemble
4. String Quartet
5. Bel Canto Ensemble
6. Woodwind Quintet

MUSIC TEST

NAME _____

GRADE AND TEACHER _____

AGE _____

DO YOU PLAY A MUSICAL INSTRUMENT?

YES _____ NO _____

DOES ANYONE IN YOUR FAMILY PLAY A MUSICAL INSTRUMENT?

YES _____ NO _____

DO YOU PLAY OR SING IN ANY MUSICAL ORGANIZATION OUTSIDE OF SCHOOL?

YES _____ NO _____

DOES ANYBODY IN YOUR FAMILY SING IN A CHOIR?

YES _____ NO _____

DOES YOUR FAMILY EVER GO TO THE SYMPHONY?

YES _____ NO _____

HOW MUCH DO YOU LISTEN TO MUSIC AT HOME?

NEVER _____ A LITTLE _____ SOMETIMES _____

VERY OFTEN _____

The following section of the test will show your ability to recall certain things about music. Read each question carefully because you will have to answer each question differently. If you do not know how to answer a question, skip that question and go on to the next one. Although spelling errors will not be counted, try to spell each word carefully so the grader of the test will know what your answer means.

- 1. Write the names of four composers that you know wrote symphonies.

2. Put an X next to the instruments which are found in a string quartet.

guitar piano violin harp viola cello

3. Arrange the following musical periods from the oldest to the newest.

Baroque, Classical, Romantic, Contemporary

_____ (oldest)

_____ (newest)

4. Fill in the following.

A. Duet, aria, and recitative are terms used in what musical form?

B. Improvisation, blue notes, and scat singing are terms used in what musical form?

C. What Baroque composer is said to be the father of polyphony?

5. Haydn and Mozart were composers from which musical period?

6. Put an X next to all the ways you know how to play a percussion instrument.

scratching _____ rubbing _____

biting _____ shaking _____

striking _____ blowing _____

7. Put an X next to all the types of musical forms which are found in the Romantic period?

symphonies _____ jazz _____

sonatas _____ art songs _____

musicals _____ operas _____

8. Tell which instrument family (brass, woodwind, string, or percussion) the following instruments are from.

Fr. horn _____ flute _____
cello _____ claves _____
oboe _____ harp _____

9. Fill in the following.

A. Which country gave birth to Jazz? _____

B. Bach and Beethoven lived in which European country? _____

C. Composers started writing symphonies in which country? _____

D. Name one great composer who wrote many operas. _____

E. About how many years ago was the piano invented? _____

10. After each of the following composers name one piece which he wrote.

Bach _____

Beethoven _____

Chopin _____

Debussy _____

Listen to a short musical selection featuring one musical instrument. Select from four choices the name of the instrument featured. If no one of the instruments is featured, fill in the blank marked (0).

Ex. A. TRUMPET () BASSOON () FR. HORN () VIOLIN () NONE (0)

61. FLUTE () CLARINET () TRUMPET () PICCOLO () NONE (0)

62. VIOLA () CELLO () VIOLIN () BASSOON () NONE (0)

63. BASS DRUM () TIMPANI () TUBA () CONGA DRUM () NONE (0)

64. VIOLIN () CELLO () VIOLA () CLARINET () NONE (0)

65. TRUMPET () TROMBONE () FR. HORN () ENG. HORN () NONE (0)

66. FLUTE () CLARINET () TRUMPET () PICCOLO () NONE (0)

67. SAX () CELLO () FR. HORN () BASSOON () NONE (0)

68. MARACAS () CLAVES () WOOD BLOCK () CASTANETS () NONE (0)

69. SAX () CELLO () ENG. HORN () BASSOON () NONE (0)

70. HARP () VIOLIN () VIOLA () CELLO () NONE (0)

Listen to a short musical selection featuring one instrument with orchestral accompaniment. Select from four choices the name of the instrument featured. If no one instrument is featured fill in the blank marked (0).

- Ex. A. FLUTE () VIOLIN () CLARINET () FR. HORN () NONE (0)
71. TROMBONE () TRUMPET () FR. HORN () ENG. HORN () NONE (0)
72. OBOE () ENG. HORN () BASSOON () VIOLA () NONE (0)
73. FLUTE () CLARINET () OBOE () PICCOLO () NONE (0)
74. ENG. HORN () VIOLA () CLARINET () BASSOON () NONE (0)
75. FR. HORN () TROMBONE () SAX () TUBA () NONE (0)

This section of the test will show your ability to recognize and name musical instruments. As the examiner shows you the picture of a musical instrument, write the name of that instrument in the correct space.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____

17. _____
18. _____
19. _____
20. _____

APPENDIX D

AFFECTIVE TESTS

QUESTIONNAIRE

Each of the following sentences are statements which some people believe to be true. You are to show how you feel about each statement. First decide whether you agree or disagree with the statement. If you mostly agree with the statement, put an X in the place marked (MA). If you somewhat agree with the statement, put an X in the place marked (SA). If you agree only a little with the statement, put an X in the place marked (LA). On the other hand, if you disagree a little with the statement, put an X in the place marked (LD). If you somewhat disagree with the statement, put an X in the place marked (SD). If you mostly disagree with the statement, put an X in the place marked (MD). If you don't understand what the statement means, put an X in the place marked (?).

Here is a sample statement which has already been done —

- A. I like candy. (MA) (SA) (LA) (LD) (SD) (MD) (?)

This person decided that he mostly agreed with the statement because he liked candy very much, so he put an X in the place marked (MA).

Here are two sample statements to practice on. Be sure to read each statement carefully and be sure to answer the way you feel about each statement.

- B. I like to watch television. (MA) (SA) (LA) (LD) (SD) (MD) (?)

- C. I would rather go to a baseball game than attend a symphony concert.
(MA) (SA) (LA) (LD) (SD) (MD) (?)

1. Nixon is a good president. (MA) (SA) (LA) (LD) (SD) (MD) (?)

2. The draft should be abolished. (MA) (SA) (LA) (LD) (SD) (MD) (?)

3. Pollution is very bad. (MA) (SA) (LA) (LD) (SD) (MD) (?)

4. I like long hair on boys. (MA) (SA) (LA) (LD) (SD) (MD) (?)

5. All war should end immediately.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
6. The only music I like to listen to is popular music.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
7. Playing a musical instrument is a waste of time.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
8. Listening to classical music makes me feel emotional.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
9. Symphony concerts are too long.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
10. I like to listen to women opera singers.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
11. School grades are very important to me.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
12. I wish I had different teachers for all my subjects.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
13. Going to school is the best thing I could be doing.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
14. Winning or losing a fight is not important.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
15. I would like to become a classical musician.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
16. I enjoy going to museums.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
17. I like going to concerts where they play classical music.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
18. I like to listen to music because I can forget my problems.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
19. I would rather play sports than watch them.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
20. I like field hockey.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
21. I enjoy going to football games.
(MA) (SA) (LA) (LD) (SD) (MD) (?)

22. I only like music which has a good beat.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
23. I enjoy listening to classical records.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
24. Listening to any music is a waste of time.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
25. I like going to baseball games.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
26. I would like to become a professional athlete.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
27. I like to read science fiction stories.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
28. I like to read history books.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
29. I would like to play a musical instrument in the high school band or orchestra.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
30. I enjoy listening to country western music.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
31. The only records I enjoy listening to are rock records.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
32. Winning or losing a war is not important.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
33. I want to go to college.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
34. I wish I could hear more classical music.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
35. I would like to learn more about all kinds of music.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
36. I like to write stories.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
37. We should follow a leader if he is right, even if we might get hurt.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
38. I would like to travel to foreign countries.
(MA) (SA) (LA) (LD) (SD) (MD) (?)

39. I enjoy listening to symphony orchestras.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
40. I like listening to woodwind instrumental groups.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
41. I like to listen to small groups singing classical music.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
42. I only like to listen to rock groups.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
43. I like listening to string instrumental groups.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
44. I like to listen to percussion groups.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
45. I like listening to brass instrumental groups.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
46. I like to listen to jazz musicians.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
47. People should learn more about our cultural heritage.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
48. I like watching Channel 9 on television.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
49. Watching television is a waste of time.
(MA) (SA) (LA) (LD) (SD) (MD) (?)
50. These statements are about —
- a. Music
 - b. Sports
 - c. School
 - d. My feelings
 - e. All of the above

In the following section, there is a list of people, places, or things. You are to tell how you feel about each of them. First decide whether you like or dislike the person, place, or thing. If you like it very much, put an X in the place marked (LM). If you somewhat like it, put an X in the place

marked (LS). If you only like it a little, put an X in the place marked (LL). If you dislike it only a little, put an X in the place marked (DL). If you somewhat dislike it, put an X in the place marked (DS). If you dislike it very much, put an X in the place marked (DM). If you do not know what it is, put an X in the place marked (?).

Here is a sample which has already been done.

A. Bad grades. (LM) (LS) (LL) (DL) (DS) (DM) (?)

This person decided he disliked bad grades very much because he felt very badly when he received them, so he put an X in the place marked (DM).

Here are two samples to practice on. Be sure to read each word carefully and be sure to answer the way you feel about each word.

B. Birthday cake (LM) (LS) (LL) (DL) (DS) (DM) (?)

C. Swimming (LM) (LS) (LL) (DL) (DS) (DM) (?)

1. Gym class (LM) (LS) (LL) (DL) (DS) (DM) (?)

2. Cafeteria (LM) (LS) (LL) (DL) (DS) (DM) (?)

3. History (LM) (LS) (LL) (DL) (DS) (DM) (?)

4. Spelling (LM) (LS) (LL) (DL) (DS) (DM) (?)

5. Geography (LM) (LS) (LL) (DL) (DS) (DM) (?)

6. Arithmetic (LM) (LS) (LL) (DL) (DS) (DM) (?)

7. Art (LM) (LS) (LL) (DL) (DS) (DM) (?)

8. Drums (LM) (LS) (LL) (DL) (DS) (DM) (?)

9. Electric guitar (LM) (LS) (LL) (DL) (DS) (DM) (?)

10. Piccolo (LM) (LS) (LL) (DL) (DS) (DM) (?)

11. Oboe (LM) (LS) (LL) (DL) (DS) (DM) (?)

12. Bass guitar (LM) (LS) (LL) (DL) (DS) (DM) (?)

13. Organ (LM) (LS) (LL) (DL) (DS) (DM) (?)

14. War (LM) (LS) (LL) (DL) (DS) (DM) (?)

15. FBI	(LM)	(LS)	(LL)	(DL)	(DS)	(DM)	(?)
16. Drugs	(LM)	(LS)	(LL)	(DL)	(DS)	(DM)	(?)
17. Hippies	(LM)	(LS)	(LL)	(DL)	(DS)	(DM)	(?)
18. Cigarettes	(LM)	(LS)	(LL)	(DL)	(DS)	(DM)	(?)
19. Pollution	(LM)	(LS)	(LL)	(DL)	(DS)	(DM)	(?)
20. Bombs	(LM)	(LS)	(LL)	(DL)	(DS)	(DM)	(?)
21. Cello	(LM)	(LS)	(LL)	(DL)	(DS)	(DM)	(?)
22. Violin	(LM)	(LS)	(LL)	(DL)	(DS)	(DM)	(?)
23. Double bass	(LM)	(LS)	(LL)	(DL)	(DS)	(DM)	(?)
24. Tuba	(LM)	(LS)	(LL)	(DL)	(DS)	(DM)	(?)
25. French Horn	(LM)	(LS)	(LL)	(DL)	(DS)	(DM)	(?)
26. Trumpet	(LM)	(LS)	(LL)	(DL)	(DS)	(DM)	(?)
27. CIA	(LM)	(LS)	(LL)	(DL)	(DS)	(DM)	(?)
28. Racial discrimination	(LM)	(LS)	(LL)	(DL)	(DS)	(DM)	(?)
29. Women's Liberation	(LM)	(LS)	(LL)	(DL)	(DS)	(DM)	(?)
30. Tympani	(LM)	(LS)	(LL)	(DL)	(DS)	(DM)	(?)
31. Clarinet	(LM)	(LS)	(LL)	(DL)	(DS)	(DM)	(?)
32. Flute	(LM)	(LS)	(LL)	(DL)	(DS)	(DM)	(?)
33. Banjo	(LM)	(LS)	(LL)	(DL)	(DS)	(DM)	(?)
34. Ukelele	(LM)	(LS)	(LL)	(DL)	(DS)	(DM)	(?)
35. Nixon	(LM)	(LS)	(LL)	(DL)	(DS)	(DM)	(?)
36. Agnew	(LM)	(LS)	(LL)	(DL)	(DS)	(DM)	(?)
37. Cervantes	(LM)	(LS)	(LL)	(DL)	(DS)	(DM)	(?)
38. Trombone	(LM)	(LS)	(LL)	(DL)	(DS)	(DM)	(?)
39. Piano	(LM)	(LS)	(LL)	(DL)	(DS)	(DM)	(?)
40. Bagpipes	(LM)	(LS)	(LL)	(DL)	(DS)	(DM)	(?)



**THE CUMULATIVE ATTAINMENT BY MISSOURI
HIGH SCHOOL SENIORS OF THE MUSICAL LEARNINGS
STATED IN THE MUSIC CURRICULUM GUIDES
PUBLISHED BY THE MISSOURI STATE DEPARTMENT
OF EDUCATION**

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The purpose of this study was to determine the residual attainment in music by students enrolled in the public schools of Missouri. The findings give a measure of how successful the school music program has been in terms of the general student in meeting stated goals. In addition, this study sought to identify factors that correlate to musical learnings.

Some years ago the present investigator discovered that the desired outcomes of some phases of musical training were not being realized. During the school year 1963-64 the investigator initiated undergraduate elective classes in music appreciation and understanding at the University of Missouri-Rolla. Most of the students were freshmen just out of high school.

The students entering the classes displayed little general knowledge about music, other than current popular or social music. So that an effective planning could be made for the classes, the first day of the course each new class was given a generalized test on items of music information. Questions on these tests were based upon material in the Missouri public school curriculum guides in music.

These results convinced the investigator that a formal study, including a wider, more representative sample, and including a more comprehensive, better constructed test, would provide important and useful information regarding music education in Missouri.

Data collected in this study are intended to be descriptive. However, implications are drawn in a number of ways. For example, it is possible to raise some questions about the Missouri curriculum guides in music themselves, especially about what is expected of all students. Findings are also helpful in clarification of the objectives of teachers of music, especially in determining which areas of the discipline have been stressed the most. Data from this test that depart in a positive direction from normal expectations are interpreted as indicative of describing better conditions for musical learning; conversely, data of a negative direction identify conditions in which musical learning is not so apt to take place. A musical profile is determined for the student who is a graduate of Missouri public schools.

These data are extremely helpful in preparing course work on a higher education level for either the general student or the student who intends some degree of specialization in music.

RESUME OF METHODS, PROCEDURES, AND ASSUMPTIONS

To secure the necessary data, a test and self-report inventory were administered to a representative sample of twelfth grade students enrolled in Missouri public schools. The test consisted of two parts:

1. The first was a musical information test consisting of multiple-choice and objective questions based on the content of the music curriculum guides for Missouri schools. The reliability, validity, and index of difficulty and discrimination were established for each item by preliminary testing in out-of-state high schools before administering the final form to Missouri students. The final test form satisfied the statistical assumptions about effective tests. The coefficient of reliability was .873. (See Appendix C.)

2. The second part was an aural music discrimination test consisting of 30 examples from the Indiana-Oregon Music Discrimination Test by Newell H. Long. It measures the students' capacity to notice aurally changes in the music and to make discriminative judgments. The test was validated, and its reliability and index of difficulty and discrimination were determined on an item-by-item basis. Statistical assumptions were also satisfied for this test. The coefficient of reliability was .814. (See Appendix B.)

Information was obtained from each examinee by means of a self-report inventory. (See Appendix C.) It secured data about the type of school music training, including elementary school music, general music, music appreciation, the amount and nature of any private or other non-school music training and experience, concert attendance, home musical environment, and each examinee's general attitudes toward music. It was also determined how long each examinee had been enrolled in the particular school system.

Information was gathered from school officials at each testing site in order to determine the musical climate of each school. Questions were asked about the emphasis given musical assembly concerts, the frequency of the various music courses in each system, the breadth of other musical activities, and turnover of music teachers. A questionnaire and personal interviews were used to obtain these data.

The data obtained from the questionnaire and inventory were organized in such a way that a score could be coded for each item and an interpretation derived by use of a multiple linear regression computer program.

The sample was representative of the population it purports to represent. (See Appendix A.) Elements of the sample varied in the same proportion that the State of Missouri varies. The stratified sample was necessary to give a proportionate representation of high schools of varying sizes and locations. Categories established for this study include: Inner City, the incorporations of St. Louis and Kansas City; Urban, counties with incorporations of 10,000 or more; Middle, counties with incorporations of 2,500 to 9,999; and Rural, counties with no incorporations larger than 2,500. Sample schools were selected at random from each category.

Comparisons were made between the upper and lower 27 percent of scorers on the tests on the various independent variables. This procedure not only demonstrated the effectiveness of the tests, but it also helped in interpretation of the tests, and the significance of the independent variables.

Rules for the effective administration of tests were carefully followed.

The test, inventory, and questionnaire used in this study measured specifically these areas:

1. The ability to answer correctly questions about music in the areas of media, period, style, form, composers, works, notation, and identification of terms.
2. The development of auditory acuity including judgments about examples played in which the elements of harmony, rhythm, or melody may have been changed.
3. The degree and kind of music training of each examinee.
4. Each examinee's attitude toward music.
5. The music program of each school in the sample.

CONCLUSIONS

The following conclusions deal with the attainment and retention of musical learnings by the examinees:

1. The general student had not learned originally, or retained if he did learn it, much information called for in the music guides. The student with specialized training in music, such as school band or private piano, has retained only a little more information than the general student. There was a mean score on the 73 item written test of 29.33. There were 60 items in the aural test with a mean score of 28.92. The high and low scores dispersed normally about the mean on each of the tests. This is true for the mean for the entire sample, each stratum, and each individual school. Although consideration must be made for the fact that some of the examinees had not had music since the seventh grade, a period of five years, it seems that more musical information should have been retained. A few of the items on the test were very easy and obvious, but some examinees answered only a few of these correctly.

2. Seventy-six percent of the answers to the items that dealt with identification of musical media were answered correctly. This category had the easiest questions. Students in all types of schools except Inner City did well on these items. Perhaps some exposure to the instruments is a common experience that is reinforced by the study of instruments being presented in school music.

3. Fifty-three percent of the examinees scored correct responses on the items in which they were to notice aurally **rhythmic change**. Rhythm is emphasized from kindergarten on in the guides and is a part of discriminatory hearing expected of all students. The rhythmic change part of the test is a part of a larger aim: discrimination in hearing.

4. Only 43 percent of the responses to the items that concerned a knowledge of form were correct. This category included general questions such as whether a symphony had movements or scenes. It would seem that some detailed study or contact with serious music forms would be necessary in order for this sort of information to be retained. It appears that the only contact most of the examinees have had with a great body of the world of music has been in school music classes. The guides outline singing as the core experience in the music program for the elementary grades and in the general music class on the junior high level. It is not until the senior high general music curriculum that the development of the music consumer is actually specified as a chief end goal. However, few students in the sample had had general music in high school. These points apply to the other categories on the test as well, in which familiarization with a variety of works of music would have helped provide more correct responses. In short, knowledge and understanding of what makes up music was largely lacking on the part of the examinees.

5. A mean of 41 percent correct responses was achieved on the items that concerned a knowledge of musical terms. Since all of the items on the test are basic terms that according to the guides should have been taught by grade six, as well as encountered in ensembles, the manner in which they were introduced and taught must be questioned.

6. In the category of aural recognition of **harmonic change** there was a 39 percent correct response. Again there is the matter of discriminatory hearing — a goal cited in the curriculum guide as early as grade six. The results of such tests are affected a great deal by the presence or lack of the continued practice of this skill. Critical hearing from within an amateur ensemble is one thing — how one's own part fits. It is another thing to stand aloof from a music event to listen to it critically, the approach emphasized only in the Allied Arts Guide. This implies training in listening to styles of music. This can be done in almost all school music classes. It has not been done in the case of a majority of the examinees in the sample.

7. There was a 33 percent correct response to the items on aural recognition of **melodic change**. Most of the items in this category involve changing of melodic patterns or intervals, or so completely mutating the melody that it would be difficult not to know that melody was the element that was changed. The most common error was the selection of the mutated version as being better.

8. Thirty-two percent of the responses to the items about musical period, style, and composers were correct. All of the guides emphasize performing music. But since few general history books or courses give any

space or time to what has happened in the arts, it must be taught in music classes. This investigator must conclude that there has been a minimum of this type of training in musical groups. This situation may have been due to an emphasis on performances at games and contests, and a great deal of rote training rather than teaching.

9. A disappointing finding was the 28 percent correct response to the items on notation. A portion of the items in this category asked for identification of well-known melodies from notation. Another part of the test asked for identification of notational errors and a knowledge of scales. Few examinees were able to score at all in the notation category. It must be concluded that the emphasis on singing in the guides, the emphasis on improving the skills and understanding of notation suggested in conjunction with ensemble activity and the emphasis on following a score while listening has somehow been largely wasted, if indeed it was taught at all. It seems that many instrumentalists see a note on the staff and think only of a fingering rather than respond mentally to the pitch of a total pattern. For example, according to the guides the melody to the Star Spangled Banner should have been recognized from seeing the notation. Few of the examinees could identify it. Some examinees have had band, chorus, or other performance experiences and most were still active at the time of testing. And yet the examinees exhibit very little fluency in this area. While some students could probably pick the tune out quickly on some instrument or at the keyboard, they did not recognize it in notation.

The following conclusions deal with the differences between strata:

1. Those students from the Rural schools scored highest. In six of the eight categories — knowledge of media, aural recognition of rhythmic change, knowledge of form, knowledge of terms, aural recognition of melodic change, and knowledge of notation — the mean score for students from Rural schools was above the mean score for the entire sample. In the category of aural recognition of harmonic change they equaled the mean for the entire sample. Only in the category of period, style, and composer did the mean for this group fall below that of the entire sample. These schools are in farming locales with limited industry. The student population was observed to be almost all white and dressed conservatively. According to the school principals interviewed, some of the subject areas were weak, but all of the schools had an active high school music program. The strength of the music programs was centered in the high schools, to the neglect of the elementary programs. Most of these students had been in the same school system all of their lives. Some of the facilities were obviously in poor condition, although one school was new. Enrollments are small. Financial support is limited because of low property valuation. The music directors in the high schools have established ways of doing things. Sweeping changes in practices in music teaching are seldom undertaken, and winning of contests and trophies is very important to them as a mark of success. Students give a good deal of time to music performance activities. Differences in individuals are minimized in instruction. The schools reflect an orderly, regulated sameness, where discipline comes first. The variety of music offerings is generally limited to band, chorus, stage band and an occasional musical production.

2. The examinees from the Middle and Urban schools performed about equally on the tests, but, of the two, examinees from the Middle category did better. This group consisted of areas supported by both farming and industry. All but one school of the type had some serious problem affecting the music program. In three of the schools there was a frequent turnover of high school music teachers, and in two of the schools frequent changes in superintendents and principals. Discipline was observed by the investigator to be lax. Support and concern for the music program from both administrators and the general public was reported to be weak by the music teachers. Pride in school organizations was missing. Racial integration had affected one school. These schools enter many music contests but seldom win the higher ratings.

The Urban schools had broader music programs, including several choruses, general music, allied arts classes, theory, and bands, and one school had an orchestra. They were mostly white. High contest ratings were sought and generally attained, but were taken somewhat in stride. Students frequently moved, but to and from other Urban areas. There were two types of Urban school in the sample tested. One serves the children of "blue-collar" workers; the other serves the children of professional persons. There did not seem to be a mixture. The attitude of the examinees during testing was one of confidence, almost to the point of boredom. The few extremely high scorers came from this group of schools. The music programs, though varied and containing many students, were not always among the main interests of the students. The students seemed to have independence, and it is possible that they exercised too much of it when selecting the better of the pairs of examples on the aural test by allowing what they liked to influence their judgment, rather than what they knew.

3. The examinees in the Inner City schools scored below the mean for the entire sample in every category except aural recognition of rhythmic change. In this category they only matched the sample mean. The Inner City schools served many black students. Few of the students were college bound. The music offerings were limited to band and vocal groups. Ensemble emphasis was toward the experience of musical productions and shows. Morale among the music teachers was low. However, the students seemed to regard the test as a challenge.

The following conclusions are based upon the statistical analysis of school and home factors with the test scores:

1. The high scorers on the written test are not necessarily the high scorers on the aural test. Likewise, the low scorers on the written test are not necessarily the low scorers on the aural test. The correlation between the tests is .4249.

2. The greater the amount of music activities and classes offered by the school, the higher the examinees tended to score. The highest correlations included frequency that school band, chorus, and orchestra is offered, and whether or not a school offers stage band and solo/ensemble activities.

3. Of the many individual variables for which correlations with the test scores were computed, the most significant relationships were with applied music experiences, especially band, stage band, private instrumental instruction, and self-rating of ability to play an instrument. Low scorers had had almost no applied music experience. Although high scorers had extensive musical experiences and low scorers did not, this study does not contain data separating home and school music training. Some relationship is indicated, however.

4. The longer the examinee had been enrolled in the particular school system, the higher he tended to score. The more years an examinee had been in Missouri public schools, the higher he tended to score. A fairly significant correlation supports these conclusions.

5. In the aural discrimination test each examinee had to decide which of two examples fit best into his perceptual experience. It is assumed that the more musical experience the examinee had, the greater his chances for making informed, correct decisions. Not that he would say to himself, "This example has a V⁷ chord and that one doesn't." However, as one notices, if there is incorrect grammar in a sentence he hears, so one can notice what he hears in music. Evidence in this study suggests a modest relationship between experience and aural discrimination. For example, 36 percent of the sample (115) played an instrument, yet less than half of these students (55) were among high scorers on the aural test. However, only 11 were among the low scorers.

The following conclusions deal with the effectiveness of the guides:

1. Generally, examinees from schools that used the guides did better on the tests than examinees from other schools.

2. The effectiveness of the guides would have been enhanced if the objectives of music in the Missouri public schools had been more clearly defined. There are numerous statements in the guides to the effect that music is important and should be a part of the curriculum. However, the guides offer few specific standards, usually employing terms such as "knowledge of," "appreciation of," and "understanding of." They also reflect the general practices of much singing in the elementary school and performance emphasis in the secondary school. There is also an inconsistency between the sections that deal with the various ensembles. Some of the sections are more specific than others. Each was obviously written by a different author or committee.

RECOMMENDATIONS

The development of a continuous music curriculum guide for grades K — 12 is needed. The guide should include areas on music history, style, composers, works, reading and understanding of notation, and development of critical judgment in music. At least three sections are needed: a general music section for all students, a vocal music section, and an instrumental section. The guide should specify what the student should know and be doing at the end of each grade level. The activities of each successive grade of music should be based on content in the previous grade and be an extension

of that grade. The relationship between music in general education and performance ensembles and activities, especially in junior and senior high school, should be established so that the various facets of the music in general education are also taught in ensembles. This is especially necessary since those who elect a performance ensemble are seldom allowed time for other school music study.

State requirements for accreditation of public schools include offering elementary music and fine arts on the secondary level. Unfortunately, in the secondary schools the fine arts requirement is satisfied in no consistent manner. Depending on the offering of the school, a student may select band, chorus, art, orchestra, allied arts, general music, drama, theory, or in some cases, a general music course in the seventh and eighth grades. The amount of credit awarded for these courses also varies with the schools. For example, a seventh grader in one school may take band for one year and receive the required fine art unit, then may not elect band again. Another student at another school may need to take band for two or even four years before one unit is earned. At yet another school a student may earn a fine arts credit by taking a comprehensive allied arts course. If formal music training is to be ended in grade six for some students, then a broader elementary music curriculum is needed. However, more desirable would be a music requirement at the senior high school, rather than the present fine arts requirement to be met any time in secondary school. It would also seem both necessary and practical that a uniform amount of credit be given for musical ensembles in the schools of Missouri, perhaps on the basis of the number of class hours of meetings per week.

SUGGESTIONS FOR ADDITIONAL RESEARCH

A primary question for study is why examinees with some knowledge of music and with extensive music performance experience fail to hear discriminately. This investigation uncovered the fact again and again. This investigator has determined that there are different kinds of hearing skills. Determining more about the relationships between acquired knowledge, performance facility, and aural acuity would be a valid and important study.

An interesting study would be the administration of an aural test similar to the one used in this study, except that it be made of examples taken from current popular music instead of from art music.

A determination of the amount of time spent in music by the pupils, both in school and out, would make a valuable study. The school workload, outside activities, and time spent in homework could be compared between pupils engaged in music and pupils with few music activities.

A study similar to this one should be made in five or ten years, followed by a comparison between the two.

APPENDIX A

SELECTION OF THE SAMPLE

The population about which this study makes inferences concerns the graduates of public high schools in the State of Missouri. Therefore, the selection of the sample had to be done in such a way that any student in Missouri high schools had an equal chance of being tested.

To achieve the most representative sample, the following steps were taken:

1. Each public high school in the state was entered by name, enrollment, and county on a 3 by 5 inch card. This information was taken from the 1968-69 Missouri School Directory, an official publication of the Missouri State Department of Education, Jefferson City.

2. A map of Missouri was obtained, showing counties, so that a working visual aid would be available.

3. After the cards had been arranged in alphabetical order by county a sample was drawn in the following ways: ten high schools obtained by drawing every fiftieth card, ten high schools at random drawing, 15 high schools by drawing every thirty-fourth card, and 20 high schools by drawing every twenty-fifth card. None of these methods seemed to provide a representative sample. Either the geographical locations seemed askew, or data as to school size seemed lumped and not representative. The need for a stratified sample was seen in the fact that 67 percent of the high schools contained only 35 percent of the school population. With a random drawing of high schools from the State at large the results would contain a disproportionate number of small schools. So a stratified sample technique was decided upon.

4. Using data provided by the Secretary of State of Missouri, counties were divided into four categories termed Rural, Middle, Urban, and Inner City. The cards were separated by county into these four strata. Four high schools were selected at random from each strata, except for the Inner City strata from which one high school was selected for each of the two areas designated Inner City.

The 317 subjects in the sample are one half of one percent (.46 percent) of the estimated twelfth grade population in Missouri public schools in the 1969-70 school year. The 14 high schools are 2.73 percent of the total 511 high schools in Missouri.

According to the principals at each school, all students had a chance of being included in the sample. The exception was School 4, which was examined while senior band rehearsal was going on.

APPENDIX B

DESCRIPTION OF THE AURAL DISCRIMINATION TEST

The test, as assembled by Dr. Newell H. Long in August 1968, was arranged on one spool of magnetic tape containing instructions, three examples, and the 30 items. The speed of the monaural tape was $7\frac{1}{2}$ i.p.s., and dubbing of the copy used in this study was done by an electrical engineer at Indiana University's Department of Electronics. The total elapsed time for this portion of the test, including instructions and examples, was 24 minutes. Each of the items has an excerpt of several seconds' duration of music by a recognized composer. A second playing (sometimes presented as the first of the pair) contains a mutation involving one of the following elements: rhythm, harmony, or melody. The examinee is asked to select which of the pair he thinks is correct (best), if he thinks there is a change, and which element is mutated — rhythm, harmony, or melody.

The distribution of the 30 items included 14 with the first version correct, 13 with the second version correct, and three items which had no elements changed. Of the 27 items in which there was a change, ten involved rhythm, nine harmony, and eight melody. Five of the examples were representative of the baroque period, seven the classical period, ten the romantic, and eight contemporary. Twenty-two of the items were played on the piano, five by string quartet, and three by woodwind quintet. Indices of difficulty and discrimination and coefficients of reliability were established by Long for this test, but since none had been determined for twelfth graders, the investigator computed them for the sample tested in this study. Items ranged from easy to difficult, and the easy items were interspersed throughout the test.

The Long test can consist of a 30-item unit, a 37-item unit, or a 43-item unit. Long actually recommended the 30-item test for upper elementary students, the 37-item test for junior high, and the 43-item test for high school and adult subjects; but he also suggested that as few as 30-items might be used with high school and adult subjects with no great loss in reliability. Therefore, it was felt by the investigator that the purposes of this investigation would be satisfied by using the 30-item test. Since the required courses in music in general education in Missouri can be satisfied on the junior high level, the investigator felt the level of this test sufficient. There were enough of the 30-items with sufficient discriminating power and difficulty to provide results that satisfy statistical testing assumptions.

The aural test is not considered a comprehensive measure of the ability to appreciate music. Rather, it is considered an instrument for evaluating certain aspects of listening and judgment which function in making musical discrimination. Other aspects involved in musical knowledge, as information, must be tested for by other means. This aural test tests only some aspects that are assumed to help the listener in dealing with understanding an entire work of musical art.

The aural test has other limitations. No attempt is made to measure discrimination of form, nor is an attempt made to measure the student's perception of timbre. It is composed of selections only from "serious" or "artistic" music. Examinees are not asked to make discrimination judgments about performance quality.

APPENDIX C MUSIC ACHIEVEMENT TEST

Information — Inventory

(The correct answer is underlined or written in the appropriate space. Following the correct answer is the Index of Difficulty followed by the Coefficient of Discrimination.)

1. Which instrument has a keyboard?
 - a. Marimba
 - b. Saxophone
 - c. Piano .94 and .11
 - d. Tuba

2. Which instrument can play the lowest note?
 a. Piccolo
 b. Trumpet
 c. Alto Saxophone
 d. Baritone Horn .73 and .30
3. Which person was not a composer of music?
 a. Beethoven
 b. Bach
 c. Brahms
 d. Wedgewood .87 and .43
4. Which musical group is most useful out of doors?
 a. Choir
 b. Band .64 and .19
 c. String Trio
 d. Vocal Quartet
5. Which instrument is least likely to be a member of the symphony orchestra?
 a. Violin
 b. Cello
 c. Trumpet
 d. Guitar .75 and .11
6. Which is the highest pitched type of voice?
 a. Baritone
 b. Alto
 c. Tenor
 d. Soprano .75 and .40
7. All but one of the following is an American composer. Which one is not?
 a. Richard Strauss .31 and .44
 b. Aaron Copland
 c. Leonard Burnstein
 d. Duke Ellington
8. Composers whose musical works contain the folk-tunes of their native country are called:
 a. Symphonists
 b. Nationalists .58 and .21
 c. Theorists
 d. Songsters
9. All, except one, of the following music media use both voices and instruments. Which one does not?
 a. Art Song
 b. String Quartet .23 and .56
 c. Oratorio
 d. Cantata

10. All, except one, of the following music forms take place on stage with costumes and movement. Which one does not?
 a. Opera
 b. Ballet
 c. Oratorio .77 and .40
 d. Musical Comedy
11. All, except one, of the following music forms usually have more than one movement. Which one does not?
 a. Symphony
 b. Sonata
 c. Suite
 d. Tone Poem .48 and .41
12. Which musical instrument would be difficult to march with?
 a. Clarinet
 b. Cello .65 and .41
 c. Fife
 d. Drum
13. Dances have played an important part in instrumental music. Many of our instrumental pieces are derived from dances. Mark all of the following that were or are dances.
 a. Waltz .63 and .23
 b. Rock .40 and .16
 c. Rondo .81 and .09
 d. Minuet .41 and .20
14. Chamber music was so called because it was played in a room (chamber) that was not extremely large. It usually refers to music in which there is just one player to a part. Which term does not designate a chamber music combination?
 a. String Quartet
 b. Piano Trio
 c. Concerto .36 and .41
 d. Sonata for Oboe and Piano
15. Listed are four nationalist composers and four of their compositions. Match the composer and his composition by placing a, b, c, and d in the proper space on the answer sheet.
- | | | | |
|---------------|---|--------------------------|-------------|
| Aaron Copland | a | a. Appalachian Spring | .16 and .34 |
| Edvard Grieg | c | b. Finlandia | .06 and .45 |
| Jean Sibelius | b | c. Peer Gynt Suite | .09 and .28 |
| Edward Elgar | d | d. Pomp and Circumstance | .04 and .20 |
16. Which form of music usually uses more than 1 theme?
 a. Lied
 b. Rondo .06 and .00
 c. Folk Song
 d. Round

17. Put these composers or musical events into the period of music history in which they belong by placing a, b, c, etc., in the proper space on the answer sheet. Answer all items.

Renaissance	ch(i)*	a. Chopin	.13 and .44
Baroque	e(i)l	b. Stravinsky	-.07+ and .00
Classical	g(j)	c. Palestrina	.16 and .22
Romantic	ad(j)	d. Wagner	.06 and .36
Modern	bfk	e. Handel	.09 and .08
		f. Jazz became wide-spread	.65 and .45
		g. The symphony as a form began	.19 and .38
		h. Madrigal is popular	.07 and .36
		i. Monteverdi	.28 and .08
		j. Beethoven	.35 and .39
		k. Copland	.17 and .53
		l. Bach	.02 and .37

18. Put these music forms into the larger forms of music of which they are a part. Use the answer sheet.

Symphony	d	a. Aria	.15 and .34
Opera	abc	b. Recitative	.13 and .38
Suite	efg	c. Act and Scenes	.55 and .51
		d. Sonata Allegro Form	.31 and .34
		e. Gigue	.22 and .34
		f. Sarabande	.16 and .34
		g. Allemande	.20 and .38

19. Match the following musical terms and symbols with the appropriate definition. Use the answer sheet.

^	d	a. A term used to indicate a lively or brisk speed of music.	.45 and .63
*	b	b. The pitch of a note is to be raised one whole step.	.14 and .61
Allegro	a	c. A Spanish dance in moderate triple time.	.28 and .64
Bolero	c	d. A sign to indicate a special emphasis be given a note.	.36 and .68
Cadenza	i	e. The largest bowed stringed instrument.	.73 and .56
Stringed Bass	e	f. The interval between the 1st and 8th note of consecutive diatonic tones.	.55 and .60
Maestoso	g	g. Instructions to the performer to perform the piece with a feeling of majesty.	.31 and .71
Octave	f	h. The staff marking for the alto clef.	.41 and .63
#	h	i. A passage near the end of a movement of music where the soloist improvises or plays alone on the material in the music.	.13 and .66

*Answers in parentheses accepted in either of periods shown.

+Only ten of 317 examinees answered this correctly. Correction for chance formula gives a negative index.

20. Harmony, or the sounding together of several notes as chords, enriches certain types of music. Which of the following types of music would contain harmony?
- Music for a vocal quartet .65 and .70
 - Drum music for a parade
 - A scale played on a clarinet
 - None of the above
21. In which of these items would harmony be of least importance?
- Music for a vocal quartet
 - Drum music for a parade .43 and .37
 - Scales on a clarinet
 - None of the above
22. Much of our music is written in some mode or key. The most common keys are called major and minor. Which of the following would be most apt to be written in a major mode or key?
- Funeral March
 - Blues Tune
 - Football March .41 and .33
 - Snare Drum Solo
23. Which term indicates music should be performed at a slow speed?
- Adagio .16 and .73
 - Coda
 - Presto
 - Tempo
24. Musical pitches are names "a," "b," "c," and so on. Scales as do, re, me, etc., or 1, 2, 3, etc. Following are some statements about music pitches and scales. Mark the incorrect statement.
- The scale in the key of C major begins on C and ends on C.
 - The scale of C major has seven different notes.
 - In the C major scale do, re, and me would stand for C, D, and E, and also for 1, 2, and 3.
 - In the C major scale there are three flats, B^b, E^b, and A^b.
.17 and .33

25. Which of the following samples is in a major mode or key?



*Although sixty examinees answered this item correctly, the index derived is a negative number due to the correction for chance element in the formula.

26. Which measure contains an example of syncopation?

a. b. c. .27 and .56 d.

27. Which musical symbol means to repeat the section of musical material?

a. .56 and .51 b. c. d.

28. Which example represents an incorrect use of the term?

a. Staccato b. Tie .47 and .32 c. Natural d. rest

29. Following are two familiar tunes. Sing them to yourself. Put the number of the measures containing errors in pitch in the appropriate place on the answer sheet. (There are three measures with errors in each example.)

a. 1. 2. 3. .11 and .38 4. 5.

6. 7. .43 and .66 8. 9. 10.

11. 12. 13. .13 and .32 .14

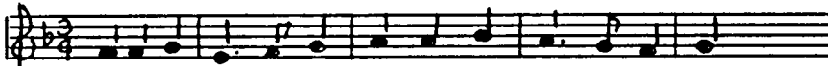
b. 1. 2. 3. .02 and .40 4. 5. 6. .05 and .47

7. 8. 9. 10. .07 and .45 11.

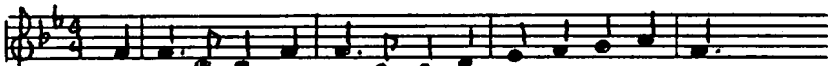
12. 13. 14. 15. 16.

30. Below are five familiar tunes. Sing them to yourself (not aloud) and write the name of each tune in the space indicated on the answer sheet. Each tune is shown as it begins.

a. America .19 and .73



b. America the Beautiful .12 and .58



c. Star Spangled Banner (or National Anthem) .18 and .68



d. Down in the Valley (or Hear the Wind Blow, or Birmingham Jail) .07 and 1.00



e. Volga Boat Song .03 and 1.00

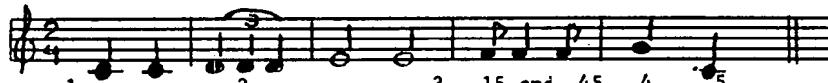


31. Each of the following examples has an error in rhythm. Put the number of the measure you think has an error in the appropriate spot on the answer sheet.

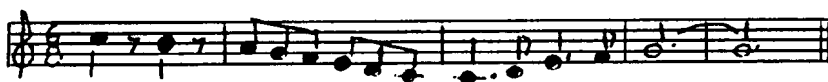
a. 1. 2. 3. .16 and .51 4. 5.



b. 1. 2. 3. .08 and .53 4. 5.



c. 1. 2. 3. .15 and .45 4. 5.



PART III: Please answer the following questions about yourself. Use the answer sheet for those items which apply to you. Mark an X on the answer sheet to indicate which of the following music you have had in school:*

A. Public School Music in Grades 1-6. (one point, if any)

B. Public School Music in Grades 7-8. (one point, if any)

*The coding system is shown in parentheses after each item. This data did not appear on the material given each examinee.

- C. Junior High School General Music, or Allied Arts. (one point, if this course was taken)
- D. Senior High School General Music, or Allied Arts. (one point, if this course was taken)
(Participation in each of the following music ensembles scored as follows: One point for 1 year, Two points for 2-4 years, and Three points for 5 or more years.)
- E. Class piano instruction in school for _____ Years.
- F. Band in school for _____ Years. (What instrument?)
- G. Choir in school for _____ Years.
- H. Stage band in school for _____ Years.
- I. Orchestra in school for _____ Years. (What instrument?)
- J. Solo and/or ensemble activities in school for _____ Years.

Mark an X on the answer sheet to indicate which of the following music you have had outside of school:

(On music instruction and participation outside of school, each of the following categories was scored as follows: One point for 1 year, Two points for 2-4 years, and Three points for 5 or more.)

- K. Private piano for _____ Years.
- L. Private voice for _____ Years.
- M. Private instruction on other instrument for _____ Years.
- N. Sung in church choir for _____ Years.
- O. Played or sung in civic events for _____ Years.
- P. Played or sung professionally. Describe.

Mark an X on the answer sheet or provide the information asked about music in your home:

(On music in the home, each of the following statements was scored as follows: One point for 1, Two points for 2-4, Three points for 5 or more.)

- Q. Number of people in your home who play piano or some other instrument.
- R. Number of musical instruments in your home.
- S. Number of people in your home who sing.
- T. Do members of your family play or sing together in your home?
Yes — No (If yes, 1 point; if no, 0 points.)

Check the answer in each case that most nearly fits you:

- U. How often do you attend concerts or operas? (Any kind of musical concert)
 - a. Never (0 points)
 - b. Upon occasion (1 point)
 - c. Frequently (2 points)
 - d. Very often (3 points)
 - e. On every possible occasion (4 points)

- V. How often do you listen to musical programs on radio, television, or play the record player?
- a. Never (0 points)
 - b. Upon occasion (1 point)
 - c. Frequently (2 points)
 - d. Very often (3 points)
 - e. On every possible occasion (4 points)

Rate yourself using the following answers that most nearly fit you. Please use the answer sheet.

- W. How well can you sing?
- a. Can't carry a tune. (0 points)
 - b. Can just sing a tune. (1 point)
 - c. Can sing before small audiences. (2 points)
 - d. Can sing before large audiences. (3 points)
 - e. Can sing professionally. (4 points)
- X. How well do you play an instrument?
- a. Not at all. (0 points)
 - b. Can't read music but can pick out a tune. (1 point)
 - c. Can read music a little. (2 points)
 - d. Can play for a small group and my own amusement. (3 points)
 - e. Can play recitals or concerts in public. (4 points)
- Y. How musically talented do you think you are?
- a. Very much below average. (0 points)
 - b. Somewhat below average. (1 point)
 - c. Average. (2 points)
 - d. Somewhat above average. (3 points)
 - e. Very much above average. (4 points)
- Z. How well can you read music?
- a. Not at all. (0 points)
 - b. Can read various notes, rests, etc. (1 point)
 - c. Can read music, but slowly. (2 points)
 - d. Can read music with ease. (3 points)

Check the statement below in each case with which you agree the most. (All kinds of music included)

- AA. How well do you like music? (Answer only 1)
- a. I like music but I could live without it. (0 points)
 - b. I like music as well as other forms of entertainment. (1 point)
 - c. Music is a real pleasure to me. (2 points)
- BB. How important do you think music is? (Answer only 1)
- a. Music is not for me in any form at all. (0 points)
 - b. Music is OK for those who like it. (1 point)
 - c. Music adds to many of our activities and life would be dull without it. (2 points)

- CC. When I do listen to music . . . (Answer only 1)
- a. I sort of like it, but I don't always understand what's going on all of the time. (1 point)
 - b. I like it for short periods of time. (2 points)
 - c. Music is too formal for me. (0 points)
 - d. I like music best when it tells a story I can understand. (2 points)
- DD. Many people have become famous composers and musicians. (Answer only 1)
- a. I admire composers and musicians but would not care much for it myself. (1 point)
 - b. It is unbelievable that anyone would want to spend his whole life doing music. (0 points.)
 - c. Music is one of the highly respected professions. (2 points)

FINAL COMMENTS TO THE READER

During the course of this study considerable statistical data was obtained. Because of space limitations these data are not included in this monograph, but may be found in the dissertation (218 pp.) which is available through University Microfilms or through inter-library loan from Indiana University. However, most of these data deal with correlations between test scores and individual personal musical experiences, and although significant are not central to the thrust of this study which is the amount of musical learnings retained.

Likewise, statistical formulae used in this study are not included in this abstract as a matter of space, but are fully described in the dissertation.

An exhaustive study of the four Missouri curriculum guides for music — elementary, junior high, senior high, and allied arts — was made by the investigator to determine the emphasis given the various areas of music training. From this study the particular questions used in the tests developed for this study were based. The process of evaluation of the guides for this purpose is shown in extensive detail in the study.

Finally the investigator does not presume that the tests used in this study measure all of the facets of school music training, but they are comprehensive enough to give a measure of much of the desired outcomes of school music training according to the guides. Data obtained from the examinee had to be obtained within a one-hour session and tests and the inventory were constructed accordingly.

THE STRUCTURAL ORGANIZATION OF THE SUBJECT MATTER OF MUSIC FOR ELEMENTARY AND JUNIOR HIGH CURRICULA

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The organization of the subject matter of music according to structural theories requires three things: (1) a clear definition of the structural dimensions of music that is applicable to all music, whatever its origin; (2) a statement of what there is to learn about these dimensions and their interactions; (3) a spiraling order of the material to be learned from the easiest to the most difficult. The following considerations of these points form the foundations for the listening curriculum developed by this author for Grades Kindergarten through Nine in "The Structural Method of Teaching Music Listening, Grades Kindergarten through Nine," a doctoral dissertation completed at Washington University in St. Louis, Missouri, in 1971.

I. Dimensions of Music

The dimensions of music may be loosely defined as those intrinsic elements which make music what it is. These intrinsic elements may concern characteristics of an isolated tone or tones in combination, whether vertical (tones sounding together) or horizontal (tones sounding in sequence). The attributes of a tone or combined tones are defined physically and psychologically. The psychological attributes of tones, which are the physical attributes as they are perceived by the listener, will be the basis for the definition of the structural dimensions of music here. They are pitch, loudness, timbre, and duration.

Lundin adds to the above, volume, density, and brightness.¹ The meaning he gives to these terms is included in timbre as it will be defined here.

Culver speaks of pitch, quality, loudness, and resonance. His use of quality corresponds to timbre. Resonance concerns vibrations within the cavity in which the sounds occur. This is also an aspect of timbre.²

For a practical definition of the structural dimensions of sounds in music, a hierarchy of three levels of perception, stated in psychological terms, seems most suitable. On the most basic level, the components of music are sound and silence, the simple presence or absence of sound. The second level consists of the specific properties of the individual sounds and silences. The dimensions at this level are:

1. pitch: perception of the highness or lowness of sound
 2. duration: perception of the time length of the sound
 3. timbre: perception of the quality of a sound based on what generates it and how it is generated
 4. loudness: perception of the degree of audibility of the sound
- Silence has only one dimension, duration.

The third level defines the dimensions of sounds and silences when they are combined, either vertically or horizontally or both. These correlate directly with the dimensions of level two.

From pitch of individual sounds flows:

1. pitch sequence: the highness or lowness of sounds in a horizontal series in relation to one another and to the underlying pitch set from which the tones are derived.

From duration of individual sounds and silences comes:

2. rhythm: the durational pattern in sounds and silences as they relate to one another and as they are measured by a time module.

From timbre flows the dimension:

3. media: identification of overall tone quality by identification of what makes the sounds.

From loudness comes:

4. dynamic level: the degree of loudness of tones in relation to one another and the loudness of a total sound sequence.

Two other dimensions are added at the third level of perception:

5. simultaneity: the result of sounds occurring together at one time.
6. form: the repetition or contrast that results when more than one sound occurs in a sequence.

The simple definition of the dimensions at the third level belies the complexity of material utilizing these dimensions. The complexity stems from the interaction of the dimensions in actual musical situations and the various ways in which they have been used throughout the history of music. A comprehensive categorizing of the various aspects of the dimensions as they are generally used and as they are used in specific historical or ethnic styles would constitute fourth and fifth levels in the hierarchy of perception. This listing would be a project of such vast scope that it would far transcend the limits of this paper. The author realizes that a knowledge of musical style will most probably result from the study of the dimensions of music and their interactions in various pieces of music. For the purpose of this project it will be sufficient to list the aspects of each dimension which are considered to be a part of the total body of subject matter to be taught from kindergarten through the ninth grade.

It is to be noted that the definition of the dimensions of music at all three levels can be applied to all sound, not music exclusively. The agent which distinguishes music from other sound (noise) is organization. When pitch, rhythm, media, dynamic level, simultaneity, and form are organized, whether the manner of organization be highly structured or aleatoric or random, music is the result. When they are not organized, the result may be said to be noise.

II. The Structure of the Material to be Learned

THE SUBJECT MATTER CONTENT

There are concepts to be learned about each of the dimensions of music and their interactions. Conceptual statements of material to be learned about each of the dimensions of music, as defined at the third

level of perception, are stated below. These are limited to those basic notions about the dimensions generally thought suitable for inclusion in the average child's musical study from its beginning through the ninth grade.

The concepts were drawn from a compendium of factual material gleaned from curricula of five large school systems in various parts of the country, from lists of material contained in four of the leading textbook series for use from kindergarten through eighth grade, from graded attainments listed in five selected college textbooks for teacher training in music at the elementary level, and from selected books about the dimensions of music.

The material to be learned, proposed in this paper, is not utterly unlike that found in the above sources. This author has very little quarrel with the factual material included in these sources. Their faults lie in the orientation, statement, and organization of the materials. The innovative contribution of this article is the structural approach to the subject matter, the conceptual statement of the material to be learned, and careful cycling of material from the easier to the more difficult. It offers a logical, economical, and efficient manner of organizing development in knowledge about music.

CONCEPTUAL STATEMENT OF MATERIAL TO BE LEARNED

The material to be learned grows out of the following basic concepts. The concepts are stated in relation to each of the dimensions of music. Sub-statements are examples of facts related to the basic concepts. They are not all inclusive but are simply to illustrate the conceptual statement.

I. Pitch Sequence

A. Understanding of pitch in music growing out of perception of relative highness or lowness

1. tonal direction of several pitches: up, down, same
2. pitch sequences in which tones are close together or wide-spread

B. Understanding of the representation of the pitch of aural phenomena by mutually agreed upon symbols

1. line notation
2. numbers and letters
3. use of sol-fa
4. conventional notation
5. other: graphic notation, etc.

C. Understanding that pitches can be codified into sets (scales)

1. major
2. minor
3. other modes
4. 12 tone
5. microtonal

D. Understanding of the structure of the various sets

1. intervallic relation of pitches within a set
2. in tonal sets:
 - a. recognition of the tonal center
 - b. recognition of the relation of pitches in the set to the tonal center

- c. recognition of the function of key signatures
 - d. recognition of the relation of one set to other sets, e.g., major to minor — relative or parallel
 - E. Understanding of the function of the sets of pitches
 - 1. relationship of a particular pitch sequence to the set on which it is based
- II. Rhythm
- A. Understanding of rhythm in music growing out of perception of the relative duration of sounds
 - 1. relative duration of several sounds: long or short
 - 2. two to one relationships; three to one relationships
 - 3. effect of tempo on duration: fast, slow, or degrees between
 - B. Understanding of pulse, its characteristics and function
 - 1. recognition of the function of a time module in measuring the duration of sounds
 - 2. perception and feeling of consistent pulse
 - 3. recognition of accents and their function
 - 4. recognition of the function of a pulse grouping in relation to the duration of sounds in particular circumstances
 - C. Understanding of the representation of the durational aspects of aural phenomena by mutually agreed upon symbols
 - 1. rhythm of word syllables
 - 2. graphic notation
 - 3. conventional notation: note values
bar lines
meter signatures
- III. Media
- A. Understanding of the use of media in music growing out of perception of differences in the timbre of sounds
 - B. Understanding of the fact that the timbre of sound is determined by
 - 1. what makes it, e.g., the material producing the sound, its size, and its shape
 - 2. who makes it, e.g., the agent activating the sound production material
 - 3. how it is made, e.g., blowing, striking, plucking, etc.
- IV. Dynamic Level
- A. Understanding of the use of dynamics in music growing out of perception of relative loudness of sounds
 - B. Understanding of the representation of relative loudness of aural phenomena by mutually agreed upon symbols
 - 1. graphic notation
 - 2. conventional dynamic markings
- V. Simultaneity
- A. Understanding of simultaneity in music growing out of perception of more than one sound occurring at the same time
 - 1. recognition that texture thickens as the number of simultaneities increases and thins as the number decreases

- B. Understanding of the fact that simultaneity may be primarily linear (horizontal) or primarily vertical
 - 1. polyphony
 - 2. homophony
 - 3. amphony
 - C. Understanding of the relative importance of consonance and dissonance
 - 1. relativity of the terms consonance and dissonance
 - 2. role of consonance and dissonance in tonality; in atonality; in polytonality
 - D. Understanding of the representation of the simultaneity of aural phenomena by a mutually agreed upon system
 - 1. stacking of notes as an indication of simultaneity
 - 2. stacking of staves with vertical alignment of notes indicating simultaneity
 - E. Recognition of various systems of simultaneity
 - 1. tonal harmony
 - 2. simultaneity in pentatonic, whole tone, or 12 tone systems
 - 3. unrestricted simultaneities: environmental sounds
aleatoric music
- VI. Form
- A. Understanding of the use of form in music growing out of perception of repetition and contrast in a series of sounds
 - B. Understanding of the function of repetition, contrast, and variation in determining structural forms: conventional forms
free forms
 - C. Understanding of the representation of formal elements of music by mutually agreed upon symbols
 - 1. conventional, e.g., repeat marks, first and second endings, etc.
 - 2. other

VII. The Cycling of the Material

The ordering of the material supporting the foregoing concepts is the next step in building a structural, cyclic curriculum. The material must be stated factually, then ordered in a gradually spiraling cycle from the most fundamental fact to be learned to the most difficult and complex. This cycle must be stratified so that realistic attainments for each grade can be stated.

It is important to note that once any aspect of any dimension of music is placed in the spiral, it continues throughout the cycle, becoming broader and deeper at successive levels of the spiral. A student at the most advanced level should still encounter the most fundamental fact learned in his musical experience.

Awareness of the stages of development posited by Jean Piaget regarding a child's supposed receptivity to certain kinds of knowledge at various stages, as well as the intrinsic simplicity or complexity of the subject matter, influences the position of each item in the cycle.

**FACTUAL STATEMENT OF MATERIAL TO BE LEARNED
RELATING TO EACH DIMENSION³**

- I. Pitch Sequence
- A. Understanding of the use of pitch growing out of perception of relative highness or lowness
1. perception of pitches as high or low or in between in relation to one another
 2. perception of pitches as close together or widespread, e.g., stepping or skipping within a major scale
 3. perception of pitch sequences as moving up, down, or staying the same
 4. perception of conjunct pitch sequence and disjunct pitch sequence
 5. aural recognition and vocal reproduction of pitch sequences within major and minor scales by association of sol-fa syllables to sound
- B. Understanding of the representation of the pitch of aural phenomena by mutually agreed upon symbols
- Recognition and use of:
1. line notation: ascending patterns, descending patterns, repeated patterns, melodic contour
 2. conventional notation without staff; on staff
 3. clefs and their meaning
 4. application of sol-fa to written notation
 5. letter names of pitches in relation to piano or other instrument
 6. letter names of the lines and spaces of the staff: treble, bass, grand
 7. graphic notation
 8. experience with electronic notation
- C. Recognition that pitches can be codified into sets
1. aural experience of sets: major, minor, other modes, pentatonic, whole tone, 12 tone, microtonal, other
- D. Recognition of the structure of the various sets
1. intervallic relation of pitches within a set
 - a. structure of major and minor scales; arrangement of whole and half steps in relation to piano keyboard; forms of minor — natural, harmonic, melodic
 - b. structure of other scales: modal, whole tone, 12 tone, pentatonic, other
 - c. in tonal sets: recognition of tonal center; recognition of relation of other pitches in set to tonal center; recognition of the function of key signatures; recognition of the relation of one set to another: major to relative minor and parallel minor, tonic to dominant, tonic to sub-dominant; experience of key shifts and modulation
 - d. structure of microtonal systems

- E. Recognition of the function of the sets of pitches**
1. understanding of the relation of a particular pitch sequence to the set upon which it is based
 2. melodic devices: sequence; octave transposition; neighboring tones; passing tones; retrograde; inversion; retrograde-inversion
 3. recognition of main melody in situations where simultaneity occurs

II. Rhythm

- A. Understanding of the use of rhythm in music growing out of perception of the relative duration of sounds**
1. perception of sounds as long or short in relation to one another
 2. feeling of two to one relationships; three to one relationships
 3. perception of tempo: fast, slow, or degrees between
 4. perception of: relation of tempo to description and expression; relation of tempo to form; relation of tempo to dynamic level; relation of tempo to changes in metrical groupings
- B. Recognition of pulse, its characteristics and function**
1. perception and feeling of steady pulse
 2. recognition of the function of a time module in measuring the length of sounds
 3. recognition of accents and their function of grouping pulses
 4. perception of the difference between the pattern of the sounds and the pulse
 5. recognition of the function of a pulse grouping in relation to the duration of sounds in particular circumstances: perception of groupings by two, three, and four; recognition that some sounds move with the pulse (beat), some move faster, and some move slower
 6. recognition of syncopation and polyrhythm
- C. Understanding of the representation of the durational aspects of aural phenomena by mutually agreed upon symbols**
- Recognition and use of:
1. rhythm patterns of words
 2. bar lines and measures
 3. meter signatures; measures in relation to meter signatures: simple meters, e.g., $2/4$, $3/4$, $4/4$, $4/2$ and compound meters, e.g., $6/8$, $6/4$, $9/8$, $12/8$; complex or unusual meters; changing meter, polymeter
 4. note and rest values: two to one relationships — whole, half, quarter, eighth, sixteenth
three to one relationships — dotted whole, dotted half, dotted quarter, dotted eighth, dotted sixteenth
 5. augmentation
 6. diminution
 7. durational pattern as different from beat or meter, but as related to beat or meter or other durational module
 8. tied notes

9. terms: *allegro*, *andante*, *lento*, *moderato*, *largo*, *presto*, *vivace*, *allegretto*, *ritard*, *accelerando*
10. unusual notation of rhythm, e.g., time modules in Haabensstock-Ramati's *Liasons*

III. Media

- A. Understanding of the use of media in music growing out of the perception of differences in the timbre of sounds
 1. discrimination of two or more sounds as the same or different
 2. recognition of own vocal production: singing as distinct from speaking
 3. aural and visual recognition of common classroom instruments: autoharp, recorder, resonator bells, various percussion instruments
 4. aural and visual recognition of: symphonic instruments, Latin American instruments, keyboard instruments, folk and informal instruments
 5. recognition of ancient instruments and unusual instruments, e.g., newly invented ones as those of Harry Partch
 6. aural recognition of various vocal qualities and ranges: women's voices — soprano, contralto; men's voices — tenor, baritone, bass
 7. recognition of vocal and instrumental ensembles: women's chorus, men's chorus, mixed chorus, vocal quartet, trio, duet; orchestra, band, string quartet, woodwind quintet, trios of various composition
 8. experience of other vocal and instrumental ensembles
 9. experience and manipulation of environmental sound sources
 10. experience and manipulation of electronic sound sources
- B. Recognition that the timbre of sound is determined by:
 1. what makes it, e.g., the material producing the sound, its size and shape
 - a. recognition and use of sounds made by metal, skin, wood; large objects generally make lower sounds; small objects generally make higher sounds
 - b. discrimination between sounds made by strings, wind, metal, wood, skin
 2. who makes it, e.g., the agent activating the sound production mechanism; differences in performers
 3. how it is made, e.g., blowing, striking, plucking, bowing, scraping, rubbing, singing
 4. recognition that the manner of playing affects the sound: *staccato*, *legato*, *portando*, *glissando*, *marcato*
 5. recognition of the relation of timbre to expressiveness and description
 6. recognition of the change in timbre related to dynamic change

IV. Dynamic Level

- A. Understanding of the use of dynamics in music growing out of perception of the relative loudness of sounds
 1. recognition and use of: loud, soft, and degrees between; sudden change; gradual change

2. understanding of: relation of dynamics to melodic contour; relation of dynamics to tempo; use of dynamics for expressiveness and description
 - B. Understanding of the representation of the relative loudness of aural phenomena by mutually agreed upon symbols
 1. recognition and use of: piano, forte, crescendo, decrescendo, mezzoforte, mezzopiano, pianissimo, fortissimo
 2. experience of dynamics in graphic notation: size, intensity of color, and thickness of symbols as indications of dynamics
- V. Simultaneity
- A. Understanding of the use of simultaneity growing out of perception of more than one sound occurring at the same time
 1. recognition that texture thickens as the number of simultaneities increases and thins as the number decreases
 - B. Recognition that simultaneity may be primarily linear (horizontal) or primarily vertical

Recognition and use of:

 1. polyphony: imitative, canonic, non-imitative, counterpoint in terms of contrast with homophony
 2. homophony: chords, chordal accompaniment — block chords, repeated chords, broken chords, sustained chords
 - C. Recognition of the relative importance of consonance and dissonance
 1. relativity of the terms consonance and dissonance
 - a. recognition of intervals: 3rds, 5ths, 4ths, octaves, 2nds, 6ths, 7ths
 - b. definition of consonance as simultaneities that rest, requiring no resolution; definition of dissonance as simultaneities that do not rest and seem to require resolution
 2. consonance and dissonance in tonality; in atonality; in polytonality
 - a. recognition and use of consonance and restricted dissonance
 - b. recognition and use of unrestricted dissonance
 - D. Understanding of the representation of the simultaneity of aural phenomena by a mutually agreed upon system
 1. recognition of stacking of notes as an indication of simultaneity
 2. recognition of stacking of staves with vertical alignment of notes indicating simultaneity
 - E. Recognition of various systems of simultaneity
 1. tonal harmony
 - a. relation of "do" to tonic chord in major; relation of "la" to tonic chord in minor
 - b. chord structure: stacked 3rds, 4ths, 5ths
 - c. chord progression: use of I, V7, IV, ii; use of i, V7, iv
 - d. harmonic rhythm
 - e. key relationships: relation of a specific chord to different tonal centers

2. simultaneities in pentatonic, whole tone, and 12 tone systems
3. unrestricted simultaneities: environmental sounds, electronic sounds, aleatoric sounds, clustered pitches

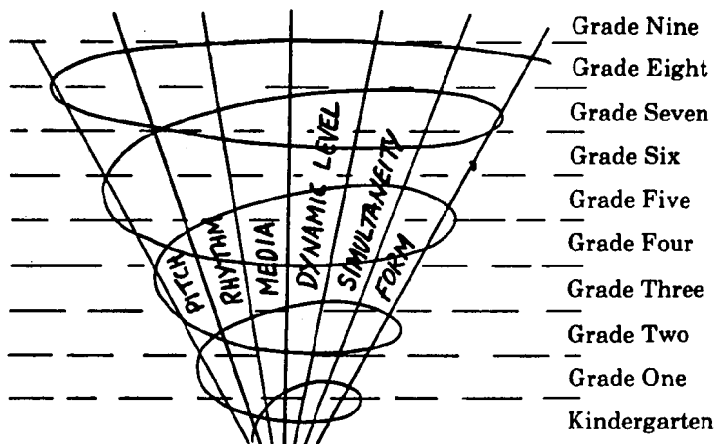
VI. Form

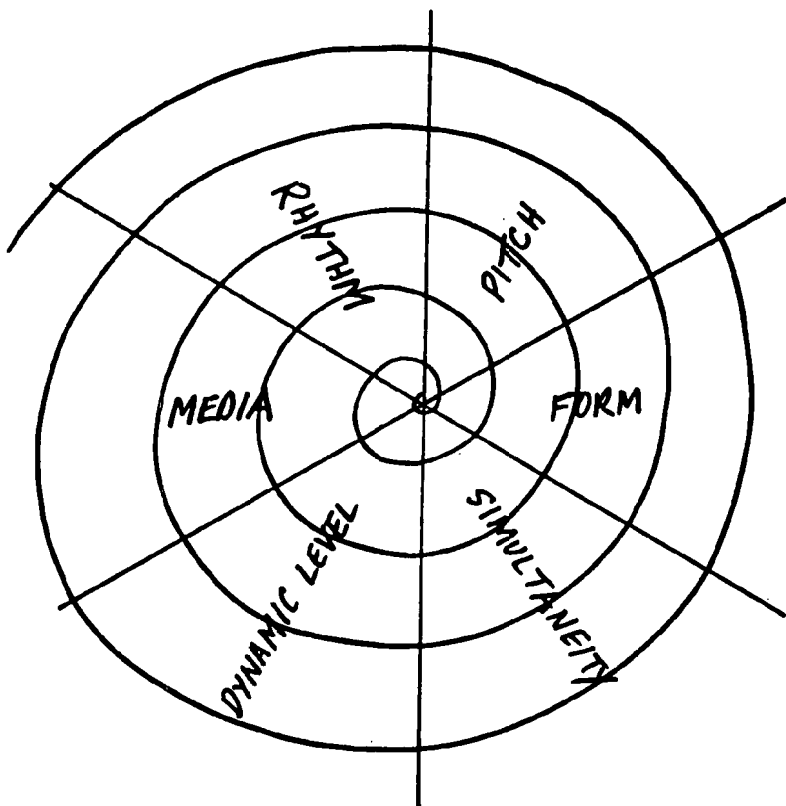
- A. Understanding of the use of form in music growing out of perception of repetition and contrast in a series of sounds
 1. recognition of repetition, contrast, and variation
- B. Recognition of the function of repetition, contrast, and variation in determining structural form
 1. formal elements: theme, cadence, sequence, phrase, introduction, coda
 2. formal devices: ostinato, fugue, echo, antiphon
 3. sectional forms: binary, ternary, variations, rondo, sonata allegro
 4. contrapuntal forms: fugue, chaconne, passacaglia
 5. through-composed forms: free forms
- C. Understanding of the representation of formal elements of music by mutually agreed upon symbols
 1. conventional: repeat marks, first and second endings, d.c. al fine, fine, dal segno
- D. Understanding of the relation of form to other dimensions
 1. influence of media on form: symphony, sonata, concerto, opera, oratorio
 2. principles of unity and variety in large forms

SPIRALING CYCLE OF MATERIAL TO BE LEARNED

A graphic representation of the spiraling cycle of material follows. The spiral is shown in two ways: vertically, to illustrate progress through the subject matter in depth, the easier concepts being at the bottom of the spiral; and horizontally, to illustrate the broadening of knowledge that should take place, the easier concepts being in the center of the spiral.

The spiral is divided into six areas, representing the six dimensions of music. It is also stratified, representing the division of material into graded levels.





A factual statement of the material relating to each dimension, stratified according to grade level, follows. This material would fit into the corresponding columns and levels on the diagrams.

The reader should always bear in mind that once any aspect of any dimension of music is placed in the spiral, it continues throughout the cycle, becoming broader and deeper at successive levels of the spiral. A student at the most advanced level should still encounter the most fundamental fact learned in his musical experience, but in a more complex way. It is also important to note that the actual musical selections chosen may contain materials that can be used at different levels. For example, Stravinsky's "Double Canon for String Quartet" might be used at the seventh grade level for a study of the twelve tone system; it might also be used at the first grade level for a study of texture thickening as simultaneities increase.

Generally, progression in contact with the material to be learned goes from exposure to perception, then to recognition and manipulation. Exposure to all aspects of each dimension of music is presupposed at the earliest grade levels. It consists of the mere presence of the musical reality in proximity to the learner. Perception is difficult to measure,

however, it is supposed to occur when the listener's attention has been directed to the musical stimulus. Recognition consists in the identification of some aspect or aspects of the musical dimensions heard in a piece of music. Manipulation is had when the learner has sufficient control over a musical fact to use it himself.

In order to facilitate application of the actual statement of the material to the diagrams of the cycle, the following pages should be read from bottom to top.

I. Pitch

N.B. READ THIS PAGE FROM BOTTOM TO TOP

EXPOSURE TO

- Grade 9** exposure to electronic notation
* * *
- Grade 8** recognition and use of graphic notation;
manipulative experience with key shifts and modulations
* * *
- Grade 7** recognition of the structure of modal, whole tone, twelve
tone, pentatonic and other scales;
recognition of melodic devices: sequence, octave transposi-
tion, inversion, retrograde inversion
* * *
- Grade 6** recognition of one tonal set to another: major to relative
and parallel minor;
recognition of the forms of minor: natural, harmonic, me-
lodic;
recognition of the structure of minor scales;
manipulation of microtonal sets
* * *
- Grade 5** recognition of the structure of major scales; arrangement
of whole and half steps on the keyboard
* * *
- Grade 4** recognition and use of the letter names of pitches in relation
to the keyboard;
recognition and use of the letter names of the lines and
spaces of the grand staff
* * *
- Primary 3** recognition of the main melody in situations where simul-
taneity occurs;
recognition of the relation of a particular pitch/sequence to
the set on which it is based;
recognition of the relation of pitches in tonal sets to the
tonal center
recognition and use of key signatures
* * *

- Primary 2 manipulation of sol-fa syllables applied to written notation;
aural recognition and vocal reproduction of pitch sequences
in major and minor modes by association of sol-fa syllables
to sound
* * *
- Primary 1 aural recognition of tonal centers in tonal pieces;
recognition and use of retrograde, neighboring tones, and
passing tones;
recognition and use of conventional pitch notation in ascend-
ing, descending, and repeated patterns on the staff;
recognition and use of conventional pitch notation in ascend-
ing, descending, and repeated patterns without staff lines;
recognition and use of line notation as a representation of
pitch contour;
perception of pitch sets: pentatonic, major, minor, other
modes;
perception of conjunct and disjunct pitch sequence;
perception of pitches as close together or widespread, e.g.,
stepping or skipping within a major scale;
* * *
- Kindergarten perception of pitch sequences as moving up, down, or staying
the same;
perception of pitches as high or low in relation to one another

II. Rhythm

N.B. READ THIS PAGE FROM BOTTOM TO TOP

- Grade 9 recognition of the unusual notation of rhythm, e.g., time
modules in Haabenstock-Ramati's *Liasons*;
recognition of the lack of steady pulse in a piece of music
* * *
- Grade 8 recognition and use of notation of complex meters and poly-
meter
* * *
- Grade 7 recognition and use of augmentation and diminution
* * *
- Grade 6 recognition and use of terms: *allegro*, *andante*, *lento*, *mod-
erato*, *largo*, *presto*, *vivace*, *allegretto*, *ritard*, *accelerando*;
recognition and use of changing meter;
recognition of the relation of tempo to form
* * *
- Grade 5 recognition and use of syncopation;
recognition and use of tied notes;
recognition and use of compound meters;
* * *

- Grade 4 recognition and use of three to one relationships in note values, e.g., dotted whole to half note; dotted half to quarter note; dotted quarter to eighth note; dotted eighth to sixteenth note;
recognition and use of sixteenth notes
* * *
- Primary 3 recognition and use of simple meter;
recognition of the relation of measures to meter signatures;
recognition that the durational pattern of the notes can be different from the beat but is related to the beat or other durational module;
recognition of the function of bar lines and measures
* * *
- Primary 2 recognition of the function of the beat or other time module in measuring the duration of sounds;
recognition that sounds in music may move with the pulse, faster than the pulse or slower than the pulse;
recognition of beats grouped by twos, threes, or fours
* * *
- Primary 1 perception of the relation of tempo to description and expression;
recognition and use of two to one relationships in note values, e.g., whole to half, half to quarter, quarter to eighth;
recognition of notes: half, whole, quarter, eighth and corresponding rests;
* * *
- Kindergarten perception of the difference between the pattern of sounds and the beat;
recognition of accents and their function of grouping pulses;
perception and feeling of a steady pulse;
perception and feeling of three to one relationships (Compound meters);
perception and feeling of two to one relationships (simple meters);
perception of sounds as long or short in relation to one another;
perception and reproduction of the rhythm patterns of words;
perception of tempo: fast, slow, or in between

III. Media

N.B. READ THIS PAGE FROM BOTTOM TO TOP

- Grade 9 recognition that the manner of playing instruments affects the sound: staccato, legato, portando, glissando, marcato
recognition of unusual instruments, newly invented ones, e.g., those of Harry Partch
* * *

- Grade 8 recognition of instruments of non-European origin
* * *
- Grade 7 recognition of ancient instruments
* * *
- Grade 6 recognition of other vocal or instrumental ensembles and
 qualities of solo voices: soprano, contralto, tenor, baritone,
 bass
 recognition of vocal and instrumental ensembles: women's
 chorus, men's chorus; vocal quartet, trio, duet; string
 quartet, woodwind quintet; various instrumental trios
 * * *
- Grade 5 recognition and manipulation of electronic sound sources
 recognition of the change in timbre related to dynamic
 change
 * * *
- Grade 4 aural and visual recognition of Latin American instruments,
 folk and informal instruments
 recognition of lesser known symphonic instruments
 recognition that the timbre of a sound is affected by how the
 sound making material is activated, e.g., blowing, striking,
 plucking, bowing, rubbing, scraping
 * * *
- Primary 3 recognition of symphonic instruments by families: strings,
 woodwinds, brasses, percussion
 aural and visual recognition of oboe, bassoon, viola, cello,
 and bass, trombone, French horn, and tuba, and various
 percussion instruments
 * * *
- Primary 2 aural recognition of the difference between men's and wom-
 en's voices
 recognition of vocal and instrumental ensembles: chorus,
 band, orchestra
 recognition that the timbre of sound is affected by the people
 who produce the sound
 * * *
- Primary 1 aural and visual recognition of keyboard instruments: organ
 and piano
 aural and visual recognition of symphonic instruments:
 violin, flute, clarinet, trumpet, drums
 * * *
- Kindergarten recognition and use of sound made by wood, metal, and skin
 or plastic
 recognition that the size of a sound maker affects its pitch:
 large instruments generally make low sounds: small things
 generally make high sounds
 recognition of the relation of timbre to expression and de-
 scription

aural and visual recognition of common classroom instruments: autoharp, percussion instruments, etc.
 recognition of own vocal production: singing as distinct from speaking
 recognition and manipulation of environmental sound sources
 perception and discrimination of two or more sounds as the same or different

IV. Dynamic Level

N.B. READ THIS PAGE FROM BOTTOM TO TOP

- Grade 8 exposure to dynamics in graphic notation: size, intensity or color, and thickness of symbols as indications of dynamics
* * *
- Grade 7 recognition of the relation of dynamics to relative consonance and dissonance
* * *
- Grade 5 recognition of the relation of dynamics to melodic contour
recognition of the relation of dynamics to tempo
* * *
- Grade 4 recognition and use of piano (p), forte (f), crescendo, decrescendo, mezzoforte, mezzopiano, pianissimo, fortissimo
* * *
- Primary 1 recognition of the use of dynamics for expression and description
* * *
- Kindergarten recognition and use of loud, soft, and degrees between; sudden change; gradual change

V. Simultaneity

N.B. READ THIS PAGE FROM BOTTOM TO TOP

- Grade 9 recognition of unrestricted simultaneities: electronic sounds, aleatoric sounds, clustered pitches;
* * *
- Grade 8 recognition of the stacking of staves in vocal and instrumental score with vertical alignment of notes indicating simultaneity;
recognition of key relationships: relation of a specific chord to various tonal centers;
recognition of harmonic rhythm
* * *

- Grade 7 recognition that simultaneity may be primarily vertical or primarily linear (horizontal) or a combination of both: homophony, polyphony, amphony;
recognition of the relativity of the terms consonance and dissonance;
recognition and manipulation of simultaneities in whole tone and twelve tone systems
* * *
- Grade 6 recognition of consonance in tonal harmony as simultaneities that rest and do not require resolution; recognition of dissonance in tonal harmony as simultaneities that do not rest and do require resolution;
recognition of the relation to "la" to the tonic chord in minor;
recognition and use of chord progressions: i, V
* * *
- Grade 5 recognition of chord progressions: I, V
recognition of chord structure as stacked intervals;
recognition of the relation of "do" to the tonic chord in major
* * *
- Grade 4 recognition of intervals: thirds, fourths, fifths, octaves, seconds, sixths, sevenths in relation to sol-fa syllables
* * *
- Primary 3 recognition and use of chordal accompaniment: block chords, repeated chords, broken chords
* * *
- Primary 2 recognition and use of canon;
recognition of the stacking of notes as an indication of simultaneity
* * *
- Primary 1 recognition that texture thickens as the number of simultaneities increases and thins as the number decreases;
* * *
- Kindergarten perception and use of unrestricted dissonance;
perception and use of restricted dissonance and consonance

VI. Form

N.B. READ THIS PAGE FROM BOTTOM TO TOP

- Grade 9 recognition of unconventional forms
* * *
- Grade 8 recognition of through-composed forms
* * *

- Grade 7** recognition of contrapuntal forms: fuge, chaconne, passacaglia
 recognition of formal devices of fugue and antiphon;
 recognition of the influence of texture on form
 * * *
- Grade 6** recognition of variations, rondo, sonata allegro;
 recognition of themes and their function
 * * *
- Grade 5** recognition of the principles of unity and variety in large forms
 * * *
- Grade 4** recognition of the influence of media on form: symphony, concerto, sonata, opera, oratorio
 * * *
- Primary 3** recognition of binary and ternary forms
 * * *
- Primary 2** recognition of cadence, introduction, and coda
 * * *
- Primary 1** recognition of phrases;
 recognition of repetition, contrast, and variation
 * * *
- Kindergarten** manipulation of ostinato and echo;
 recognition of sounds as the same or different in relation to each other

¹Lundin, Robert W., *An Objective Psychology of Music* (New York: The Ronald Press Company, 1953), pp. 53-56.

²Culver, Charles A., *Musical Acoustics* (New York: McGraw Hill Book Company, 1956).

³Only material considered suitable for inclusion in a K-9 curriculum is listed. Some aspects of the total subject matter of music are necessarily omitted.

A STUDY OF MUSICAL ACHIEVEMENT OF CHILDREN IN AN ECONOMICALLY DEPRESSED AREA

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STATEMENT OF PROBLEM

The purpose of the study was to investigate the musical achievement of children living in an economically depressed, inner-city area in the eastern part of the United States. Scores were then compared with those of children in economically depressed and advantaged areas of midwestern cities, as reported in a previous study by Hill.¹ Children living in Hoboken, New Jersey, were selected for the eastern city sample. A summer cultural arts program was being planned for these children. Musical achievement test scores were of use in planning appropriate musical activities for the summer program. Some study was also made of environmental factors effecting these scores.

ORIGIN OF THE PROBLEM

Hill's study indicated a relationship between deprived environmental conditions and deficiencies in musical achievement. It was of interest to compare the test scores of children in Hoboken with those of children from deprived and advantaged homes in cities in the midwest where Hill collected data. Hill stated that

It may well be that the acquisition of musical skills is also the result of an enculturative process which begins early in life, well before school age; that such necessary skills as pitch perception, tonal memory, rhythmic comprehension, and even aesthetic value systems begin their implantation, before the implementation of formal school training.²

Music, as a form of behavior, must be learned. To be musically capable, a child must learn the skills necessary for musical performance. These skills may be identified, measured and described for various age groups within a culture. In this study, the musical skills of children in Hoboken, New Jersey, were studied so the most appropriate summer music activities could be planned.

The summer cultural arts program for children in Hoboken was a cooperative effort of several agencies. However, most of the funds were from Model Cities and the New Jersey Council of the Arts. Activities in art, music, dance, photography, drama, and sports were included. The primary goal was to provide supervised recreational activities for the children. However, attempts were made to choose activities that would have educational value and offer enrichment in areas that were not available in the school program. Therefore, the musical achievement tests were administered to describe existing levels of musical achievement and to identify skills that existed as well as areas where deficiencies were apparent. This information provided a basis for comparison of scores from this popula-

tion with those from children tested by Hill. The information also led to a more successful design of a summer music program than would have been possible without some objective measurement of existing skills.

RELATED LITERATURE

The study that was most related to this project was by Hill.³ He studied the musical achievement of advantaged and disadvantaged children in kindergarten and first grade, and fourth, fifth, and sixth grades. Hill found that "a relationship between deprived environmental conditions and deficiencies in musical achievement seems established."⁴ At all grade levels tested, the advantaged children scored significantly higher than the disadvantaged children. This study provided data for comparison with scores from children in Hoboken.

Wheeler and Wheeler⁵ were among the first to study musical ability of deprived children, with the implication that environmental factors were related to the test scores. They used the Seashore Tests to compare musical talent of mountain children with a number of other groups which had also been tested with the Seashore Tests. The mountain children were from Tennessee and in grades five through eight. The mountain children scored below the norms for the Seashore Tests. Their scores were particularly low on tests of pitch and tonal memory. However, when compared to other groups which might also be considered disadvantaged (children from city slums, Indian reservations, etc.) they scored somewhat higher.

In reviewing the literature on areas in which a disadvantaged childhood seems related to achievement, the following concepts seem to be formulated: 1) a lowered I.Q., sometimes severe enough to indicate retardation, is found among many children in disadvantaged areas; 2) poor self-concept seems to lead to expectations of failure and affects motivation to be involved in school; 3) low academic achievement is particularly evident in reading, language usage, and subjects requiring careful listening; 4) although disadvantaged children may be as creative as advantaged children while they are young, a decrease in creative ability is evident if this ability is not encouraged in school; 5) many disadvantaged children have emotional problems related to the insecurity in a home where all members are affected by acculturation difficulties. Since achievement in music is related to all of these factors, it seems likely that disadvantaged children would score lower than advantaged children on tests of musical achievement. Additional factors which would support this hypothesis are that these children hear very little music at home, are not taken to concerts, and may attend schools where little music education is available.

PROCEDURE

Testing Procedure

The Primary Music Skills Test,⁶ compiled by Hill, was given to children in kindergarten and first grade; the Gordon Musical Achievement Profile⁷ was given to children in the fourth, fifth, and sixth grades. The Primary Music Skills Test consists of 36 items, partitioned into subsections:

1. Interval Matching (five-note interval combinations)
2. Unknown Phrase Imitation (three, four, five, six and seven note phrases)
3. Tone Matching (10 single tones)
4. Song Phrase Performance (eight bars each of three familiar children's songs)
5. Tap Recognition (involving recognition of three familiar song rhythms as clapped)
6. Tap Imitation (ten rhythms of increasing length and complexity)

Each child was tested individually and a maximum time of 15 minutes was allowed for each test.

The Gordon Musical Achievement Profile measures the child's ability to relate what he hears to what he sees in the test booklet. There are three subsections: Melodic, Rhythmic, and Harmonic. Each section has 46 items. The child must determine whether the taped example is like item one or item two in the booklet, or if it is not given in the booklet. This test can be given to groups of children, rather than individually. Forty-five minutes are required to administer this test.

Subjects

The tests were given to children in the Hoboken Public Schools that were designated as Model Cities Schools. Since the tests for kindergarten and first grade had to be given individually, there was not enough time to test all of the children in those grades. A random sample of 28 children in each grade was selected.

Since data from this study was to be compared with that by Hill, it was important to select Ss by similar criteria. In Hill's study, the sample included 757 children from three large midwestern cities. The children represented two groups:

1. Deprived: children from homes where the income did not exceed \$3,000 per year and where the parent was on some kind of relief roll. Half of this group was from homes where there was never more than one parent present or broken homes.
2. Advantaged: children from homes with an income of \$7,000 to \$25,000 per year. Only 10% were from broken homes.

It was possible to compare data by randomly selecting scores from the total sample. The total sample included children that would be representative of Hill's deprived and advantaged groups. According to the Hoboken Model Cities Comprehensive plan,⁹ there are 1440 households with an income of under \$3,000 and 4975 households with an income of \$7,000 or more. The "median reported household income for the community is under \$5,000."⁹

Facilities and Equipment

Since the Hoboken school children did not begin summer vacation until

June 19, it was possible to collect the data before school was out. In kindergarten and first grade, the child's responses were taped on a Sony stereo cassette recorder (solid state TC-130) for later scoring. Responses were in the form of an "echo" game, with the examiner singing the pitches and playing them on song bells (bells were used in Hill's study rather than piano because they were portable and testing was possible in any available room that was fairly quiet). The Gordon Musical Achievement Profile was on tape, so a tape recorder, pencils, and test booklets were the only materials needed. (A Sony 230 tape recorder was used to play the tape).

PRESENTATION OF DATA

Comparison of Musical Achievement Scores of Groups Within Hoboken Kindergarten and First Grade. Composite scores as well as scores from the six subsections of the Primary Music Skills Test were considered in comparison. An Analysis of Variance was made to determine whether differences were statistically significant. .05 level of confidence was used.

There were no significant differences between kindergarten and first grade musical achievement scores. The means were generally higher for first graders, which may indicate a slight gain due to maturation. Since there were no music classes in the elementary schools this increase cannot be explained by training. However, the increase was not large enough to produce a statistically significant difference.

There were statistically significant differences between advantaged and disadvantaged groups in the kindergarten and first grade where scores were combined. The advantaged children scored higher on all subtests, but the difference was significant (.01 level) on scores that indicate ability to sing an interval, phrase and single tone. The composite score was also significantly higher (.01 level).

Fourth, Fifth and Sixth Grade

The fourth, fifth, and sixth grades were tested with the Gordon Musical Achievement Profile. Three subtest scores, as well as the composite scores, were considered in comparisons between groups.

In the first comparison, all musical achievement scores from the fourth, fifth, and sixth grade children were computed for the three subtests and the composite scores. The mean scores on all subtests and the composite score means were higher as the children got older. Fifth graders scored higher than fourth; sixth graders scored higher than fifth. However, differences in rhythmic scores were not statistically different, although they show the same trend. Differences in scores for Melodic and Harmonic subtests as well as for Composite scores were statistically significant at the .01 level.

For the Melodic variable, the t ratios following the analysis of variance indicated that there was no difference between the fourth and fifth grades ($t = .21$), a significant difference between the fourth and sixth grades ($t = 3.31$), and a significant difference between the fifth and sixth grades ($t = 3.54$).

On the Harmonic variable, a significant difference was found between the fourth and sixth grades ($t = 3.60$) and between the fourth and fifth grades ($t = 2.13$). The latter would be significant only at the .05 level. On the composite scores all differences comparing fourth with fifth, fourth with sixth, and fifth with sixth were significant at the .05 level. Only the fourth with the sixth comparison was significant at the .01 level.

Although the advantaged children scored somewhat higher than the disadvantaged, differences were not statistically significant.

Comparisons of Musical Achievement Scores of Children in Hoboken With Children in Cities in the Midwest

Since similar data was collected by Hill, it was possible to compare groups from Hoboken with groups from the Midwest. In order to compare the two samples, the standard error of the mean for the Hoboken sample was computed. Then, a one-sample technique was used to test the hypothesis that the mean for the Hill study would not deviate more than 1.96 standard errors of the Hoboken sample at the .05 level, or more than 2.58 standard errors of the mean from the Hoboken sample at the .01 level of significance.

TABLE I
COMPARISON OF HOBOKEN CHILDREN WITH SCORES OF CHILDREN FROM THE MIDWEST

Variable	Kindergarten			First Grade		
	Hoboken Mean	SEm	Midwest Mean	Hoboken Mean	SEm	Midwest Mean
I Advantaged	13.14	1.61	9.00*	13.71	1.91	11.58
	Disadvantaged	6.86	1.60	7.17	8.14	1.91
P Advantaged	58.57	6.60	37.08*	59.64	5.23	50.06
	Disadvantaged	30.71	7.77	27.96	36.36	7.20
M Advantaged	16.36	2.55	12.85	15.86	2.96	14.60
	Disadvantaged	7.79	2.16	8.28	5.14	1.93
S Advantaged	9.50	1.18	9.11	11.71	1.14	11.26
	Disadvantaged	9.50	.76	7.15*	9.00	1.04
TR Advantaged	8.21	1.45	4.42*	9.42	.91	4.30**
	Disadvantaged	8.21	1.24	2.55**	7.50	1.26
TI Advantaged	21.64	2.08	14.02**	26.00	1.22	17.17**
	Disadvantaged	21.21	1.90	11.70**	22.14	1.30

* Significant at .05 level

I = Interval Matching

P = Unfamiliar Phrase Repetition

M = Tone Matching

** Significant at .01 level

S = Familiar Song Repetition

TR = Tap Recognition

TI = Tap Imitation

C = Composite Score

Table I indicates that the Hoboken advantaged kindergarten children scored significantly higher than the Midwestern sample on four of the six subtests. One of the four (Tap Imitation) was significant at the .01 level, and three (Interval Matching, Unfamiliar Phrase Repetition, and Tap Recognition) were significant at the .05 level.

The disadvantaged kindergarten sample in Hoboken scored higher than the Midwestern sample on 1) Familiar Song Repetition (.05), 2) Tap Recognition (.01), and 3) Tap Imitation (.01).

The first grade advantaged sample in Hoboken scored higher than the Midwestern first grade sample on Tap Recognition (.01) and Tap Imitation (.01). The disadvantaged sample in Hoboken also scored higher than the disadvantaged Midwestern sample on these two measures, but the difference for Tap Recognition was only significant at the .05 level.

The only subtest that indicated a statistically significant difference in favor of the Midwestern sample was for disadvantaged first graders on the Tone Matching subtest (.01).

Advantaged fourth, fifth, and sixth grade children in the Midwestern sample scored higher than advantaged fourth, fifth, and sixth grade children in the Hoboken sample (.01 level of significance for all subtests and composite scores). There was no difference between the two disadvantaged samples except on the melodic subtest in grade four, where the Hoboken group scored higher than the Midwestern group (.05 level). Since no differences were found between the advantaged and disadvantaged samples from Hoboken, it appears that both groups obtained musical achievement scores similar to those of the disadvantaged Midwestern samples.

CONCLUSIONS

Scores from the kindergarten and first grade samples in Hoboken indicate that these children have as much ability and even higher achievement than children in Midwestern samples. However, by grades four, five and six, Hoboken children appear to be musically achieving much like disadvantaged children in the Midwest. This might be attributed to environmental factors and to the lack of music education in the elementary schools in Hoboken at the time of the study.

Observations during the summer music program that followed the Hoboken study indicated that these children were very eager to learn music and could benefit from a structured summer learning experience in music. Since the test scores indicated that they had the same deficit in musical achievement that was noted in the Midwestern disadvantaged sample, a similar "remedial" music program would likely be of benefit to inner-city children in Midwestern cities.

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FOOTNOTES

1 John D. Hill. "The Musical Achievement of Culturally Deprived and Advantaged Children: A Comparative Study at the Elementary Level." *Journal of Music Therapy*, Vol. 5, No. 3, September, 1968.

2 *Ibid*, p. 77

3 Hill. *op. cit.*

4 Hill. *op. cit.*, p. 83

5 L. R. Wheeler and V. D. Wheeler. "The Musical Ability of Mountain Children Measured by the Seashore Test of Musical Talent." *Journal of Genetic Psychology*, 43 (1933) 352-376.

6 Hill. *op. cit.*

7 Edwin Gordon. "The Gordon Musical Achievement Profile," Houghton Mifflin Co., New York, 1968. (A pre-publication of the test was used.)

8 Hoboken Model Cities Comprehensive Plan, Parts I and II. Hoboken, New Jersey, June 1969. P. 3.

9 *Ibid*, p. 11

THE DERIVATION AND EARLY HISTORY OF THE SAXOPHONE

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It is often said that the saxophone is historically unique among wind instruments in that it came to us as an invention, launched fully grown on the field of music. Yet, while this is true, it would be an oversight to conclude that the saxophone was invented independently from earlier developments in wind instrument making.

Musical instruments come into existence as dictated by the demands of musicians and their music calling for them and also by the ability of the art of instrument making having advanced to the point where it has the technical resources to fabricate the instruments. The body of thought contained in the concept of wind instruments is somewhat analogous to a mountain lake: each represents a potential which awaits utilization. The passage of time brings rainfall to the mountains and an ever-increasing number of ideas to our accumulation of thought. As nature utilizes the lake to produce rivers, man elicits wind instruments from his pool of ideas. The rivers from the mountain lake sometimes terminate into lakes of their own; but as more rain falls in the mountains, these initial lakes, which were once ends in themselves, become passageways for the water that will form newer lakes. And, as all of this takes place, it is ripening a stage of readiness for the future lakebeds which lie downstream.

Such is the case of the saxophone. It had to be content to meander its way through the development of non-saxophone ancestral instruments, to have its principal characteristics alluded to, to wait until the answer to "What are we looking for?" had solidified to the point where the instrument would be recognized when it was discovered, and to endure in the subconscious of musical thought until the art of wind instrument making had reached the sophisticated level necessary for the production of saxophones. Having withstood all this, the saxophone was finally invented.

Invention and Description of the Saxophone Family

The exact manner in which Adolphe Sax (1814-1894) came to invent the saxophone is a point that modern historians can only speculate about for no account of it was recorded.

One often cited possibility is that it was discovered while Sax was experimenting with clarinets, hoping to produce one that would overblow an octave. This seems rather unlikely because Sax was too experienced with clarinets to have thought a conical bore instrument would produce a clarinet tone. In addition, if a clarinet could be made to overblow an octave, its range would be greatly reduced in comparison to standard clarinets, which overblew a twelfth.¹

It has also been suggested that the saxophone began as an ophicleide fitted with a clarinet mouthpiece. The keywork and shape of the ophicleide were not the same as those of the saxophone, and the clarinet mouthpiece is not acoustically the same as the saxophone's. Consequently, the combination of an ophicleide and clarinet mouthpiece would not produce a saxophone. It is quite possible, however, that such a combination occurred to Sax and did serve as his inspiration to develop the saxophone.²

The invention of the saxophone, in 1840, was noteworthy in the history of wind instruments for it was the first successful combination of a single-reed mouthpiece and conical bored tube, as well as the first generally accepted woodwind with a metal body. Metal had been previously tried on all the woodwinds with the exception of the oboe, and in each instance wood remained the favored material. The closest competitor to the saxophone in regards to the use of metal is the Boehm flute, introduced in 1847.

The first member of the saxophone family to be built was not the alto or tenor, as might be expected, but rather one of the low ones, either the B-flat bass or the E-flat baritone. Some sources maintain that the first saxophone was a bass instrument pitched in B-flat, which is quite clearly our standard bass saxophone in B-flat.³ Other historians feel that the distinction belongs to the E-flat baritone. They draw their support from an article which Berlioz wrote in his column in the *Journal des Debats* in Paris on June 12, 1842; which is regarded as the saxophone's "birth certificate" since it introduced the new instrument. According to Berlioz, it was a bass instrument with a three-octave range, beginning with the B-flat under the bass staff. Such a compass suggests an early version of the baritone.⁴

Sax was aware of the importance of completing his new instrument with a mouthpiece that would, by its design, facilitate the production of a tone with the particular timbre he wanted. While his saxophone mouthpiece was similar in principle to that of the clarinet, the two differed internally and externally. In general, his mouthpieces for all the members of the saxophone family were shorter and wider than clarinet mouthpieces. The width of the tone chamber was greater than the diameter of the instrument's bore at the point where the two were connected, and its walls were rounded to a barrel-like shape to assist in imparting a mellow tone. The reed he selected was also wider than the one used on the clarinet.⁵

Sax had recently found a method by which he could plate a clarinet mouthpiece with metal so that the problems created by warping and absorption of moisture could be minimized. However, he chose not to use this method on his saxophone mouthpiece probably, at least in some part, due to the brilliance it added to the clarinet's tone.⁶

The Berlioz article described the saxophone's value as a musical instrument as well as its physical appearance,

The Saxophone . . . is a brass instrument with nineteen keys, whose shape is rather similar to that of the ophicleide. . . Its sound is of such rare quality that, to my knowledge, there is not a bass instrument in use nowadays that could be compared to the Saxophone. . . Naturally, this instrument will never be suitable for rapid passages, for complicated arpeggios; but the bass instruments are not destined to execute light evolutions. Instead of complaining, we must rejoice that it is impossible to misuse the Saxophone and thus to destroy its majestic nature by forcing it to render mere musical futilities.

It has been suggested that Berlioz' comment about the saxophone not being suited to rapid passages may have served as Sax's inspiration to produce the higher, more agile, saxophones.⁷

Berlioz continued to praise the saxophone in his *Treatise on Modern Instrumentation and Orchestration*,

These new voices given to the orchestra possess most rare and precious qualities. Soft and penetrating in the higher parts, full and rich in the lower part, their medium has something profoundly expressive. It is, in short, a quality of tone sui generis, presenting vague analogies with the sounds of the violoncello, of the clarinet and corno inglese, and invested with a brazen tinge which imparts a particular accent. The body of the instrument is a parabolic cone of brass . . . Agile, fitted for the execution of passages of a certain rapidity — almost as much as for cantilina passages — the saxophone may figure with great advantage in all kinds of music; but especially in slow and soft pieces.⁸

The patent letter for the family of saxophones was submitted on March 20, 1846, and several months later, on June 25, Sax was granted a fifteen-year patent.⁹ The family was composed of two groups, each having seven members from high soprano to contrabass. At the time of patenting, however, some of the instruments were only proposed and had not yet been constructed. Sax intended one group, whose members were pitched alternately in E-flat and B-flat, for use in military bands and wind ensembles, and the other group, pitched in F and C, for orchestral use. In 1848, Georges Kastner recorded the instruments of the saxophone family as:¹⁰

Band group (B-flat and E-flat)	Orchestra group (C and F)
sopranino in E-flat	sopranino in F
soprano in B-flat	soprano in C
alto in E-flat	—
tenor in B-flat	—
Baritone in E-flat	—
bass in B-flat	bass in C
contrabass in E-flat	contrabass in F

The three missing members were added at a later date. With all these instruments to choose from, only the soprano through bass of the band group are regarded as the standard saxophones in use today.

It is curious to note that the "tobacco pipe" shape commonly associated with the saxophone was not used on the largest and smallest of the original instruments which Sax patented. The smallest ones were straight and the largest instruments were shaped more like ophicleides, with their bells straight, not curved.¹¹

As might be expected, Sax was the first to improve the saxophone after it had been patented. The very highest tones were weak and uncertain in performance, so he consequently reduced the compass of his instruments from three octaves to two octaves and six semitones. In 1887, the bell of the saxophone was lengthened so that the key for an additional semitone could be provided, resulting in a range of two and a half octaves, from B-flat to F, which still remains as the standard saxophone compass.¹²

The first saxophones had two separate speaker holes, each controlled by its own key. It was not until around 1890 that the double automatic octave key, standard on modern instruments, was introduced. This innovation allowed the performer to employ a single touchpiece, which, owing to its mechanism, opened the appropriate speaker hole for the pitch being played. Both Heckel and Lecomte claim to have invented it.¹³

Numerous other improvements were made by instrument makers, mainly in France, during the second half of the century, many times in the area of key mechanisms. Some changes the saxophone underwent were perhaps more detrimental than beneficial, however. Widening of the bore and modifications to the mouthpiece have changed the saxophone's tone quality and, some experts feel, have resulted in an instrument that deviates considerably from what its inventor had intended it to be, and has lost its woodwind character. By comparison, old saxophones often sound muted and less brilliant than our "modern" saxophones.¹⁴

On occasion, special order saxophones have been built by the large instrument companies. In the 1920's, Selmer produced a saxophone for the Argentine soloist, Texiero de Ladario, that was capable of four chromatic octaves up from a low A-flat. The top tones were produced by the means of harmonics from special fingerings, with the aid of an additional speaker key. A few years before the Selmer instrument, the French maker, Couesnon, made a three octave saxophone from low G on the design of Dupaquier, soloist with the Garde Republicaine.¹⁵

The lowest saxophones are truly large, as Anthony Baines depicts,

Callers at Buffet's shop in Paris will remember the giant contrabass saxophone standing in the corner of the showroom, with its colossal mouthpiece and tattered reed on which generations of visitors have had a respectful and unproductive blow.¹⁶

Considering the problems in playing such an instrument, it is difficult to imagine why an even larger saxophone would be built, but for whatever their reasons, Conn, at one time, had made a sub-contrabass saxophone in B-flat, twice as large as the standard bass saxophone.¹⁷

Saxophone Acoustics

Because it combines features borrowed from other woodwinds, the saxophone is a musical hybrid with its own unique acoustical character. Although it may be individual, it can still be explained by the same principles that apply to wind instruments in general.

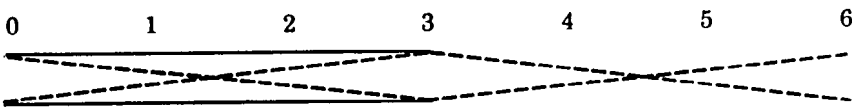
The particular harmonics that can be produced on a woodwind are determined by two traits in its design: the type of tube it has, either conical or cylindrical, and whether the tone generating mechanism has the effect of opening or closing the tube.

In regards to the type of tube, a glance at the harmonic series of the various woodwinds illustrates that the conical tube is more suited to giving rise to a full set of overtones than is the cylindrical, for regardless of the type of tone generator, each conical bored instrument produces both odd and even partials, whereas only one of the two cylindrical instruments does. And, since the significant physical difference, with regards to acoustics, between the two cylindrical instruments, flute and clarinet, lies in the tone generator, it can be concluded that in cylindrical bored instruments the mouthpiece determines which partials will be produced.

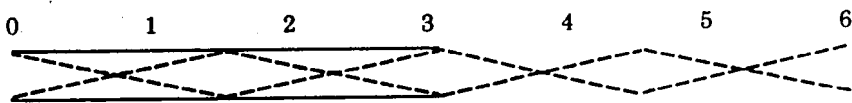
The vibrations of air columns in wind instruments are not transverse as in the strings, but compressional, running lengthwise in the instrument. As the tone is begun, pulsations are emitted which travel from the mouthpiece and reach the bell, where part of their energy passes out of the instrument and completes its wave length in the outside air, but the remainder is bounced back as a compression.¹⁸ When these compressions reach the mouthpiece, they are either stopped, and do not continue the back-and-forth motion with the neighboring air particles, or are allowed to continue, depending on to what degree the mouthpiece closes that end of the tube.¹⁹

If the compressions are stopped, a node, or point of little or no motion, is formed. If they are allowed to continue, then a loop, or point of maximum motion, is the result, like the one near the bell of the instrument. As a result of the several combinations of conical and cylindrical tubes and tone generating mechanisms, the woodwinds each fall into one of the two categories — open or stopped pipes. The instruments are commonly assigned to their appropriate category not from determining where their loops and nodes appear, but rather by what effect the arrangement of their loops and nodes has when the instrument is overblown. More simply stated, those instruments which can overblow an octave are called open pipes, and the remaining ones, which overblow a twelfth, are stopped pipes.

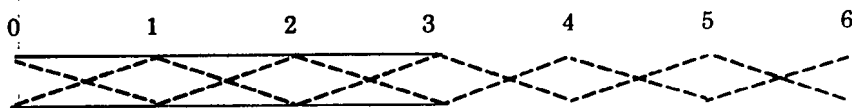
The saxophone is considered an open pipe, and its harmonic series can be taken as typical of the category. When a fundamental is played on the saxophone, a central node appears;



Like the other typical open pipes, it has a loop at each end, and the wave length of the fundamental is the same as the length of the tube. When the first harmonic, or second partial is sounded, it is the result of having divided the wave length in half;



Similarly, the second harmonic, or third partial, divides the wave length in thirds;

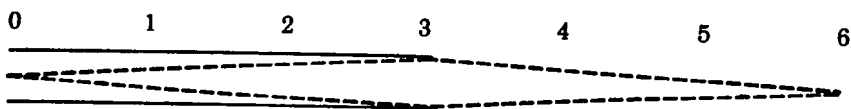


This pattern continues for the remaining harmonics.

A significant outcome from the length of an open pipe equaling the wave length of its fundamental is that the air column inside the tube, representing a complete wave length, can be divided so as to theoretically allow the instrument to sound any of the overtones in the harmonic series of the fundamental. This is not possible with closed tube instruments such as the clarinet.

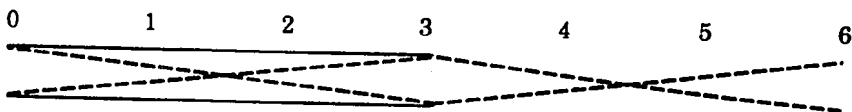
Closed tube instruments always have a node at the stopped end, and a loop at the other. in keeping with this observation, the fundamental of a

clarinet would be quite different from that of the saxophone;

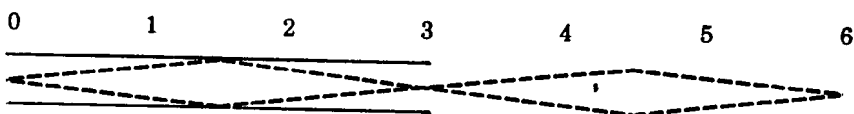


Since a stopped tube contains only half of its wave length, its fundamental would sound an octave lower than that of an open tube of the same length.

The second partial will not sound in the stopped pipe instruments because the division of its wave length required to produce the octave would eliminate either the node at the closed end;



or the loop at the bell, which the instrument cannot do;



This applies to the higher even-numbered partials as well.

The saxophone and clarinet mouthpieces are basically the same, and it is often wondered why on one instrument they produce the characteristics of an open pipe, and on the other, a closed pipe. Part of the answer is that when both instruments are sounding the same pitch the clarinet reed stays against the mouthpiece slightly longer than the saxophone reed does, thus rendering it closed more of the time.²⁰ It can also be attributed to the fact, previously mentioned, that a cylindrical bore tends to dampen the even numbered partials.

When the air column inside an instrument is in motion, the partials within that column which the instrument is capable of producing, are also in motion, sounding their own pitches. The number and relative strength of those harmonics present determines the instrument's tone quality. The quality of the saxophone's tone is the result of a large number of well-balanced harmonics, and they are ranked according to strength in the following order: 1, 2, 4, 3, 5, 9, 12, 8, 6 and 11, 7, and 10.²¹

Though it may be richly endowed with harmonics, the tone of the saxophone is difficult to control due to its extreme conical bore, which offers little resistance to the performer's wind.

USE AND ADOPTION OF THE SAXOPHONE

France

The first use of the saxophone in a public performance was in Paris, as might be expected, on February 3, 1844. The concert in which the saxo-

phone made its debut was organized and conducted by Berlioz, in hopes that it would encourage support for Sax, still in the process of establishing himself in Paris. There were only two numbers on the program. One was the **Roman Carnival** overture, being performed for the first time, and the other was a transcription by Berlioz of an excerpt from one of his earlier works. The excerpt was a "religious meditation" from *Tristia*, composed in 1831, originally for six voices, but now transcribed for the same number of new Sax instruments: a high B-flat trumpet, a cornet, a bugle, a clarinet, a bass clarinet, and a saxophone, played by Sax.²²

According to Oscar Comettant's biography of Sax, the concert was a genuine triumph for the saxophone and its inventor, though circumstances surrounding the victory were unexpected. On the day of the concert, Sax was not quite finished assembling the instrument he intended to use, and was forced to piece it together as best he could with string and sealing wax. Berlioz had arranged the transcription so that after a loud tutti section, each of the instruments had a solo passage, with the saxophone's being at the very end of the piece. As Sax neared the end of the solo, his memory failed him and he forgot the fingering of one of the notes. Instead of stopping, he held out the preceding note, swelling and diminishing it, to give himself time to find his way through the maze of string and wax and remember the fingering. Just before his breath was gone, he remembered the fingering and finished the passage. The audience was enthusiastic over what they thought was "... a bold and happy instrumental inspiration..." and applauded vigorously.²³

The first original orchestral composition to include a saxophone part was written by Georges Kastner (1802-1872). The work was a biblical opera entitled **Le dernier Roi de Juda** and was performed at the Paris Conservatoire on December 1, 1844. The saxophone he wrote for was that first member of the family that Sax built — the bass instrument.²⁴

In the 1840's, the classic balance between the woodwinds and brasses in the military band had been upset by the increased use of the new chromatic brass instruments. It was hoped by many that the saxophone, with its powerful tone and timbre somewhat mid-way between the woodwinds and brasses, would help to establish a new balance. France was the first country to adopt the saxophone in its military bands, around 1846. It was very warmly received and used to such extent that it all but replaced the clarinet and other woodwinds, and became the foundation non-brass of the band.²⁵

Soon after Berlioz learned about the saxophone and became interested in it, he realized that if it was to be played with artistry, worthwhile instruction must be made available to interested students. In 1846, he sent a letter to a friend in which he wrote,

The saxophone, as a new member of the clarinet family, and really of value when the performer can bring out its characteristics, ought nowadays to have a separate place in Conservatoire classes, for the time is not far distant when every composer will wish to employ it.²⁶

One year later, he announced in his column in the *Journal* that saxophone instruction had begun in the *Gymnase Musical*.²⁷

Many fine French composers have included parts for saxophones in their scores. Among these composers are Georges Bizet, Ernest Guiraud, Jules Massenet, Leo Delibes, Gustav Carpentier, Vincent d'Indy, Maurice Ravel, Darius Milhaud, Jacques Ibert, Ambroise Thomas, Camille Saint-Saens, and Jacques Halevy.

Rossini was also a friend of Sax and very fond of the saxophone, calling it "... the finest blending of sound I have met with." When he died in Paris, on November 13, 1868, the last prayer for the final absolution was recited above a special arrangement of Beethoven's funeral march, played on Sax instruments.²⁸

One Frenchman who did a great deal to introduce the saxophone to many people was Louis-Antoine Jullien. He was born in France in 1812 and lived to be only forty-eight years old. As the conductor of his own professional orchestra, he dedicated his life to bringing the best music to the common people of Europe and the United States.

Jullien was a student at the Paris Conservatoire, but unlike most students, he was showy and enterprising. When he was twenty-four years old, he became the conductor of a first-rate orchestra at the *Jardin Turc* in Paris. He charged only one franc for admission, and with the lure of popular dance music and a flair for showmanship, the dosage of the finest music by the best composers was increased. His concerts made him the "talk of the town," but his poor financial success forced him to leave Paris and move to London.²⁹

Once in London, he continued the procedure of selecting the very best musicians wherever he could find them and lured the largest audiences to his concerts with low admission prices, popular music, and the never-ending showmanship that many "highbrows" criticized him for. Jullien spent the remainder of his productive life with London as his home. He instituted the *Promenade Concerts* as he had done in Paris, and added "Monster Concerts for the Masses," all of which earned him the honor of being the life and soul of popular orchestral music in England, and being remembered for doing more than any other conductor to bring good music to those people who had been excluded for so long.³⁰

Jullien was fond of the saxophone and saw to it that he had several fine soloists in his orchestra. For ten months during the years 1853-54, he brought a forty-piece orchestra from London to New York, where he augmented it with sixty local musicians, and proceeded to spark the professional band movement of the second half of the century. One of the musicians he brought with him from Europe was a superb saxophone soloist, a Belgian and friend of Sax, named E. A. Lefebre. When the orchestra went back to Europe, Lefebre stayed behind and was destined to become regarded as an outstanding virtuoso and promoter of the saxophone through his appearances with Gilmore, Sousa, and some of their rivals.³¹

England

In 1844, an Englishman named Henry Distin and his four sons met Adolphe Sax in Paris and began what was to be a long and mutually beneficial relationship. The Distins were a professional brass quintet who played Sax instruments exclusively. Through their performances with Julien and others, they not only earned their livelihood, but also promoted Sax's instruments wherever they played. In 1846, Henry Distin became the sole selling agent for all Sax's instruments in England.³²

In 1848, the famous Royal Artillery Band in London adopted an alto saxophone. It was played by a young man named Henry Rigby, then only eighteen or nineteen years old. His instrument was probably made by Sax himself and procured by Distin. A few years later, the band added a tenor saxophone. Rigby was apparently a fine saxophonist, for two printed programs for concerts by the band in 1855 list him as soloist.³³

Julien probably introduced the saxophone to more Britishers than anyone else. He used them not only in his regular concerts at the Drury Lane theater, but also in his wind band that toured England in 1856.³⁴ Despite this early beginning, the use of saxophones in England, even today, is generally confined to a single alto and tenor.

Although the saxophone has been largely ignored by British composers, it has been used by noteworthy individuals such as Ralph Vaughn Williams in *Job* in 1931, William Walton in *Belshazzar's Feast* in 1931, and Benjamin Britten in his *Sinfonia da Requiem* in 1941.

Other European Countries

It is no exaggeration to say that the saxophone has never taken root in Germany. This is probably due, in general, to the German prejudice towards France and the distinction between the French and German concepts of wind instruments, and, in particular to the German avoidance of the Boehm fingering system and the hostilities that existed between Sax and his German contemporaries.

Wagner himself never used the saxophone, and this is certain to have discouraged wider use of the instrument in Germany during the period in which he was so influential. He did not like Sax, either. It has been said that Wagner attributed the poor reception that Tannhaeuser received in Paris in 1861 to a number of French "peculiarities," including his having to deal with that "terrible man" Adolphe Sax.³⁵ Nevertheless, the alto saxophone has been used in at least one of his compositions — the third act of *Tristan*, for the shepherd's pipe when he signals the ship.

The best known German piece to have been originally scored to include saxophones, a quartet of them, is Richard Strauss' *Domestic Symphony*, composed in 1904. However, he realized the prejudice that Germans held for the instrument and also the possible difficulties that might be encountered in securing a professionally competent quartet in Germany, and so notated in the score that they could be left out, but "... only in extreme

cases of necessity."³⁶ The Strauss piece is also considered the first symphonic, as contrasted to operatic, composition to include parts for saxophone.

Paul Hindemith was fond of the saxophone, however. He not only included a part for it in his opera *Cardillac* in 1926, but complimented it by saying "It shows a balance of unhindered technique, expressive range and directness of speech that has its equal only in the modern flute."³⁷

The Italians have always liked the saxophone, especially the baritone, and Italian composers of no less stature than Verdi and Puccini have included it in their scores.

Other composers of note who have written for saxophone in orchestral compositions include Mahler, Berg, Bartok, Kodaly, Shostakovich, Prokofiev, Stravinsky, and Khatchaturian.

United States

The credit for introducing the saxophone to the United States goes to Jullien and his saxophone soloist, E. A. Lefebre, who toured the country in 1853-54. However, the credit for first using it in an American band, and thus introducing it to our bands, is given to Harvey B. Dodworth. Harvey was of the third generation of a professional and military band family in the New York City area. In 1841, he inherited the leadership of the Dodworth Band in New York City. He is credited with initiating many improvements in American band instrumentation. Of interest to us here is his adopting the saxophone and bass clarinet in his own band in the 1850's. He was also one of the founders of the New York Philharmonic Orchestra.³⁸

Patrick Gilmore is often cited as the man who gave the saxophone its greatest start in becoming established in American bands. His 22nd Regiment Band in New York, of the 1872 Peace Jubilee, went on a European tour in 1878. Four of its sixty-six players were saxophonists, with E. A. Lefebre on alto, who had been with him since 1872 and remained until Gilmore died in 1892.³⁹ His last band had a respectably well-balanced saxophone section — two B-flat sopranos, two E-flat altos, two B-flat tenors, and an E-flat baritone, and one B-flat bass.⁴⁰

Gilmore was very demanding on his musicians, and the fact that Lefebre was soloist with him for so long is clearly a testimony to his artistry. After Gilmore's death, Lefebre and other members of the saxophone section joined Sousa's band.

John Philip Sousa was also an important figure in making the saxophone familiar to American audiences since he too made use of saxophonists as regulars in his bands and as soloists. His first Marine Band of 1880 had three saxophones within its forty-nine pieces.⁴¹ In 1892, he resigned his position with the Marine Band and formed his first professional band. One of the members in 1892 was a man named Rudolph Becker. He was a baritone saxophone player in the band and one of Sousa's original soloists. As late as 1952, Becker was the last living member of the first band.⁴² Lefe-

bre also joined the band in 1892, and continued to serve Sousa with the same unfaltering reliability and excellence that was to earn him the reputation as the supreme virtuoso on the saxophone during the period in which the professional bands flourished.

In the 1880's American instrument makers began producing saxophones. Up until that time all the saxophones used in the United States were imported from Europe. F. A. Buescher, the founder of the Buescher Instrument Company, is given the credit for making the first saxophone in this country.⁴³ Shortly before the turn of the century, Lefebvre was employed by Conn to supervise in the production of saxophones.⁴⁴

Sousa had several other saxophone soloists who were considered very fine musicians. Perhaps the best known was H. Benne Henton. When Strauss toured the United States, he chose Henton to play first chair in the quartet for the *Domestic Symphony*.⁴⁵ Many people considered Henton the finest of the saxophonists from the professional band era, next to Lefebvre. Two of Sousa's later saxophone soloists were Jean Moeremans, followed by Ben Vereeken.⁴⁶

American composers such as John Carpenter, Aaron Copeland, Ferde Grofe, George Gershwin, Percy Grainger, Virgil Thomson, Morton Gould, Charles Ives, and Roy Harris have all written orchestral works to include saxophone parts.

To many people the saxophone means jazz. And, to many musicians, the saxophone means musical insensitivity. Neither supposition is correct, however, for they each find their origin in the ignorance afforded by a biased and confined exposure to the saxophone.

Tom Brown, a black jazz musician from Chicago, did much to popularize the saxophone with the American public, and as a result of his efforts, ushered in the "sax craze" of the 1920's. Brown formed the sextet with which he was known, called the Six Brown Brothers, in 1911; they reached the height of their popularity around 1924. He demonstrated to an eager America that the saxophone could ". . . moan, laugh, cackle, titter, squeal and grunt," which, for some reason, impressed the public as being jazz, and started the misconception. The saxophone soon became the most talked-of instrument in the country.

The "sax craze" was in progress during the years 1919-25, reaching its intensity around 1923-24. During 1924 and 1925, over one hundred thousand saxophones were manufactured and sold in the United States. They were also being imported in large numbers. During the craze years, over a half a million saxophones were sold in this country. Relatively few were sold to real jazz musicians.⁴⁷

The saxophone did not begin to play a significant part in jazz until the beginning of the 1930's. By then, the trends in jazz had already been set, by instruments which are not thought of in connection with jazz as much as the saxophone is: the clarinet (Benny Goodman), the trombone (Tommy

Dorsey), the cornet (Louis Armstrong), and the piano (Earl Hines). Despite the implied ties between the saxophone and jazz, history attests that jazz was the last musical idiom to accept the saxophone.

FOOTNOTES

- 1 James A. MacGillivray, "The Woodwind," in *Musical Instruments Through the Ages*, ed. by Anthony Baines (Rev. ed.; London: Faber & Faber, 1966), p. 236.
- 2 James Houlik, "The Bray of the Saxophone," *Instrumentalist*, XXII (June 1968), 68.
- 3 Adam Carse, *The Orchestra From Beethoven to Berlioz* (Cambridge: W. Heffer & Sons, Ltd., 1948), p. 407.
- 4 Leon Kochnitzky, *Adolphe Sax and His Saxophone* (2d ed.; New York: Belgian Government Information Center, 1964), p. 13.
- 5 Sigurd Rascher, "The Saxophone is a Noble Instrument If Not Debased by Pinching, Faulty Lays, 'Green' and 'Red' Reeds," *Instrumentalist*, VIII (February 1954), 14.
- 6 Kochnitzky, p. 11.
- 7 *Ibid.*, p. 13.
- 8 Hector Berlioz, *Treatise on Modern Instrumentation and Orchestration*, trans. by Mary Clarke, rev. and ed. by Joseph Bennet (London: Novello and Co., Ltd., [189-]), p. 233.
- 9 Sigurd Rascher, "Thoughts About the Saxophone Mouthpiece," *Instrumentalist*, IX (October 1954), 18.
- 10 Georges Kastner, *Manuel General de Musique Militaire* (Paris: Didot Freres, 1848), plate XXV.
- 11 Nicholas Bessaraboff, *Ancient European Musical Instruments* (Cambridge: Harvard University Press, 1941), p. 104.
- 12 Anthony Baines, *European and American Musical Instruments* (London: B. T. Bratsford, Ltd., 1966), p. 117.
- 13 Eric Blom, ed., *Grove's Dictionary of Music and Musicians* (Vol. VIII; London: Macmillan & Co., Ltd., 1954), p. 432.
- 14 Anthony Baines, *Woodwind Instruments and their History* (Rev. ed.; New York: W. W. Norton & Co., Inc., 1962), p. 143.
- 15 *GD*, VIII, 430.
- 16 Baines, *Woodwind History*, p. 143.
- 17 Karl Geiringer, *Musical Instruments* (London: George Allen & Unwin, Ltd., 1943), p. 277.
- 18 Wilmer Bartholomew, *Acoustics of Music* (New York: Prentice-Hall, Inc., 1942), p. 106.
- 19 *Ibid.*, p. 104.
- 20 Harry Schwartz, *The Story of Musical Instruments* (Garden City, N.Y.: Doran and Co., Inc., 1938), p. 147.
- 21 Charles A. Culver, *Musical Acoustics* (4th ed.; New York: McGraw-Hill Book Co., Inc., 1956), p. 207.
- 22 Kochnitzky, p. 16.
- 23 Richard F. Goldman, *The Concert Band*, (New York: Rinehard & Co., Inc., 1946), p. 45.
- 24 Kochnitzky, p. 19.
- 25 Captain C[harles] R. Day, *Musical Instruments*, (London: Eyre & Spottiswoode, 1891), p. 131.
- 26 Letter from Berlioz to Humbert Ferrand, cited in *Memoirs of Hector Berlioz, 1803-1865*, trans. by Rachel Holmes and Eleanor Holmes, annotated and ed. by Ernest Newman (New York: Tudor Publishing Co., 1932), p. 405.

- 27 Kochnitzky, p. 30.
- 28 Herbert Weinstock, *Rossini*, (New York: Alfred A. Knopf, 1968) p. 368.
- 29 Carse, p. 102.
- 30 *Ibid.*, p. 230.
- 31 Harry W. Schwartz, *Bands of America* (Garden City, N.Y.: Doubleday & Co., Inc., 1957), p. 21.
- 32 Carse, p. 409.
- 33 Henry G. Farmer, *Handel's Kettledrums and Other Papers on Military Music* (London: Hinrichsen Edition, Ltd., 1965), p. 26.
- 34 Carse, p. 409.
- 35 Gilbert Milstein, "The Sax Comes Up the Moskva River," *New York Times Magazine*, CX (April 23, 1961), 50.
- 36 Henry T. Finck, *Richard Strauss, The Man and His Works* (Boston: Little, Brown, and Co., 1917), p. 115.
- 37 Hope Stoddard, *From These Come Music* (New York: Thomas Y. Crowell Co., 1952), p. 164.
- 38 Milstein, p. 50.
- 39 Goldman, p. 57.
- 40 Nolbert Quayle, "Stars and Stripes Forever," Part VI, *Instrumentalist*, IX (February 1955), 42.
- 41 Goldman, p. 59.
- 42 Nolbert Quayle, "Stars and Stripes Forever," Part II, *Instrumentalist*, IX (October 1954), 44.
- 43 Advertisement for Buescher Saxophone, *School Musician*, XXXII (February 1961), 64.
- 44 Schwartz, *Story of Instruments*, p. 148.
- 45 *Ibid.*, p. 141.
- 46 Nolbert Quayle, "Stars and Stripes Forever," Part III, *Instrumentalist*, IX (November 1954), 46.
- 47 Schwartz, *Story of Instruments*, p. 139 et seq.

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SIR CARL BUSCH: HIS LIFE AND WORK AS A TEACHER, CONDUCTOR, AND COMPOSER

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The development of music education in the United States, while indebted to the efforts of countless school music teachers, must also recognize the contributions made by the many private music teachers and professional musicians. Allen Britton writes:

There is a great deal of music teaching in the United States besides that which goes on in the schools. Thousands of private piano teachers perform an inestimably valuable service in the musical education of children and adults as do thousands of private teachers of other instruments. . . . And from the days of Theodore Thomas, through those of Walter Damrosch, right down to Leonard Bernstein at present, the American symphony orchestra conductor has engaged in some semblance of educational endeavor.¹

Sir Carl Busch, a Kansas City teacher and professional musician of the late nineteenth and early twentieth centuries, maintained a position closely resembling that described by Britton. Born March 29, 1862, in Bjerre, Denmark, Busch came to Kansas City in 1887 where he remained until his death, December 19, 1943. During his fifty-six years of residency, he became one of the city's most celebrated musicians, known internationally as a conductor and composer. As a conductor, Busch was most active from 1887 to 1918, when he directed several Kansas City choral and orchestral organizations and appeared as a guest conductor in both the United States and Europe. Among his many Kansas City conducting assignments were the Kansas City Philharmonic Choral Society (1903-ca. 1913) and the Kansas City Symphony (1911-1918). As a composer, he gained international recognition through the performance of his compositions by such leading musical organizations as the Theodore Thomas Orchestra, the Anton Seidl Orchestra, the Chicago Symphony, the Minneapolis Symphony, and the Leipzig Philharmonic. His greatest distinction was gained for his compositions based on American subjects, particularly those relating to the American Indian, and for several award-winning compositions written between 1900 and 1920. Additionally, Busch was a staunch supporter of music education and from his earliest days in Kansas City contributed his time and talents in its behalf.

Busch was educated at the Royal Conservatory of Music in Copenhagen, principally under the tutelage of J. P. E. Hartmann and Niels Gade. While in Copenhagen, he also performed as a violinist and violist in orchestras directed by Johan Svendsen and Balduin Dahl, and became personally acquainted with the Scandinavian composers Edward Grieg and Ole Olsen. Following graduation from the Conservatory in 1885, Busch studied for a short time at the Brussels Conservatory of Music and in Paris, where he became a student of the French composer and conductor, Benjamin Goddard. Through Goddard, Busch met several prominent musicians, among them Anton Rubinstein, Camille Saint-Saens, and Charles Gounod. In 1886 Busch returned to Copenhagen where, along with Daniel Hannemann, Waldemar Pappenbrock, and Henry Matthiassen, he organized the "Gade String Quartet" and left with the group for the United States and its ultimate destination of Kansas City, Missouri.

Kansas City was not ready to support a resident string quartet in 1887 and after several months of unsuccessful attempts to establish itself, the group disbanded; except for Busch, the quartet members eventually left Kansas City or began new careers. Busch remained and for a short time continued to perform as a professional violist in local theater orchestras; however, his aspirations to play professionally were soon abandoned and thereafter his time was devoted exclusively to teaching, conducting, and composing.

From 1887 until 1924 Busch's teaching role was that of a private instructor in violin, viola, ensemble, and theoretical subjects. For many years his studio was located on the corner of Ninth and Locust streets in a building known today as the Studio Building. In 1895, following four years of advanced piano study at the Leipzig Conservatory, Mrs. Busch opened a studio adjoining her husband's and soon established herself as one of the finest piano teachers in the Midwest. Together Mr. and Mrs. Busch became conspicuously identified with musical life in Kansas City, providing

opportunities for music education at a time when such were not readily accessible in the public schools. Among Busch's students of this period, the most notable were George Elliott Simpson,² William Dawson,³ Leith Stevens,⁴ and Robert Russell Bennett. Bennett, who maintained a close relationship with Busch throughout the latter's life, recalled: "As a teacher Sir Carl was very thorough and preached the gospel of the old fundamental rules. When you studied with him you could say you had studied harmony, counterpoint and fugue without blushing."⁵

In 1924 Busch began a career as a college professor, and although sixty-two years old at the time, continued his college teaching for the next fourteen years. From 1924 through 1926 he was a member of the Chicago Musical College Summer Master School faculty; in the summer of 1927 he joined the Brigham Young University faculty for a four-week term, followed by a six-week term at Notre Dame. He taught at Brigham Young only one summer, but continued to teach at Notre Dame each summer through 1938. From 1927 until 1935 Busch was also a member of the Kansas City-Horner Conservatory⁶ faculty and in 1933 was appointed to the first music faculty of Kansas City University, where he remained until 1935. His principal responsibility at these schools was to give private instruction in theoretical subjects.

Many students studied with Busch during his years as a college instructor, including Leroy J. Robertson, now a recognized composer and the former head of the music schools at Brigham Young University and the University of Utah.⁷ Robertson had graduated from the New England Conservatory in 1923 where he studied with George Chadwick, and was on the Brigham Young faculty at the time of his studies with Busch:

Dr. Busch went over my manuscripts making suggestions regarding areas which were satisfactory and which might be used as models for weaker sections. He was sympathetic and helpful and anxious to promote the works of his students when they became worthy.⁸

In addition to his contributions as a private teacher, Busch promoted music education through his work as a conductor. Shortly after the organization of the Kansas City Symphony in 1911, he sought the cooperation of the Kansas City, Missouri, Board of Education in organizing a series of children's concerts. When no assistance was offered, he secured the use of Convention Hall and presented the concerts on Saturday mornings. In 1914 the Board of Education reconsidered and agreed to cooperate with Busch in bringing orchestral music to the city's school children. With the assistance of Mrs. B. M. Whiteley, supervisor of music for the Kansas City, Missouri schools, Busch arranged a series of three concerts for the high schools and one concert for the elementary schools. During the same year, he worked with Mrs. Whiteley in producing the first Kansas City, Missouri High School Choral Contest and Festival Concert.⁹ Both the children's concerts and the festival received special mention in Mrs. Whiteley's annual report to the Board of Education:

Two events of interest occurring in the spring must be noticed, their importance being such that their yearly recurrence is highly desirable. Reference is made to the contest that was held between the

choral organizations of our high schools and the high class concert that was given jointly by them, and the concert given by our Kansas City Symphony Orchestra to the children of our elementary grades. These two musical events were of great educational value, stimulating individually and communally.¹⁰

Following the disbanding of the Kansas City Symphony in 1918, Busch never again held a permanent conductorship; however, from 1918 until 1935, he continued to make guest conducting appearances, many of which were with student organizations from the Kansas City Public Schools and the surrounding area, as well as the National Music Camp at Interlochen. His association with Interlochen dated from the camp's opening summer in 1928 through 1932 and for one additional summer in 1934. During these years Busch was one of several musicians who donated his services to help Joseph E. Maddy, the camp's founder. Busch was very impressed with the quality of work taking place at Interlochen and was optimistic about its long-range influence:

These youngsters are benefiting tremendously from their study here unquestionably, but the influence which their work has upon our educational system and upon the communities from whence they come is the thing which will be most lasting.¹¹

Closely aligned with Busch's guest conducting was his work as an adjudicator, particularly for the band and orchestra contests of the 1920's and 1930's. In 1925 and for the next ten years, Busch judged the Kansas, Missouri, and Oklahoma Interstate High School Music Contest at Pittsburg State Teachers College, Pittsburg, Kansas. In 1929, he was selected to judge the National Band Contest being held at Denver, Colorado, for which all Class A bands were required to perform his composition, *A Chant from the Great Plains*. Following two days of judging, Busch conducted a mass band composed of the six winning bands in a final performance of the number. Rev. Jerome M. Boyle, now retired from the University of Notre Dame faculty, was a member of that five hundred-piece band:

... At the national contest, Carl Busch directed the winning bands in a performance of his work [*A Chant from the Great Plains*]. He was an impressive figure with his white hair and goatee. I was thrilled to play under his direction. It was a high point in my high school band career. . . . Carl Busch's influence did much to raise the musical level of the bands.¹²

Busch adjudicated many other contests between 1929 and 1933, including the 1929 World Bandmaster's Contest at Chicago's Soldier's Field. In 1933 and 1934 Busch, along with Edwin Franko Goldman and A. A. Harding, judged the Tri-State Band Festival and Contest at Enid, Oklahoma. In 1935, Busch worked with Edwin Franko Goldman, Herbert L. Clarke, William F. Ludwig, D. O. Wiley, Donald M. Swarthout, Harold Bachmann, and Earl D. Irons, in judging the first National Band Festival to be sponsored by the University of Kansas at Lawrence. As a result of his association with Goldman and other leading bandmasters of the day, Busch was elected an hono-

rary life member of the American Bandmasters Association in 1930. At the time of his election, John Phillip Sousa was the organization's only other honorary member.

Busch also contributed to the development of music education through his work as a composer. Among his compositions were several instrumental pieces for young people and a few vocal works for children. Many of these were written for specific student organizations such as those at Interlochen and in the Kansas City, Missouri Public Schools. His instrumental works prior to 1930 were written principally for strings and included many violin and viola solos composed as pedagogical pieces for his private students. From approximately 1930 until his death in 1943, Busch composed exclusively for wind instruments.¹³ Stimulating his interest in writing for the wind media was the phenomenal growth of school bands during the 1930's and the subsequent need for good wind literature. In all of his works for students, Busch attempted not only to produce music which was marketable, but more importantly, to produce music which would be musically interesting and of pedagogical value. In the preface to his *Suite for Three Trumpets* Busch wrote:

The *Suite* here offered is intended primarily for members of high school orchestras and bands, and published as it is in score, should be of interest and profit to the students. Each piece . . . offers its own problems, but care has been taken throughout not to overtax the players and to avoid extremes of compass. For a successful interpretation then, a somewhat advanced musicianship is expected so that the technic involved in the dynamics may be observed. I would also call attention to the fact that the three parts are somewhat on the order of a concertante in that the musical substance appears from time to time in the three parts increasing thereby the individual interest of each player. Carl Busch, Kansas City, Mo., June, 1933.¹⁴

Busch's efforts in behalf of music and music education were recognized during his lifetime through numerous honors bestowed upon him, including designations of Knighthood by the Kings of Denmark and Norway, and honorary doctoral degrees from Bethany College at Lindsborg, Kansas, and the Kansas City-Horner Conservatory of Music. In 1938 Kansas City paid tribute to Busch with a testimonial concert in appreciation of his many years of musical service. At the time of the concert, a bronze bust of Busch, sculptured by Jorgen C. Dreyer in 1914, was presented to the city for permanent display at the Kansas City Music Hall, where it remains today as a tribute to one of the city's most distinguished musicians.

CONCLUSIONS

Although Busch is usually referred to by historians as a Kansas City composer, based on the data reviewed in this study, it may be concluded that Busch should receive equal recognition for his work as a teacher and for his contributions to the development of music education. During his lifetime, his abilities as a teacher were recognized by several universities and his position as guest professor on these faculties allowed his influence to extend beyond Kansas City. In recent years he has gained additional stature as a teacher through the success of some of his students. The im-

portance with which Busch considered music education is best summarized in a statement made by him in his late years:

To me, one of the finest musical activities today is that which we find within our schools — such as Chorus, Orchestra, and Band. I have been interested in this movement from its infancy, some twenty five years back, and have taken a fairly active part by participating, during a space of years, in various Festivals of a City, State, or National character, and have thus had an opportunity to come in actual contact with these young musicians and see for myself the amazing growth of thier love for, and appreciation of, the best in our music literature.¹⁵

FOOTNOTES

1 Allen Britton, "Music Education: An American Specialty," in *One Hundred Years of Music in America*, ed. by Paul Henry Lang (New York: G. Schirmer, 1961), pp. 228-29.

2 George Elliott Simpson (1876-1958) studied with Busch in Kansas City from 1894 to 1900 and later, on Busch's advice, continued his studies in Europe at the Royal Conservatory of Leipzig. After graduation from the Conservatory, he remained for an additional year as an assistant to Carl Reinecke, Mrs. Busch's former teacher. He returned to Kansas City in 1907 and joined the faculty of the newly formed Kansas City Conservatory, where he taught various theoretical subjects. He also gained reputation as a composer, with works produced in this country and in Europe. One of his best known works, the *American Symphony*, was performed in 1925 by the Houston Symphony. In 1936 he joined the Kansas City-Horner Conservatory faculty to teach orchestration, replacing Busch, who had retired during the 1935-36 school year (*Kansas City Conservatory Bulletin*, 1936-37, p. 5).

3 William Dawson (b. 1898), composer and director of the School of Music at the Tuskegee Institute since 1930, studied with Busch in Kansas City from 1922 to 1926. Dawson, a student at the Kansas City-Horner Conservatory at the time, studied composition privately with Busch, who had not yet joined the Conservatory staff. Dawson later won the Rod Wanamaker contest for composition and in 1933 had his *Symphony No. 1*, the "Negro Folk Symphony," performed by the Philadelphia Orchestra under the direction of Leopold Stowkowiak (William Dawson, questionnaire, July 21, 1969).

4 Leith Stevens (1909-1970), former composer for Paramount Movie Studio, graduated from the Horner Conservatory in 1927 and was a student of Busch's about the same time as William Dawson.

5 Robert Russell Bennett, questionnaire, July 1, 1970.

6 The Kansas City Conservatory of Music and Art was established in 1906 and the Horner Institute of Fine Arts in 1914. On July 1, 1926, the two schools merged, resulting in the Horner Institute-Kansas City Conservatory. In 1929 the school was renamed the Kansas City-Horner Conservatory of Music, which in 1934 was renamed the Conservatory of Music of Kansas City.

7 Robertson achieved international fame in 1947 when he won the Reichold Award for his composition, "Trilogy." The \$25,000 was the largest amount ever given for a composition.

8 Leroy Robertson, questionnaire, June 8, 1971.

9 On May 15, 1914, an afternoon contest and an evening concert were held at Central High School. For the afternoon contest, three of Busch's compositions were required numbers: "A Dream of Summer," girls' chorus; "When the Heart is Young," mixed chorus; and "Sing to Me, Gondolier," boys' chorus. For the evening concert, the participating schools united in a festival chorus to perform three of Busch's cantatas under his direction: *The Brown Heather*, male chorus; *A Song of Spring*, women's chorus; and *Paul Revere's Ride*, mixed chorus (Program, Kansas City High School Spring Festival and Concert, May 15, 1914, University of Missouri-Kansas City Conservatory Library, Lichtenwalter Collection).

10 43rd Annual Report of the Board of Directors of the School District of Kansas City, Missouri, 1913-14, p. 72.

11 *The Overture*, National Music Camp, 1930, p. 43.

12 Rev. Jerome Boyle, letter to the writer, February 15, 1970.

13 Busch's only band work of this period, *A Chant From the Great Plains*, became quite popular with school bands, but had been composed for the Goldman Band rather than for student organizations.

14 Carl Busch, score, *Suite for Three Trumpets* (New York: M. Witmark & Sons, 1933).

15 Carl Busch, "The Youth Movement in Music As Observed at the National Music Camp in Michigan," Carl Busch Papers, The Royal Library, Copenhagen, Denmark.

ABSTRACT

CONTEMPORARY VIOLIN FINGERING

William F. Siebers, D.M.A., 1971
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The purpose of this research paper is to define some present-day principles which govern the choice of fingering; to show the extent of departure from tradition; and the consequent influences on pedagogical practices. The choice of fingering involves both musical and technical considerations. While it is recognized that the two are related, these considerations are discussed separately in order to facilitate clarity.

This investigation of violin fingering is, in general, a comparison of authoritative opinions and practices. Through this comparison some general principles that govern the choice of fingering are set forth.

The fingerings that are considered technically correct are those that afford ease in execution. The expediency of a technical fingering is based on consideration for the physical characteristics and capabilities of the hand and the individual fingers, definition of natural finger action, and the influences of various hand and arm adjustments.

The musical considerations that involve choice of fingering are influenced by both musical style and performance style. Musical results take precedence over technical ease. Since personal taste is involved, the principles applying to the choice of a fingering for the purpose of musical affect are generally subjective. Articulation and timbre are the principle musical aspects affected by fingering. Articulation can be varied through action of the fingers in one position and through techniques used in changing position. Timbre is varied not only by the choice of a string, but by the attitude of the fingers, the pressure they exert on a string, and their size.

From the study of various contemporary musical editions and from the advice of violin authorities, it is concluded that contemporary fingering practices are generally based on traditional techniques. The selection of improper or irrational fingerings is a result of persistent habits derived from technical studies and a lack of consideration for the musical content of a particular composition.

ABSTRACT

TWENTIETH CENTURY WOODWIND QUINTET MUSIC OF THE UNITED STATES

Charles R. Doherty, D.M.A., 1971
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The purpose of this thesis was to compile an accurate and comprehensive index of music written in the United States by United States citizens for the standard woodwind quintet combination of instruments: flute, oboe, clarinet, horn and bassoon. Inherent in this purpose were two goals: first, to discover hitherto unknown compositions for woodwind quintet and pro-

vide information concerning performance material for these works; second, to ascertain and clarify (to the fullest extent possible from the composers themselves) the accuracy of listings found in previous bibliographies and indexes.

The period under examination was 1900 through 1968. The works indexed are original compositions and not arrangements, except by the composer himself.

The thesis is in two parts. Part I consists of two sections, the Primary Source Index and the Secondary Source Index. Only when the composer himself is the source of information is a composition included in the Primary Source Index. Works from other indexes and bibliographies, publishers' catalogs, and other publication sources (after cross-checking) provide the material for the Secondary Source Index.

Part II is a study and analysis of the six most recent and complete bibliographies that include woodwind quintet music. All six were published within the span of eleven years, 1956-1967:

Houser, Roy. "Catalogue of Chamber Music for Woodwind Instruments." Bloomington, Indiana: Indiana University, School of Music, 1956. (Mimeographed.)

Opperman, Kalmen. *Repertory of the Clarinet*. New York: G. Ricordi & Co., 1960.

Rasmussen, Mary. "A Bibliography of Chamber Music Including Parts for Horn, as compiled from Thirteen Selected Sources." *Brass Quarterly*, II (March, 1959), IV (Summer, 1961).

Weerts, Richard K. *Original Manuscript Music for Wind and Percussion Instruments*. National Association of College Wind and Percussion Instructors, Music Educators National Conference, 1964.

Vester, Frans. *Flute Repertoire Catalogue*. London: Musica Rara, 1967.

Wise, Ronald Eugene. "Scoring in the Neoclassic Woodwind Quintets of Hindemith, Fine, Etlér, and Wilder." Unpublished Ph.D. dissertation, The University of Wisconsin, 1967.

Forms requesting information concerning compositions by resident composers were sent to 658 music departments listed in the *National Association of Schools of Music Directory, 1967*, and *The College Music Society's Directory of Music Faculties in American Colleges and Universities, 1967-1968*. The replies from member institutions of the National Association of Schools of Music totaled 162, or approximately 55%. Of the 366 institutions taken from *The College Music Society's directory*, 111 re-

sponded, or about 30%. The response from the total of 658 music departments was 42%. In addition, 78 personal letters to composers yielded 71 replies. In a few instances information was obtained by telephone conversations with composers or librarians.

Although 157 of the total 273 responses concerned instrumental combinations other than quintet, 116 (42½%) were replies from composers sending information about their works for woodwind quintet. Forty-four of these 116 replies were from composers whose compositions for quintet had been published or listed in available bibliographies, and 72 were from composers whose works had never been listed in any bibliography or source available to interested performers or teachers. These 116 composers were located in 32 states representing all regions of the United States.

Of the six bibliographies only that of Weerts constitutes an attempt to uncover new material, while the other compilers apparently only re-edited previous indexes. The present study reports many errors in their listings, several of which seem to have been uncritically copied from one publication to the next.

ABSTRACT

MUSIC TEACHER CLASSROOM TECHNIQUE VERSUS COMPUTER-ASSISTED INSTRUCTION

James Von Feldt, D.M.A., 1971
University of Missouri-Kansas City

The problem was to make a comparison between two modes of teaching selected music concepts in a standard public school: teacher classroom technique versus computer-assisted instruction.

The purpose of the study was to test the validity of teaching selected music concepts by computer-assisted instruction. The objectives were to show:

1. How computer teaching compares to standard teaching in terms of achievement gain or loss.
2. How computer teaching affects students with a high initial achievement score.
3. How computer teaching affects students with a low initial achievement score.
4. A comparison of achievement and time spent in the two modes of instruction.

The student population was comprised of thirty-seven volunteer seventh grade General Music class students from Bingham Junior High school in Kansas City, Missouri. Twenty volunteer students were randomly assigned to the standard classroom group (Control Group) and seventeen were randomly assigned to the computer-assisted group (Computer Group).

The selected basic music concepts taught in both groups were: the staff, the grand staff, the "G" clef, the "F" clef, letter names of lines and spaces, ledger lines; notes, rests, note and rest values, accidentals, time signature, measure, bar-line, double bar-line, repeat sign, crescendo and decrescendo, tempo markings and abbreviations of dynamic indications.

The five stages of development of the comparative study were: (1) development of a test instrument, (2) development of a CAI music program (Music I), (3) pretesting, (4) selection of students for the project, and (5) posttesting.

The results were based upon the Pretest and Posttest Mean scores and Standard Deviations of the Computer Group and Control Group. A t-test for significance was run as well as an analysis of E-score.

Conclusions based upon the t-test were:

1. Computer-assisted instruction is as effective as teacher classroom techniques.

2. Computer-assisted instruction as designated by this study does not affect the achievement scores of students that possess high initial achievement scores.

3. Computer-assisted instruction is significantly effective in teaching students that possess low initial achievement scores.

4. Computer-assisted instruction teaches equally as well as teacher classroom technique but in thirty percent less time.

Conclusions based upon the E-score show that:

1. Teacher classroom technique is superior to computer-assisted instruction when considering students that possess high initial achievement scores (students in the top quartile) and computer-assisted instruction is superior to teacher classroom technique for students below the top quartile. However, when considering the Pretest scores of all seventh grade General Music class students at Bingham (the Control and Computer Groups did not make initial scores typical of the total seventh grade General Music class population) computer-assisted instruction is shown to be more than twice as effective as teacher classroom technique.

2. Computer-assisted instruction as designated by this study does not teach students possessing high initial achievement scores.

3. Computer-assisted instruction is particularly effective in teaching students that possess low initial achievement scores.

4. Computer-assisted instruction is slightly superior to teacher classroom technique when considering the data generated by the Computer Group and the Control Group.

ABSTRACT
A PROGRAMMED COURSE IN ACOUSTICS IN MUSIC
FOR JUNIOR HIGH SCHOOL

Marcus Kalipolites, D.M.A., 1972
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The purpose of this dissertation was to prepare a programmed course in acoustics for the Junior High School music student which was comprehensible at his level of understanding, comprehensive in scientific detail, usable for independent study, and designed to increase his appreciation for music.

The manner in which the programmed course was constructed is presented in extensive detail. The programmed course was formulated upon five principles: **The Behavior of Sound, The Origin and Propagation of Sound, Frequency and Pitch, Intensity and Loudness, and Waveform and Quality.** For each of the five principles, a list of **Specific Objectives** was prepared in behavioral terms. Each of the principles was designated as a separate unit, the structure of each unit being divided into a series of concepts, sub-concepts, and musical examples. Among the programming techniques most frequently used are overlapping, spiraling, and generalizing. In addition, deductive and inductive logic are employed in the unfolding of information. A discussion of the procedures used in the formulation of the programmed course leads to the next part, the **Experimental Design**, in which the first test of program validation is presented. The **Experimental Design** was arranged by which the presentation of acoustics was compared at the 7th grade level. In the **Control Group**, students were taught by conventional teaching (lecture, demonstration, assigned readings, and record-listening) while the **Experimental Group** used the programmed course.

In its implementation, the **Experimental Design** was concerned with two general categories. The first of these dealt with a description of the student population. Among the student criteria which were considered in the study were I.Q., reading level, selection of students, attendance, prerequisite knowledge, and the characteristics of the community in which the study was conducted.

The second general category of the **Experimental Design** had to do with technical factors. Technical criteria included a calendar of events, descriptions of the **Pre-test** and **Post-test**, the utilization of facilities, and motivation. A **Student Questionnaire** was also submitted to students of the **Experimental Group** in order to assess their feelings and attitudes about the programmed course.

Results of the **Design** are indicated by tables and narration. With respect to I.Q. and reading level, there was no significant difference between the **Control** and **Experimental Groups**. From the **Pre-test** to the **Post-test**, the **Control Group** registered a mean gain of 7.57 (out of a maximum 30), while the **Experimental Group** showed a gain of 6.21.

Conclusions are drawn from the results. With respect to the comparison made between conventional learning and the programmed course, it would appear that conventional teaching was slightly more effective. Nevertheless, there was no significant difference in the results. Among the limitations experienced by the Experimental Group were time scheduling, work areas, lack of teacher-student interaction, motivation, lack of acoustical demonstrations, and cheating.

This study concludes with recommendations for future research in the teaching of acoustics. Among the proposals is one for the use of CAI, essentially a Programmed Instruction method. The computer, with audio and visual flexibility is ideally suited to programming for the teaching of acoustics.

The Appendix contains lesson plans for the Control Group, Pre-test and Post-test specimens, a table on the distribution of questions used in the Pre-test and Post-test, an introduction to Programmed Instruction for the student, a scoring key for the tests, and A PROGRAMMED COURSE IN ACOUSTICS IN MUSIC FOR JUNIOR HIGH SCHOOL, the basis for this study.

ABSTRACT

THE INSTRUMENTAL MUSIC OF PAUL A. PISK

Thomas W. Collins, D.M.A., 1972
University of Missouri-Kansas City

Paul Amadeus Pisk (b. 1893) is well known as a composer and musicologist. His vast contributions to music for many years have secured for him an esteemed position in present music circles.

Pisk resided in Vienna from 1893 to 1936. His teachers were Julius Epstein, Franz Schreker and Arnold Schoenberg. In 1916 he received a Ph.D. from the University of Vienna; his dissertation subject was "Das Parodi-
everfahren in den Messen des Jacobus Gallus."

Pisk has long been active as a teacher; he taught at three institutions in Vienna and has been associated with several American universities.

Pisk has been prominent in societies and organizations for the advancement of new music; the first was the Schoenberg Verein für musikalische Privataufführungen which he served as secretary. A few years later he was one of the founders of the International Society for Contemporary Music. As late as 1962, Pisk was still serving this aspect of music by accepting the position of secretary of the Webern Society.

As a writer and apologist for new music Pisk has had a distinguished career; his scholarly works have appeared in many publications and have been presented at countless meetings. While in Vienna Pisk was a contributor to the *Wiener Arbeiterzeitung* and was a co-editor of the *Musikblätter des Anbruch*.

Pisk has written just under a hundred orchestral, keyboard and chamber compositions; almost half of these works are for chamber ensembles and are, in Pisk's words, his most original compositions.

Although several influences existed during Pisk's many years as a composer, his style remains basically unchanged from its auspicious beginning in 1914 to his latest compositions, to date, of 1969. The understanding of musical form serves as an important part of his style; most of his movements are cast in a traditional formal structure.

The concept of unity is basic to Pisk's style; both thematic and accompanying material are derived from an opening motive.

Although there are examples of monophonic and homophonic textures, Pisk is essentially a linear composer. Most of his compositions, usually in a three or four-voice texture, exhibit a wealth of learned contrapuntal skills.

There are several concepts of harmony in Pisk's music; the dissonance level, which is high, is often a result of impure octaves.

The majority of Pisk's compositions is atonal.

As an orchestrator Pisk is conservative; the aim of his orchestration technique is to project thematic material in a contrapuntal setting.

Paul A. Pisk is a warm person; as a teacher, musicologist and composer he has the respect and admiration of those who know him. He has had notable success as a composer; his works are frequently performed and several of them are published. Paul A. Pisk has been a vital and driving force in music for more than fifty years and will be remembered as a distinguished contributor to the music of the first part of the twentieth century.

ABSTRACT
A STUDY OF CHARACTERISTIC STYLISTIC TRENDS
FOUND IN THE CHORAL WORKS OF A SELECTED
GROUP OF AFRO-AMERICAN COMPOSERS AND
ARRANGERS

Carl Gordon Harris, Jr., D.M.A., 1972
University of Missouri-Kansas City

It is the purpose of this study (1) to trace the development of choral music by certain Afro-American composers and arrangers from the late nineteenth century to contemporary times; and (2) to delineate certain characteristic trends found in the choral works of a selected group of Black composers and arrangers, who, because of their different styles of writing, have been labeled by this writer as Black Trailblazers, Black Nationalists and Black Innovators.

The Black Trailblazers are represented by Harry T. Burleigh, Robert Nathaniel Dett, James Weldon Johnson, J. Rosamond Johnson, John Wesley Work, Jr., Frederick J. Work and Clarence Cameron White. These Black pioneers used Negro folk melodies in small choral forms, employing compositional techniques of the late nineteenth century. Black Nationalists William L. Dawson, Hall Johnson, William Grant Still, John Wesley Work, III, and Frederick Hall used the melodies of their predecessors as well as Black poetry and jazz idioms in their arrangements and original choral works. Margaret Bonds, Hale Smith, Ulysses Kay and Undine Smith Moore are among those Black Innovators who have drawn freely from divergent sources and styles to create their own unique compositions.

Correlated with this study, on April 29, 1971, the writer conducted the Virginia State College Concert Choir of Petersburg, Virginia, in a program of arranged Negro spirituals and original compositions by Black composers that traced the stylistic trends which have developed in Afro-American choral music.

After the introductory chapter, this thesis contains a biographical summary of each composer used in this study, a discussion of certain stylistic trends which have evolved and developed in the performance of Negro spirituals as the results of presentations by Black college and professional choral groups, and concludes with an analysis of the choral literature performed on the April 29, 1971 program.

The Appendices contain the printed program for the April 29, 1971 performance, the lecture which accompanied the performance, copies of the music performed, and a selected list of choral works by Afro-American composers and arrangers.

A HISTORICAL STUDY OF BLACK MUSIC AND SELECTED TWENTIETH CENTURY BLACK COMPOSERS AND THEIR ROLE IN AMERICAN SOCIETY

*Tilford Brooks, Ed.D.; 1972
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The primary objective of the paper is to study and examine the music of the American Black man, both folk and composed music, from a historical and sociological perspective as well as through musical analysis. The results indicate that the Black man, in spite of intolerable conditions under which he is forced to live, has been able to make very definite contributions to American society in the field of music. The Black man, through his own distinct musical characteristics has made an artistic contribution which is a product of his environment. His race, in a biological sense, has had nothing to do with these characteristics. They are sociological in nature.

A complete description of Afro-American music in general is given, relating those traits found in this music with similar traits found in music

which is indigenous to West Africa, and contrasting them with music in the European tradition. Musical examples are used when appropriate.

Those Black music forms which came into being before 1900 are examined from a historical perspective to determine their origin and are analyzed musically to determine their most salient characteristics. Those Black music forms before 1900 which are indigenous to the Black ethnic group are the spiritual, work song, field holler and cry, blues and Black Creole music.

Black music forms that become a part of American music around or after 1900 are also examined from a historical perspective to determine their origin. A musical analysis with musical examples is given which indicates the most characteristic traits of these forms. Those Black music forms after 1900 which are discussed include ragtime, jazz (all kinds), gospel music, rhythm and blues, rock and roll, and soul music.

The role of the Black musician in American society from the beginnings of slavery to the present time is discussed. The various socio-economic factors which affected his role are described. Outstanding Black musicians are identified.

Although there have been Black composers in many countries, this study is concerned with the Black composer in American society and an evaluation of the sociological factors which influenced his compositions. Those twentieth century Black composers who synthesized the European and Black musical traditions in their compositions are identified. Biographical data, major works, and characteristics of their musical styles with appropriate musical examples are given.

Those younger Black composers are discussed who are eclectic in their approach to composition in that they use materials from many diverse sources. Biographical data, major works, and a musical analysis of significant compositions with musical examples are presented.

The most significant Black composers of jazz and related jazz forms are identified and discussed. While the composers in jazz and related forms have had less of an impact on these music forms than composers in other musical idioms, their contributions to these related musical forms, which are significant, are identified.

Finally, a comprehensive listing of twentieth century Black composers is given along with a short biographical sketch, known compositions and available recordings of these compositions.