THE DEVELOPMENT AND EXPERIMENTAL APPLICATION OF

SELF-INSTRUCTIONAL PRACTICE MATERIALS

FOR BEGINNING INSTRUMENTALISTS

BY

VITO PUOPOLO

This is to certify that the

thesis entitled

THE DEVELOPMENT AND EXPERIMENTAL APPLICATION OF

SELF-INSTRUCTIONAL PRACTICE MATERIALS

FOR BEGINNING INSTRUMENTALISTS
presented by

Vito Puopolo

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ABSTRACT

THE DEVELOPMENT AND EXPERIMENTAL APPLICATION OF
SELF-INSTRUCTIONAL PRACTICE MATERIALS
FOR BEGINNING INSTRUMENTALISTS

by Vito Puopolo

This study investigated the feasibility of struc-
tured, programed practice with tape-recorded materials
and its effect upon the performance achievement of
beginning elementary cornet and trumpet students. The
main purpose of the study was to facilitate the teaching
and learning of instrumental performance through the
application of programed procedure to individual prac-
tice. Specific purposes were: (1) to determine the
effect of programed practice upon performance achieve-
ment, (2) to determine the relationships of music achieve-
ment, social status, and I.Q. with both programed prac-
tice and performance achievement.

The main hypothesis was that structured practice
with recorded tapes containing programed material would
produce a significant difference in performance achieve-
ment as compared with unstructured, non-programed prac-

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tice. In addition to the main hypothesis, the study examined: (1) interactions between programed practice and each independent variable, (music achievement, social status, and I.Q.) with respect to cornet performance achievement, and (2) the relationship of performance achievement (dependent variable) to music achievement, social status, and I.Q.

The experimental population consisted of fifty-two fifth grade male beginning cornet and trumpet students drawn from six elementary schools in Baton Rouge, Louisiana. Subjects were equated on the basis of music achievement as measured by the Elementary Music Achievement Test, social status as determined by the Warner Scale of Social Status, and I.Q. measured by the Otis Quick-Scoring Beta Test for Grades 4-9.

The experimental treatment consisted of structured daily practice with ten weekly twenty-minute tapes containing programed material. The control method consisted of daily twenty-minute practice of the same material, but in a non-structured manner without tapes. The effects of each mode of practice upon cornet performance achievement were measured by the Watkins-Farnum Performance

Scale. Two-way analysis of variance, t-test, and cor-
relation were the statistical procedures used in testing
the hypotheses. The .05 level of significance was
adopted as the criterion for accepting or rejecting
the hypotheses.

Programed practice was found to be significantly
superior to non-programed practice as evidenced in per-
formance achievement. The .01 level of confidence was
achieved. Of the control group, students of above-
average prior music achievement exhibited significantly
greater cornet performance achievement than those of
below-average prior music achievement. Of the experi-
mental group, no significant difference in cornet per-
formance achievement was found between students of above-
average and below-average prior music achievement. There
was no significant difference in cornet performance
achievement between students of above-average and below-
average social status, with or without programed prac-
tice. Of the control group, no significant difference
in cornet performance achievement existed between above-
average I.Q. students and those of below-average I.Q.
However, in the experimental group, below-average I.Q.

students showed significantly greater cornet performance achievement than those of above-average I.Q.

No significant interaction existed between music achievement and programed practice, or social status and programed practice. A significant interaction existed between I.Q. and programed practice in terms of cornet performance achievement. This interaction seemed to account for the fact that a significant positive correlation existed within the control group between I.Q. and cornet performance achievement while non-significant negative correlation between the two variables existed within the experimental group.

THE DEVELOPMENT AND EXPERIMENTAL APPLICATION OF

SELF-INSTRUCTIONAL PRACTICE MATERIALS

FOR BEGINNING INSTRUMENTALISTS

By

Vito Puopolo

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To Nelda

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CHAPTER I

Introduction

Learning pertaining to the study of a musical

instrument can be classified according to three major

areas: (1) knowledges, (2) skills, and (3) attitudes.

Though attitudes and values are considered to be learned,

they are not taught. However, teachers are aware of the

necessity of attitudes to motivation; therefore, through

personal interaction with students, consciously influence

attitudinal development. Knowledges and skills leading

to improvement of instrumental music performance are

the two kinds of learning actually taught. Attainment

of the necessary knowledges and skills involves all the

eight types of learning mentioned by Gagne: "...eight

types of learning, called signal learning, stimulus-

response learning, chaining, verbal-associate learning,

multiple discrimination, concept learning, principle

learning, and problem solving."[1]

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[1]Robert M. Gagne, The Conditions of Learning, (New
York: Holt, Rinehart and Winston, Inc., 1965), p. 33.

During the private or class lesson, the teacher communicates to the pupil, the concept of a particular knowledge or skill. This he does either verbally or via his own music skill through demonstration. In either case, what is transmitted to the pupil is verbal or demonstrative description. The pupil attains a knowledge as he experiences its concept; in many cases this may be almost instantaneous. Acquiring music skill, which may or may not begin with the concomitant concept, requires learning to continue beyond concept. It must take place in the actual execution. Though at first far from perfect, execution, after much practice, may come to coincide with concept. The practice intervening between the concept of a skill and its ultimate execution was a main concern of this study.

In his private or class lesson, which consists of less than ten percent of time devoted to instrumental study, the child receives appraisal, correction, and new concepts. Then, for the remaining ninety percent of study time, he must actually teach himself the performance skills and motor patterns needed to execute the concepts learned in his lessons. Consequently, the application of concepts and development of skills are depend-

ent upon the child's limited capacity for patience, self-
discipline, self-assessment, perserverance, and thorough-
ness. He may:

1. Practice too fast, sacrificing accuracy for
   speed.

2. Spend most of the time practicing that which
   he can already do well and avoid that which is
   difficult.

3. Repeat material over and over without detecting
   or correcting mistakes.

4. Not remember a music concept correctly, thus
   practice it incorrectly.

5. Not know how to approach a particular problem
   by himself.

The toll of such a faulty practice procedure is
high. Musical growth is interrupted, even stunted, and
valuable lesson time must be devoted to remedial work.
In class situations, some who are ready for advancement
must suffer boredom and frustration while waiting for
bad habits and misconcepts of others to be corrected.
In some instances these bad habits in performance, once
formed, are never completely eliminated.

All music teachers agree upon the paramount impor-

tance of careful, well directed, systematic practice.

Yet, though they cannot be present while each student

practices, teachers are guilty of its neglect. La Bach

points out some of the difficulties:

> "Satisfactory progress is dependent on many factors,
> of course; but among the difficulties inherent in
> many situations, difficulties which too often lead
> to discouragement and dropping out, are these:
>
> 1. The teacher may meet with the stu-
>   dents relatively infrequently, so
>   that a sufficient check of progress
>   and practice habits cannot be made
>   often enough.
>
> 2. There may not be time in a lesson
>   to adequately explain or demonstrate
>   new material to be practiced.
>
> 3. Students practicing at home often get
>   little positive help or criticism from
>   parents whose knowledge of music may
>   be small.
>
> 4. The teacher is often not a competent
>   performer on many instruments which
>   he nevertheless must teach, and thus
>   he is unable to demonstrate proper
>   tone and technique in a lesson."[2]

The importance of performance in music education

is clearly stated by Benn:

> "...if we are to aid students in becoming intelli-
> gent consumers of music, we must approach such
> responsibilities in terms of the musical discip-

---

[2]Parker La Bach, "A Device to Facilitate Learning of Basic Music Skills," Council for Research in Music Education, 4:7, Winter, 1965.

line itself; that means the production of music
in performance. We shall not bring all of our
youngsters to the degree of virtuosity owned
by the artists of our time, but to the degree
that nature has endowed them, that our musician-
ship has brought them, and our presentation
of music has inspired them, that far will they
have been brought to a sensitive awareness of
the art of music."[3]

The type of performance mentioned above cannot exist

without practice. The quality of individual practice will

directly affect the quality of performance. The substance

of the proposal of this study was that many children never

arrive "to the degree that nature has endowed them" simply

because of inefficient, inadequate practice.

The Problem

This study was concerned with the efficiency of

individual practice, particularly, of beginning instru-

mental students. The central problem was to adapt and

evaluate programed instruction as a procedure for

increasing the efficiency of individual practice. The

level of efficiency desired was that which would be

significantly evident in the acquisition of knowledges

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[3]Oleta A. Benn, "Excellence in Elementary Music
Programs," Perspectives in Music Education, ed. Bonnie C.
Knowall M.E.N.C., Washington, D.C., 1966, p. 252.

and skills necessary for instrumental music performance.

Significance of the Problem

It was a premise of this study that penetration of the problem of individual instrumental practice would provide insight which could advance the efficiency of teaching as well as individual practice, upgrade performance, and elevate standards for future consumers of music.

Purposes of the Study

School instrumental instructors cannot, to maximum efficiency, teach the knowledges and skills essential to music performance because of two impossibilities: possession of great proficiency on each instrument to be taught, and omnipresence to direct and guide the individual practice and drill of each and every student. Young beginning instrumentalists cannot efficiently learn and acquire the concepts and skill, being inept at an incipient stage of musical experience to best direct their own individual practice and drill. The main purpose of this study was to facilitate the teaching and learning of instrumental performance through the application of programed proce-

dure to individual practice. Specific objectives were:

1. To develop assigned material into self-instruc-
   tional practice material on recorded tape.

2. To test the feasibility of structured practice
   with this material in learning concepts and
   developing skills for performance on a musical
   instrument.

3. To determine the relationships between perform-
   ance achievement and each of the following:
   (1) music achievement, (2) social status, (3) I.Q.

4. To determine the effect of music achievement,
   social status, and I.Q. upon programed practice
   with respect to performance achievement.

Hypotheses

The main hypothesis of this study was that structured
practice with recorded tapes containing programed material
would produce a significant difference in performance
achievement as compared with non-structured, non-programed
practice.

The main hypothesis was based upon the following
assumptions:

1. The experimental method would direct subjects to
   concentrate practice on sections that <u>needed</u>

work; the control method could not prevent subjects from practicing only sections which they <u>liked</u> or <u>wanted</u> to play.

2. The experimental method would provide constant reinforcement; the control method could not prevent repetition of errors without corrections.

3. The experimental method would direct subjects to practice drills slowly; the control method could provide no means for restraint of the urge to practice "a tempo" thereby minimizing accuracy and maximizing unconscious acquisition of bad habits.

4. The experimental method would provide the aural concept for all notation; the control method could not.

5. The experimental method would be sequentially organized; the control method would not be.

Investigation of the main hypothesis necessitated examination of the following null hypotheses:

1. There would be no significant difference in performance achievement between students of above-average prior music achievement and those of below-average prior music achievement.

2. There would be no significant interaction between prior music achievement and programed practice with respect to performance achievement.

3. There would be no significant difference in performance achievement between students of above-average social status and those of below-average social status.

4. There would be no significant interaction between social status and programed practice with respect to performance achievement.

5. There would be no significant difference in performance achievement between students of above-average I.Q. and those of below-average I.Q.

6. There would be no significant interaction between I.Q. and programed practice with respect to performance achievement.

Scope of the Study

This study dealt mainly with the effect of programed practice upon the performance achievement of fifty-two fifth grade beginning trumpet and cornet students. Music achievement, social status, and I.Q. were studied for effect upon performance achievement and interaction with

programed practice.

Practice material was the weekly lesson as assigned in Band Class. Experimental and control groups were comprised of all fifth grade beginning trumpet and cornet students from six elementary schools at East Baton Rouge Parish, Louisiana: Magnolia Woods Elementary School, River Oaks Elementary School, Villa del Rey Elementary School, Red Oaks Elementary School, Audubon Elementary School, and Broadmoor Elementary School

Limitations of the Study

Music achievement, social status, and I.Q. were examined insomuch as they are thought to relate to music performance achievement. For purposes of delimitation, the experiment was restricted to trumpet and cornet students. It must be recognized, however, that the programed format which was employed, and the findings which resulted may be applicable to practice on any musical instrument.

Sex of Subjects. There were no female fifth grade trumpet or cornet students from any of the participating schools. Therefore, sex was not a factor.

Practice Material. The weekly assigned material for individual practice by the subjects was the weekly lesson

exactly as assigned by the instrumental music teacher in Band Class. Except for the programed format, all explanations and demonstrations included on the experimental tapes reflected exactly the methods and philosophy of the instrumental music teacher. This study was not concerned with the effectiveness of particular method books used, manner or style of teaching, or order of presentation of new concepts. Programing of the material was in strict accordance with the teaching principles, styles, and philosophy already being practiced in the music department of the East Baton Rouge Parish Public Schools.

Length of Time. The experiment commenced on March 3, 1969 and continued for ten weeks, excluding Easter vacation. Practice material included only the concepts and skills being taught in Band Class during this period of time.

Embouchure. Detection and correction of personal embouchure problems occurred during Band Class. The experimental tapes included explanations of correct embouchure as it related to the exercises and tunes being practiced.

Tone Quality. Tone quality was not specifically

dealt with in the experimental tapes. Subjects were
constantly urged to practice with the finest tone pos-
sible. Tone quality was not included in the evaluation
of performance achievement.

Pitch. Intonation was not specifically dealt with
in the experimental tapes. It was expected, however,
that the activity of listening and imitating would help
develop good intonation. Evaluation of performance
achievement did not include measurement of intonation.

Definition of Terms

It is appropriate that certain terms be defined,
and for the purposes of this study, should be used with
that particular concept in mind.

Music achievement is musical ability as measured by
the Colwell Music Achievement Test which included three
areas: (1) pitch discrimination, (2) interval discrimi-
nation, (3) meter discrimination. (A more precise
description is given in Chapter III.)

Performance achievement is the ability to perform on
a musical instrument (trumpet and cornet) as measured by
the Watkins-Farnum Performance Scale which provides for

measures of errors in pitch, tempo, length of note, expression, slurs, rests, pauses, and repeats. (See Chapter III for more detail.)

Social status is socio-economic level according to the Warner Scale of Socio-Economic Status. Three categories were used: (1) occupation of parent, (2) outward appearance of home. (3) neighborhood.

Monitoring is defined as the supervision of the scheduled practice of each subject by a responsible adult.

Programing of practice is the arrangement of practice material to a step-by-step format of problem solving, and drill of performance skills and concepts. Each drill consists of three basic stages: (1) model performance, (2) response, (3) reinforcement.

Model performance is the presentation of the piece, exercise, or isolated segment by the recorded trumpet, accompanied by a piano and narrator. The model trumpet performances were of a nearly professional musical quality, recorded by a college trumpet student. The narrator provides counting of the meter as well as explanations when necessary. (A detailed description is given in Chapter III.)

Response is the stage when the subject, after hear-

ing the model, performs the same material, very slowly at first and gradually increasing tempo with each repetition until "a tempo" is reached. The student's response is accompanied by the piano and directed by the narrator.

Reinforcement is the stage following response; it is a final model performance with which the student compares his response. The student can compare by listening or playing in unison with the recorded model.

Structured practice is defined as practice time which has been systematically planned beforehand by the teacher; problematic sections are given more attention.

Unstructured practice is not planned. As he practices, the student decides how the alloted time is to be apportioned.

Further Organization of the Report

The preceding pages of this chapter have presented a statement, definition, and discussion of the problem. The report continues in the following order: Chapter II, A Review of the Literature; Chapter III, Design of the Study; Chapter IV, Presentation and Analysis of the Data; and Chapter V, Summary, Conclusions, Implications and Recommendations.

CHAPTER II

REVIEW OF RELATED LITERATURE

Introduction

Studies investigating the possibilities of pro-
gramed self-instruction in music can be classified in
three general categories: (1) studies dealing with
music knowledges, such as basic theory or music appre-
ciation; (2) studies dealing with aural perception as
an isolated area; (3) studies applying aural perception,
together with other factors, to performance, such as
sight-singing or conducting. Substantial research of
programed instruction in the area of instrumental per-
formance, specifically, instrumental practice, is vir-
tually nonexistent.

An important finding of this study, concerning I.Q.
in relation to programed instrumental practice, prompted
a survey of research dealing with I.Q. and instrumental
performance. Several reports were found claiming to
investigate I.Q. and its relationship to talent, aesthe-
tic sensitivity, musicality, or music reading. Each
study employed a correlation on I.Q. scores with test

scores of one kind of musical intelligence or another. Investigation of the relationship of I.Q. to actual instrumental performance seems to have been neglected.

Literature pertaining to programed instruction in music is divided into three categories: (1) studies relating to aural perception, (2) studies relating to sight-singing, (3) studies relating to instrumental instruction. I.Q. - instrumental performance area includes one study.

Studies Relating to Aural Perception

At Ohio State University in 1958-59, Spohn[1] experimented with structured drill material in the development of melodic perception. A man objective of the investigation was the comparison of structured extra-class drill to unstructured extra-class drill. The material was kept in musical context. Results indicated that structured self-drill was significantly more effective.

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[1] Charles L. Spohn, "An Exploration in the Use of Recorded Teaching Material to Develop Aural Comprehension in College Music Classes" (Unpublished Doctoral dissertation, Ohio State University, 1959).

In 1960 Spohn[2] programed basic materials for self-instructional development of aural skills. Subjects consisted of seventy-seven freshmen enrolled in a music fundamentals class at Ohio State University. The drill material included melodic ascending intervals. A hierarchy of difficulty was fixed in the following order from easy to difficult: perfect octave, major second, major third, perfect fourth, perfect fifth, major sixth, major seventh, minor third, tritone, minor seventh, minor sixth.

A main concern of the study was to determine whether intervallic dictation could be effectively learned by means of programed self-instruction. The evaluation ascertained that interval recognition could be significantly improved through programed self-instruction.

Carlsen[3] in 1961-62, carried investigation of programed aural training beyond the status of supplemen-

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[2]Spohn, "Programming the Basic Materials of Music for Self-Instructional Development of Aural Skills," Journal of Research in Music Education, Vol. XI, No. 2, Fall 1963, pp. 91-98.

[3]James C. Carlsen, "An Investigation of Programed Learning in Melodic Dictation by Means of a Teaching Machine Using a Branching Technique of Programming" (Unpublished Doctoral dissertation, Northwestern University, 1962).

tary drill; he included an outright comparison with teacher-instruction. The experimental group was sub-grouped to allow a comparison of linear programing technique with branching. The findings disclosed evidence of significantly greater effectiveness of pro-gramed self-instruction over teacher-instruction in the development of aural perception. No significant differ-ence were detected between the two techniques of pro-gramed instruction.

In 1966-67 Sidnell[4] applied aural-visual perception to instrumental performance as it relates to conducting. A matched pair of two group design was used with twenty-six members of an instrumental conducting class at Michi-gan State University. While reading along from a four-staved conductor's score, subjects listened to taped excerpts of four-part instrumental performances, each excerpt containing one error. The control group, after two hearings, was expected to locate the error, determine whether it was an error of pitch or rhythm, identify the

[4] Robert G. Sidnell, "The Development of Self-instru-tional Drill Materials to Facilitate the Growth of Score Reading Skills of Student Conductors" (final report sub-mitted to the Department of Health, Education and Welfare, Bureau of Research, 1968) pp.20.

erring instrument, indicate how it deviated from the conductor's score. For the experimental group the items were programed in the following manner:

Frame 1. - student listens to excerpt and locates error; reinforcement follows.

Frame 2. - a small segment encompassing the error is repeated, student determines type of error; reinforcement follows.

Frame 3. - a smaller segment focusing more closely upon the error is repeated, student indicates erring instrument; reinforcement follows.

Frame 4. - erring instrument repeats Frame 3 alone, student notates error; reinforcement follows.

At the end of a ten-week period, evaluation revealed a significantly greater gain of experimental group over control group in score reading and evaluation of performance errors. Programed learning was proved effective in the development of aural-visual skills relating to instrumental conducting. It is interesting to note that the programed format parallels what is believed to be the mental process of discovery and differentiation of errors as experienced by a conductor.

Studies Relating to Sight-Singing

Research of programed instruction in sight-singing is a very recent activity. At the time of this writing, one such study had been completed. Kanable[5] equated thirty high school students on the basis of tonal memory and error detection, and tone-matching ability. Fifteen subjects studied individually by means of a tape recorder and programed text. A four-track tape recorder allowed the student to hear instructions, tonic chord, and a metronomic beat; to record his response; and to hear a playback of his response followed by a reinforcement.

Treatment for the fifteen members of the control group consisted of twelve daily 50-minute class training sessions; for the experimental group it was limited to the twelve daily 50-minute sessions with the tape recorder. Results of the post-test showed no significant difference between programed individual instruction and classroom instruction.

The reviewer believes that the lack of significance was

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[5]Betty Kanable, "An Experimental Study Comparing Programed Instruction with Classroom Teaching of Sight-singing," _Journal of Research in Music Education_, XVII (Summer, 1969), pp. 217-226.

possibly attributable to several factors not considered by the investigator:

1. Twelve days could be insufficient time for the effect of programed instruction to take place.

2. More than one teacher was involved, possibly influencing the main effect.

3. Apart from method of presentation, material was not identical, though of similar type.

4. No mention was made of sex, age, I.Q., or previous singing experience as possible variables influencing the main effect.

Studies Relating to Instrumental Instruction

In 1964-65 La Bach,[6] in a pilot study, experimented with programed training in the specific area of instrumental practice. He constructed a device consisting of a two-track tape recorder, speaker, microphone, and several power relay switches and controls. The device was designed so that students could record their practice of a given exercise, hear it played, then compare it

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[6]Parker La Bach, "A Device to Facilitate Learning of Basic Music Skills," Bulletin of the Council for Research in Music Education, No. 4 (Winter, 1965), pp. 7-10.

with the playback of a pre-recorded model of the same

exercise. Three different modes of practice routine

were possible: (1) student performance, followed by

student playback, followed by pre-recorded model per-

formance; (2) pre-recorded model performance, followed

by student performance, followed by student performance

playback; (3) model performance, followed by student

performance, student performance playback, followed by

a repetition of model performance.

The concern of the pilot study was the feasibility

of the practice device. A controlled statistical evalua-

tion of student progress was not attempted. La Bach, how-

ever, was able to conclude:

"1. All students indicated satisfaction or
    enjoyment in using the device.
 2. Study of student practice, student opinion,
    and student performance indicated that some
    musical skills may well show significant
    improvement through use of the practice
    device."[7]

Practice was programed to the extent that aural

perception was utilized in the discovery of one's own

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[7]La Bach, "Pilot Project for Development of a
Device to Facilitate Learning of Basis Musical Skills,"
(progress report submitted to the Department of Health
Education and Welfare, Cooperative Research Branch, 1966),
p. 10.

mistakes. All discoveries were limited to the level

of aural perception of each individual.

At Pennsylvania State University Deihl and Radocy[8]

(1969) investigated computer-assisted instrumental

instruction. The procedure included two separate stages:

first, the listening program; second, the playing pro-

gram. The computer-assisted listening program is

described:

> "The listening items require comparison,
> matching and discrimination. They assume
> various formats. For example, items or
> frames might require discrimination between
> two similar prerecorded versions of the cla-
> rinet (choose correct one), two similar vis-
> ual versions (indicate discrepancy), or
> aural-visual versions (indicate difference
> between recorded versions and notation).
> A typical frame presents three brief re-
> corded examples asking the student to select
> the one shown on the image display. In an-
> other case the student is shown a notated
> passage with a certain articulation pattern;
> after hearing a recorded version on clarinet
> which is almost correct, he is asked to re-
> spond by indicating the discrepancy as shown
> on the display screen. Such discrimination
> training should deter learning by mere rote
> imitation. Aural understanding and judgement
> are basic throughout the program."[9]

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[8]Ned C. Deihl and Rudolf E. Radocy, "Computer-
Assisted Instruction: Potential for Instrumental Music
Education," Council for Research in Music Education,
Bulletin No. 15 (Winter, 1969), pp. 2-7.

[9]Ibid., p. 6.

After the student demonstrates satisfactory aural
discrimination at the computerized station, he partici-
pates in the off the line playing program. The playing
program consists of practice with a device functionally
identical to the La Bach device. The authors describe
it:

> "Such a device permits considerable flexi-
> bility in options available to each student.
> He can hear a prerecorded model, record his
> version, rerecord as he wishes, and hear the
> model followed by his recorded version for
> instant comparison. He may repeat the entire
> cycle as he chooses. In other cases he may
> record his version before he hears the pre-
> recorded model. He can also play without
> recording. Recording a duet part along with
> the model is another possibility if the
> engineers can modify the current equipment.
> The unit also allows the teacher to monitor
> all the students' recordings along with the
> models by playing the tape without inter-
> ruption."[10]

Program materials are presently being developed
and administration of a revised program is planned for
the winter of 1969.

The writer,[11] in 1966-67, conducted a pilot study

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[10]Ibid., p. 7.

[11]Vito Puopolo, "The Structuring of Practice
Materials on Tape," (Unpublished pilot study, Michi-
gan State University, 1966).

investigating the effects of structured individual

instrumental practice with recorded tapes. All drills

in the execution of new concepts were programed. Con-

cepts included pitch discrimination, rhythm, fingering,

and the use of chromatics - all within context of the

assigned tunes. The subjects were members of a class at

Michigan State University in which basic music theory

and skill were taught. Recorder was the instrument to

be studied. Each subject was given a weekly extra-class

private lesson. Method and material were identical for

both experimental and control groups. Mode of practice

was the only difference; for control group it was un-

structured, for experimental group it was structured

and programed on tape. After six weeks, both were given

a post-test which consisted of a composite of the con-

cepts studied. Post-test scores of the experimental

group showed significant gain over the control group.

Structured practice could possibly have affected per-

formance on a class final examination which included

sight-singing and piano performance. A correlation of

$r = .91$ was found between the class final examination

scores and the post-test raw scores. The project

indicated structured practice with recorded tapes to

affect significantly the learning of musical concepts

and skills evidenced in musical performance.

The writer[12] conducted a second pilot study with

beginning cornet and trumpet students during spring of

1968 at Lucy Jefferson Junior High School in Vicksburg,

Mississippi. In spite of conditions very limiting to

musical growth, post-tests indicated a significant gain

by the experimental group over the control group. Nega-

tive learning was found to be a factor distinctly affect-

ing growth. Certain members of the control group achieved

lower scores on the post-test than the pre-test. The

regression was due to obvious bad habits which had been

acquired after the pre-test. A gain was experienced by

every member of the experimental group.

Studies Relating to the I.Q. and Music Achievement
with Respect to Instrumental Performance

Holstrom[13] investigated the relationships of

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[12]Puopolo, "The Development of Materials for the
Structuring and Programing of Individual Practice of
Beginning Instrumentalists." (Unpublished pilot study,
Alcorn A. & M. College, 1968).

[13]Lars-Gunnas Holmstrom, "Intelligence vs. Progress
in Music Education," Journal of Research in Music Educa-
tion, XVII (Spring, 1969), pp. 76-87.

separate factors of intelligence to certain areas of musical education. The **F-Test** by K. Harnqvist was used to measure four components of the intellect: (1) verbal understanding, (2) numerical ability, (3) inductive ability, (4) spacial ability. The areas of musical education were: singing, piano, string instruments, theory of harmony, musical ear, musical history, teaching ability, and pedagogic. The subjects were tested for the musical areas as part of an entrance test in the beginning of the fall semester at the Musical Academy (KMH) in Stockholm, Sweden. A music teacher examination given at the end of the spring semester tested the same musical areas.

Distribution of scores in the various tests was examined and correlations were employed. A significant nagative correlation was found between the entrance test in string instruments and inductive ability. It is interesting to note that a significant positive correlation existed between all intellectual variables and all the paper-pencil tests (theory of harmony, conducting, musical history, and teaching ability) included in the entrance examination; yet, correlations with the performance tests (singing, piano, string instruments) were

seldom significantly different from zero.

Correlation between the four intellectual variables and the paper-pencil tests included in the music teacher examination was significant at the .05 and .01 levels. Though some correlation existed between singing and inductive ability, and string instruments and numerical ability, significant levels were not reached.

The sample seems to be questionable. The group taking the entrance examination was different from the group taking the music teacher examination, and correlation coefficients differed greatly in each case. Size of sample also differed between the two groups. What can be concluded is that significant correlations (except for one negative correlation between string instruments and inductive ability which was not repeated with the second group) did not exist between musical performance and the various aspects of intelligence.

Pinkerton[14] attempted to determine what criteria were being used in the selection of students for public school instrumental music programs. A questionnaire was mailed to one hundred and fifty cities throughout the

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[14]Frank W. Pinkerton, "Talent Tests and Their Application to the Public School Program," Journal of Research in Music Education, XI (Spring, 1963), pp. 75-80.

United States and Alaska. Response from seventy-five percent of the recipients constituted the data for the study. Student interest and recommendations of teachers seemed to be the most popular criteria. A particular interest of the present study was the weight given to tests of prior music achievement and I.Q. ratings. Over sixty-two percent of the respondents used music achievement test for rough screening, grouping, and elimination from the instrumental music program. Over forty-two percent of the respondents used I.Q. ratings as a criteria for selection of students.

The present study found level of prior music achievement to have no bearing upon performance achievement of students using the programed mode of practice. Students of below-average I.Q. seemed to benefit more from programed practice and exhibited greater performance achievement than students of above-average I.Q. Both prior music achievement and I.Q. had a direct bearing upon the performance achievement of students not using the programed mode of practice.

Throughout the academic year 1957-58, Porter[15] investigated programed teaching of spelling to elementary school children. Twenty-two weeks of spelling instruction were given to both sixth and second grade levels. Experimental groups were taught via teaching machine and control groups were taught in the usual manner.

The sixth grade data (closest in age to subjects of this study) were of particular interest to the present study. Statistical results were:

"1. Mean student achievement
   over the year in 'grade
   equivalent' scores:

Experimental group	1.42
Control group	0.90
(sign test,	0.01)

2. Mean student achievement
   within experimental groups:

Machine lessons	97.2%
Book lessons	96.4%
(sign test,	0.025)

3. First vs. second half of machine taught lessons: no significant difference.
4. 'Time at study' ratio: E/C = 1/3.
5. Miscellaneous correlations (rho);
   I.Q. vs. Achievement in:

Experimental group	-.128 (n.s.)
Control group	+.343 (.05)

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[15]Douglas Porter, "Some Effects of Year Long Teaching Machine Instruction," Automatic Teaching: The State of the Art, ed. Eugene Galenter, New York, John Wiley & Sons, Inc., 1959, pp. 85-90.

". . .spelling achievement as measured by stand-
ardized achievement tests was significantly supe-
rior for the experimental groups, and there is
essentially no relationship between intelligence
scores and achievement in the experimental groups,
but a significant positive relationship in the con-
trol groups."[16]

Some statistical results of the Porter study paral-

leled those of the present study quite closely. Corre-

lations (item 5) between I.Q, and achievement in experi-

mental and control groups seemed almost to coincide with

the correlations between I.Q. and cornet performance

achievement of the present study.

Summary

A review of related literature reveals the follow-

ing findings and conclusions:

1. In aural perception as an isolated area, drill

   with programed materials on tape is signifi-

   cantly more effective than non-programed drill.

2. In the area of aural perception, there is no

   significant difference between linear and

   branched techniques of programing.

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[16]Ibid., pp. 88-89.

3. In the area of aural perception, programed drill is found to be significantly more effective than classroom instruction.

4. In the area of visual/aural perception with respect to score reading and conducting, programed training is significantly more effective than nonprogramed training.

5. In the area of sight-singing, there is no significant difference found between programed and unprogramed study. Efficiency of the research is questioned, however.

6. No statistically consistent correlation of any significance has been found between variables of intelligance and music performance, vocal and instrumental.

7. Prior music achievement and I.Q. ratings (both are independent variables of this study) are significantly used as criteria for the selecticn of instrumental students. (See p. 73 for further discussion.)

8. Programed spelling instruction, to children of similar age and grade level as subjects of the

present study, is found to be statistically superior to nonprogramed instruction. (See p. 70 for further discussion.)

CHAPTER III

DESIGN OF THE STUDY

Locale

The investigation took place in Baton Rouge,
Louisiana. In spite of its location (investigator com-
muted over two hundred miles, round trip), Baton Rouge
was chosen because of four important factors:

1. The music supervisor was familiar with programed
   learning, and extremely cooperative.

2. Teaching personnel are competent and research
   oriented.

3. The instrumental program is well organized.

4. A single instructor teaches band class in sev-
   eral schools. This arrangement eliminates
   teacher as a main source.

Procedures

The experimental population was comprised of fifty-
two fifth grade male students in their first year of cornet
or trumpet study. Subjects were drawn from six elementary
schools in which band class was taught by the same teacher.

Practice material for both experimental and control groups was identical. The weekly band assignment constituted the individual practice material. Practice occurred each school day during lunch hour, recess, or after school for a period of ten weeks. The practice of each subject was monitored by the music teacher, classroom teacher, or college practice-teaching students. Monitoring responsibilities included keeping attendance and certifying that each subject practiced the required time per scheduled session. Monitors also arranged for make-up practice sessions necessitated by absences, so at the post-test date each subject had completed the same amount of practice time on each assignment.

For the experimental group each weekly lesson was programed and recorded on tape for self-instruction. Each programed lesson was recorded on a seven-inch reel master tape at a speed of seven and one-half inches per second, then reproduced on cassette copies, one to each experimental group member. The cassette players, when not in use, were left in the care of homeroom teachers. The student was required to bring his player, in which was inserted that week's cassette, his instrument and music each time he reported for daily individual practice. All

individual practice activity was directed entirely from the tape recording. (A detailed description of the tapes is given later.)

The control group practiced the same material under identical conditions except for the programed tapes. The length of each practice session was matched to the duration of the experimental practice tape for that given week. The experimental tapes were from twenty to twenty-five minutes in duration, varying from week to week.

Description of the Program

In the preparation of the experimental tapes, the investigator worked closely with the instrumental music instructor and exercised great care in maintaining consistency with her methods and terminology. The tapes were subjected to evaluation by a panel of experts headed by Dr. Robert G. Sidnell, Chairman of Music Education, Michigan State University.

Each tape included:

1. Model cornet performance of all material.

2. Simple piano accompaniment for all model performances, responses and reinforcements.

3. Verbal instructions, explanations, and counting

of meter during occurrence of all model per-

formance, responses and reinforcements.

The following format (See Appendix A for complete

document.) was generally adhered to:

1. A brief reminder of problems to be encountered

   preceded each tune or exercise to be practiced.

   (new rhythms, new notes, fingerings, chromatics,

   new note values, phrasings, etc.)

2. Student listened to model performance of tune or

   exercise while reading along from the score.

3. While reading from the score, student listened

   to first isolated segment.

4. Student played segment very slowly, then slightly

   faster, faster, and finally "a tempo". (Directed

   by recorded counting and piano accompaniment.)

5. Student was asked if he remembered to cope with

   specific problems, for example, "Did you remem-

   ber to use the second valve for that F# on the

   third beat?"

6. Student listened to reinforcement and compared.

7. After each segment was drilled, student performed

   entire tune or exercise, then listened to rein-

   forcement. (According to recorded instructions,

student either listened to reinforcement or

played in unison with it.)

The following is the script of an excerpt from a

practice tape:

"Turn to page 29, number 171. As we per-
form this for you, notice the 8th rests.
Ready, listen." (model performance)

"Did you notice that when the 8th rests
occurred, they were on the 'and' of the beat?
Pay close attention as we perform measures 1
and 2 slowly. Ready, listen." (model)

"Now you play it; ready, play." (response,
slow) "Again, ready, play." (response, slightly
faster) "Again, ready, play." (response, faster)
"Again, ready, play." (response, a tempo) "Did you
sound like this? Ready, listen." (reinforcement)
"Now measures 3 and 4; ready, listen." (model)

"Now you play it; don't forget the Bb.
Ready, play." (response, slow) "Again, ready,

play." (response, slightly faster) "Again, ready,
play." (response, faster) "Again, ready, play."
(response, a tempo) "You should have sounded
exactly like this: Ready, listen." (reinforcement)

"The rhythm is slightly different for mea-
sures 5 and 6. Ready, listen." (model)

"Now you play it; ready, play." (response,
slow) "Again, ready, play." (response, slightly
faster) "Again, ready, play." (response, faster)
"Again, ready, play." (response, a tempo) "Did
you sound exactly like this? Ready, listen."
(reinforcement)

"Now measures 7 and 8; ready, listen."
(model)

"Now you play it; don't forget the Bb.
Ready, play." (response, slow) "Again, ready,
play." (response, slightly faster) "Again,
ready, play." (response, faster) "Again, ready,
play." (response, a tempo) "You should have
played it exactly like this: Ready, listen."
(reinforcement)

"Now you play it all the way through
from the beginning; ready, play." (response)
"Now play it together with our trumpet player;
see if you are doing everything exactly as
he is." (response-reinforcement)

Method of Gathering Data

Subjects were pre-tested in three behaviors which

serve as the independent variables: (1) music achieve-
ment, (2) social status, (3) I.Q. Music achievement was
measured by the Music Achievement Test One; social status
was determined by the Warner Scale of Social Status; I.Q.
was determined on the basis of the Otis Quick Scoring
Beta Test scored obtained from the school records. Scores
from the three pre-tests were dichotomized at the mean.

Subjects were placed in experimental or control group
by a "flip-of-the-coin" method. Table I is a diagram of
the resultant experimental design.

Table I. Experimental Design for the Study

	Experimental (with tapes)	Control (without tapes)
Music Achiev.	Above-Average	Above-Average
	Below-Average	Below-Average
Social Status	Above-Average	Above-Average
	Below-Average	Below-Average
I.Q.	Above-Average	Above-Average
	Below-Average	Below-Average

Upon completion of ten weeks of practice, the post-test, the <u>Watkins</u>-<u>Farnum</u> <u>Performance</u> <u>Scale</u>, was administered in a room equipped with a tape recorder, metronome, chair, and music stand containing the appropriate test items. Testing procedure was as follows:

1. Testee reported individually to the testing room.

2. Tester read instructions aloud to testee and recorded testee's name.

3. Tester started the metronome at the appropriate marking, turned on the tape recorder, then left the room.

4. Tester waited behind the closed door until performance of all items at a given metronome marking was completed, then entered the room to shut off the metronome and tape recorder, and repeat step three for the next set of items.

Tape recordings containing each subject's name and post-test performance were sent to the scorer. Having no knowledge of which subjects belonged to experimental or control group, the scorer was able to maintain complete objectivity.

Performance achievement scores within each of the three major groups, (music achievement, social status,

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I.Q.) underwent a two-way analysis of variance treat-
ment. Significant F statistics were further investigated
by means of the t-test and correlation treatment. The
five percent level of confidence was accepted as the
standard for the significance of the F, t, and r, statistics.

Description of Data-Gathering Instruments

The Beta Test for Grades 4-9 by Arthur S. Otis con-
sists of eighty items including word meaning, verbal
analogies, scrambled sentences, interpretation of proverbs,
logical reasoning, number series, arithmetic reasoning,
and design analogies. One score summarizes the eighty
items. The coefficients as quoted average .91, and the
standard error is four points.

The Watkins-Farnum Performance Scale by John G. Watkins
and Stephen Farnum is a series of musical exercises of increas-
ing difficulty presented for instrumental sight reading. The
level of performance is determined by the number of errors
made. Any error in a bar of music cancels the one point
for that bar. Factors of music performance evaluated are
pitch, tempo, length of note, expression, slurs, rests,
pauses, and repeats. The student is stopped when he fails
to score in two consecutive exercises. Metronome markings

are indicated for each exercise. Reliability coeffi-
cients are from .87 to .94. Validity coefficients based
on correlation with instructor ratings range from .68
to .87.

The Elementary Music Achievement Test by Richard
Colwell contains three subtests: (1) pitch discrimina-
tion, (2) interval discrimination, (3) meter discrimina-
tion. A solo performance of each item is presented by
phonograph recording. The reliability coefficient is
reported as .88 (N = 7,710; SD = 10.41). Validity based
on correlation with teacher ratings is .92 (N = 1,893).

The Warner Scale of Social Status contains scales for
ratings of the following factors: (1) occupation of parent(s),
(2) source of income (not used in this study), (3) house
type, (4) dwelling area. Each of the four ratings is
assigned a specific weight, then totaled for the final
score. The reported multiple intercorrelation coefficient
of the factors included in the scale is .972.

CHAPTER IV

PRESENTATION AND ANALYSIS OF THE DATA

The purpose of this study was to evaluate the effects of structured practice with tape-recorded programed materials.

The purpose of this chapter is to present the results of the study and analysis of the data procured in the course of the investigation. The data presented herein forms the basis for accepting or rejecting the hypothesis stated in Chapter I.

Pre-Test Data

Means and standard deviations of independent variables for the experimental population are shown in Table II. The standard deviation for the Elementary Music Achievement Test shown in Tables II, III, and IV seem to be in agreement with the statistics reported on page 43.

Table II. Means and Standard Deviations of Independent
Variables for the Sample (N = 52)

Variables	Mean	S.D.
Elementary Music Achievement Test I	57.55	9.74
Warner Scale of Social Status	23.69	6.68
Otis Quick-Scoring Beta Test	111.03	10.82

The number fifty-two represents subjects who par-
ticipated in the entire experiment. Some students did
not complete the experiment because of extended illness,
dropping from instrumental study, or moving to another
city. Dichotomization of scores in each variable took
place at the mean. A high social status score denotes
low status; a low score denotes high status.

Tables III and IV contain means and standard
deviations of randomly selected experimental and con-
trol groups. The means and standard deviations show no
significant difference to exist between experimental
and control groups. The I.Q. means and standard deviations
seem to be slightly higher than normal.

Table III. Means and Standard Deviations
of Control Group (N = 25)

Variable	Mean	S.D.
Music Achievement	55.32	8.83
Social Status	24.04	5.89
I.Q.	110.88	10.42

Table IV. Means and Standard Deviations
of Experimental Group   (N = 27)

Variable	Mean	S.D.
Music Achievement	59.62	10.08
Social Status	23.37	7.32
I.Q.	111.18	11.17

Although not a primary purpose of this study,
relationships between the independent variables was a
question of interest. Correlation of independent
variables is shown in Table V.

Table V. Correlations of Independent Variables
(N = 52)

Variable	Correlation	Coefficient
Music Achievement and Social Status	.014	< P .05
Music Achievement and I.Q.	.264	< P .05
Social Status and I.Q.	.255	< P .05

Analysis of Data Relative to Method of Practice and
Performance Achievement

The dependent variable, performance achievement on

cornet or trumpet, was measured by the Watkins-Farnum

Performance Scale.

Table VI contains the means and standard deviations

of performance achievement scores for the experimental

group and control group.

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Table VI. **Means and Standard Deviations of Cornet Performance Achievement Scores***

	N	Mean	S.D.
Experimental	27	31.41	19.59
Control	25	15.12	12.42

*Watkins-Farnum Performance Scale

The standard deviations reveal greater homogeneity in the control group (raw scores range from 1 to 50) than the experimental group (raw scores range from 4 to 77). The mean difference of 16.29 between experimental and control groups is significant beyond the .01 level of confidence, yielding a t of 3.6. This significance is ascertained by the resultant main effect of the two-way analysis of variance treatments shown in Tables VIII, X, and XII. The two-way analysis of variance treatments will test significance of the following:

1. Main effect - effect of programed practice upon cornet performance achievement.

2. The effect of each independent variable upon cornet performance achievement.

3. Interactions between programed practice and

    each of the independent variables in terms of

    cornet performance achievement.

Analysis of Data Relative to Music Achievement and
Method of Practice with Respect to
Cornet Performance Achievement

Table VII shows the means and standard deviations

of performance achievement scores for above-average and

below-average music achievement sub-groups.

Table VII. Means and Standard Deviations of Cornet
Performance Achievement Scores for
Music Achievement Sub-Groups

Music Achievement	Experimental Group			Control Group		
	N	Mean	S.D.	N	Mean	S.D.
Above-Average	16	33.18	22.82	9	26.0	14.08
Below-Average	11	28.81	13.24	16	8.93	5.23

Means for the experimental sub-groups are signifi-

cantly greater than means for the corresponding control

sub-groups. The mean difference in cornet performance

achievement between the experimental above-average music

achievement sub-group and the below-average music achievement sub-group is not significant. The mean difference in cornet performance achievement between the control above-average and below-average music achievement sub-groups seems to be significant.

Further analysis of data is accomplished through a two-way analysis of variance treatment. Results are shown in Table VIII.

Table VIII. Analysis of Variance of Performance
Achievement by Level of Music Achievement
and Method of Practice

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic
Level of Music Achievement	1	1,788.92	1,788.92	5.56*
Method of Practice	1	4,266.11	4,266.11	13.33**
Interaction	1	291.00	291.00	.91
Within	48	11,364.82		
Total	51	17,710.85		

*Significant at the .05 level
**Significant at the .01 level

A null statement of the main hypothesis that structured practice with programed tapes would not produce a significant difference in performance achievement as compared with unstructured, non-programed practice is rejected. The F value of 13.33 for method of practice exceeds the .01 level of confidence.

The null hypothesis that no significant difference in cornet performance achievement would occur between students of above-average music achievement and those of below-average music achievement is rejected. The F value of 5.56 for level of music achievement exceeds the .05 level of confidence. In attempting to pinpoint the significant difference, a t-test was used to compare the control above-average and below-average music achievement sub-groups. The t value was 2.71, which exceed the .05 level and is very close to the .01 level of confidence.

The null hypothesis that no significant interaction would occur between music achievement and programed practice with respect to performance achievement must be accepted. The F value of .91 for interaction is not significant.

Analysis of Data Relative to Social Status and Method of
Practice with Respect to Performance Achievement

Table IX shows the means and standard deviations of performance achievement scores for above-average and below-average social status sub-groups.

Table IX.   Means and Standard Deviations of Performance
Achievement Scores for Social
Status Sub-Groups

Social Status	Experimental Group			Control Group		
	N	Mean	S.D.	N	Mean	S.D.
Above-Average	14	36.07	20.64	14	14.64	10.22
Below-Average	13	26.30	17.10	11	16.90	12.75

Experimental sub-group means seem to be significantly higher than the corresponding control sub-group means. The experimental above-average social status sub-group scored higher than the below-average social status sub-group. The control group below-average social status sub-group scored higher than the above-average sub-group. Significance of the mean differences is determined by a two-way analysis of variance treatment. The results of the two-way analysis of variance are presented in Table X.

Table X. Analysis of Variance of Performance Achievement by level of Social Status and Method of Practice

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Stat.
Level of Social Status	1	486.20	486.20	1.85
Method of Practice	1	4,412.41	4,412.41	16.76**
Interaction	1	540.50	540.50	2.05
Within	48	12,643.22	263.41	
Total	51	18,082.33		

**Significant at the .01 level

A null statement of the main hypothesis that structured practice with programed tapes would not produce a significant difference in performance achievement as compared with unstructured, non-programed practice is rejected. The F value of 16.76 for method of practice exceed the .01 level of confidence.

The null hypothesis that no significant difference in performance achievement would occur between students of above-average social status and those of below-average social status is not refuted. The value of 1.85 for level of social status is below the .05 level of confi-

dence. The t-test, employed for further analysis yields
a t value of 1.29 for experimental group and .79 for
control group, both far below the .05 level of confi-
dence.

The null hypothesis that no significant interaction
would occur between social status and programed practice
with respect to performance achievement is not disproven.
The F value of 2.05 for interaction is not significant
at the .05 level of confidence.

Analysis of Data Relative to I.Q. and Method of Practice
with Respect to Performance Achievement

Table XI shows the means and standard deviations
of performance achievement scores for above-average and
below-average I.Q. sub-groups. The small standard de-
viation for the experimental below-average sub-groups
implies a greater homogeneity of variance than the other
sub-groups.

Table XI. Means and Standard Deviation of Performance
Achievement Scores for
I.Q. Sub-Groups

I.Q.	Experimental Group			Control Group		
	N	Mean	S.D.	N	Mean	S.D.
Above-Average	14	26.15	17.09	12	19.75	15.15
Below-Average	13	42.33	2.26	13	10.70	7.04

Experimental sub-group means seem to be signifi-
cantly higher than corresponding control sub-group means.
Of the control group, the above-average sub-group scored
higher in performance achievement than the below-average
sub-group. Of the experimental group, it is interesting
to note that the below-average sub-group scored higher
in performance achievement than the above-average sub-
group. Significance of the mean differences is deter-
mined by a two-way analysis of variance technique. The
results of the two-way analysis of variance are presented
in **Table XII.**

Table XII.   Analysis of Variance of Performance Achieve-
ment by Level of I.Q. and Method
of Practice

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic
Level of I.Q.	1	96.92	96.92	.38
Method of Practice	1	4,266.11	4,266.11	17.07**
Interaction	1	1,350.60	1,350.60	5.40*
Within	48	11,997.21	249.94	
Total	51	17,710.84		

*Significant at the .05 level
**Significant at the .01 level

A null statement of the main hypothesis that structured

practice with programed tapes would not produce a signi-

ficant difference in performance achievement as compared

with unstructured, non-programed practice is again rejected.

The F value of 17.07 for method of practice exceeds the

.01 level of confidence.

The null hypothesis that no significant difference

in performance achievement would occur between students

of above-average I.Q. and those of below-average I.Q. is not refuted. The F value of .38 for level of I.Q. is of no significance.

The null hypothesis that no significant inter-action would occur between I.Q. and programed practice is rejected. The F value for interaction exceeds the .05 level of confidence. Further evidence for the rejection of the null hypothesis is supplied through application of the t-test. Although comparison of the control sub-group yields an insignificant t value of 1.81, experimental sub-group comparison produces a t value of 3.51, exceeding the .01 level of confidence.

Additional Analysis of Data Regarding Programed Practice and Independent Variables

Graphing mean scores of sub-groups demonstrates the interactions between programed practice and each of the independent variables.

Table XIV

Interaction Chart
Below-Average Sub-Groups

Music   Social
Achievement   Status   I.Q.

(x = experimental; o = control)

Table XIII

Interaction Chart
Above-Average Sub-Groups

Music   Social
Achievement   Status   I.Q.

(x = experimental; o = control)
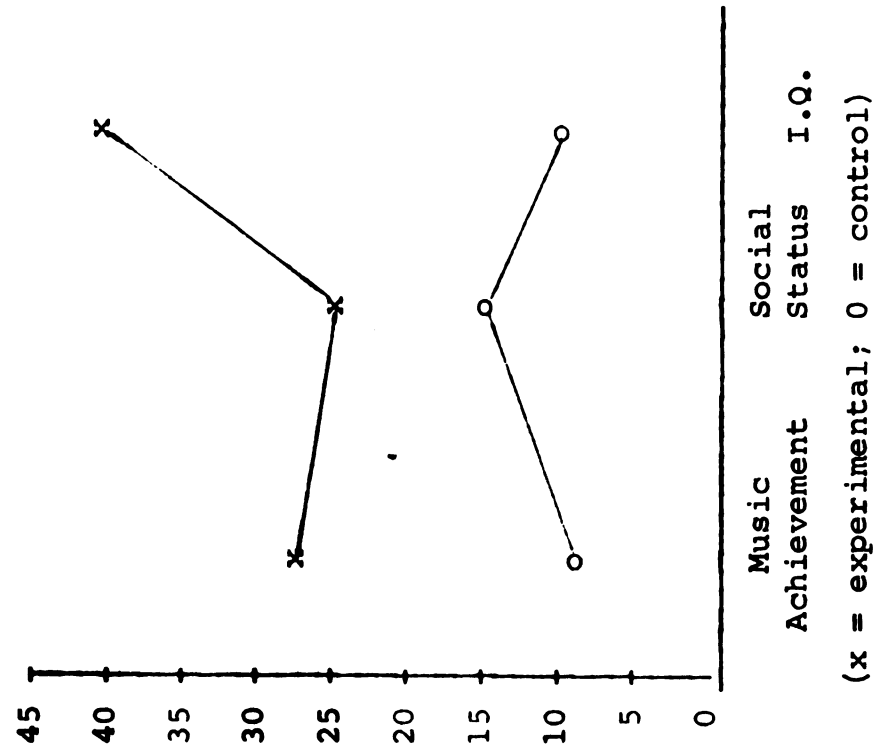
The only significant interaction found, is that
between I.Q. and programed practice. Table XV presents
a graphic view of this particular interaction.

Table XV.   Interaction Between I.Q. and Programed
Practice

I.Q. Scores

Above   Below
Average   Average
(x = experimental; o = control)
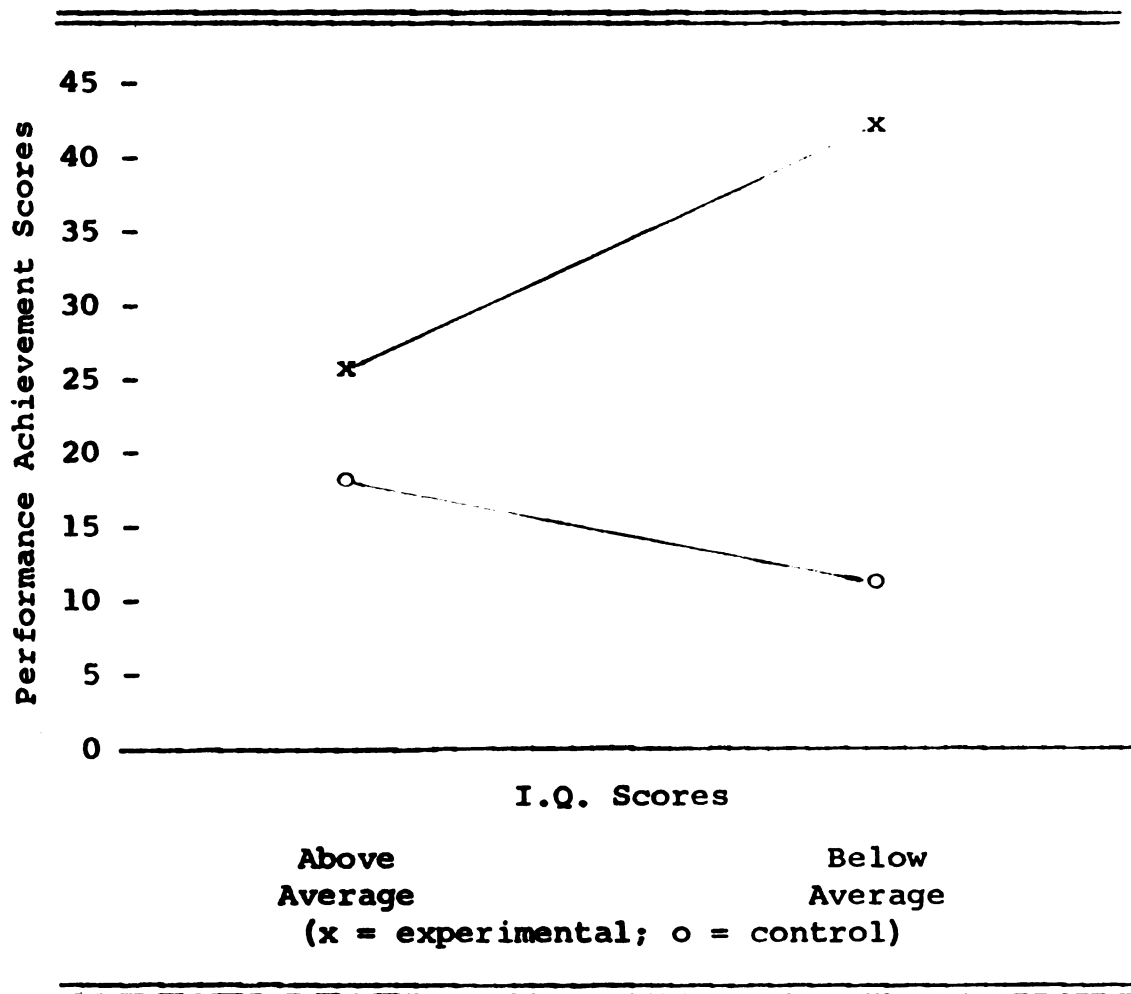
Another view of relationships between independent
variables and performance achievement, and effects of
programed practice is provided through correlations.
The coefficients for product-moment correlations between
performance achievement and each of the independent vari-
ables are presented in Table XVI.

Table XVI. Correlations Between Performance Achievement
and Independent Variables

Variable	Correlation Coefficients	
	Control Group	Experimental Group
Music Achievement	.480*	.330
Social Status	-.080	.142
I.Q.	.385*	-.182

*Significant at the .05 level

The correlation coefficients do not differ substan-
tially from control to experimental groups for both music
achievement and social status. The coefficients shown for
I.Q. are of particular interest. The control group corre-
lation with performance achievement is a significant value
of .385; for experimental group it is a nonsignificant
value of -.182. The considerable difference between .385

for the control group and -.182 for the experimental
group seems to be a result of the significant inter-
action in terms of cornet performance achievement
between I.Q., and programed practice.

Attitudes of the Experimental Group
Toward Programed Practice

A questionnaire administered to members of the
experimental group revealed the following attitudes:

1. Everyone preferred the programed method of
    practice to traditional non-programed practice.

2. Eighty-nine percent believed that the lesson
    material moved rather slowly. This seemed to
    be more of a reflection upon lesson material
    than upon format. Lesson material was geared
    to the progress of the band class as a whole,
    though programed practice increased the learning
    speed of the experimental group students.

3. About eighty percent preferred more playing
    and less listening to verbal explanations.

4. All believed they were profiting by programed
    practice.

Summary

The main objective of this chapter was to make statistical analyses of data related to the effect of structured, programed practice upon performance achievement of beginning elementary cornet and trumpet students. The relationship of programed practice to each independent variable, (music achievement, social status, I.Q.) and the relationship of each independent variable to performance achievement (dependent variable) were also areas of much interest. The main hypothesis and six accompanying null hypotheses were tested in the analysis of the data by means of a two-way analysis of variance treatment. Results of each two-way analysis of variance were further supported and clarified by application of t-tests and correlations. The following realizations were evident after computation of data treatment:

1. There was a statistically significant difference in cornet performance achievement between students of the experimental group and those of the control group.

2. Within the control group, there was a statistically significant difference in cornet per-

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formance achievement between the above-average

music achievement and below-average music

achievement sub-groups.

3. No statistically significant interaction occurred

between programed practice and music achievement

with respect to cornet performance achievement.

4. With regard to cornet performance achievement,

the difference between students of above-average

social status and those of below-average social

status was not statistically significant.

5. No statistically significant interaction occurred

between programed practice and social status in

terms of cornet performance achievement.

6. The difference in cornet performance achievement

between students of above-average I.Q. and those

of below-average I.Q. sub-groups was not statis-

tically significant.

7. Interaction occurring between programed prac-

tice and I.Q. with respect to cornet performance

achievement was statistically significant.

8. Cornet performance achievement and I.Q. scores

of students practicing in the traditional non-

programed manner showed a significant positive

correlation. However, students using the

programed mode of practice showed a non-

significant negative correlation to exist

between cornet performance achievement and

I.Q. The difference in correlation seems to

be an effect of the interaction between I.Q.

and programed practice.

9. Students of the experimental group expressed

satisfaction with programed practice. More

active response and less listening was requested

by the more advanced students.

CHAPTER V

Summary, Conclusions, Implications
and Recommendations

This study investigated the feasibility of structured,

programed practice with tape-recorded materials and its

effect upon the performance achievement of beginning ele-

mentary cornet and trumpet students. The main purpose of

the study was to facilitate the teaching and learning of

instrumental performance through the application of pro-

gramed procedure to individual practice. Specific pur-

poses were: (1) to determine the effect of programed

practice upon performance achievement, (2) to determine

the relationships of music achievement, social status,

and I.Q. with both programed practice and performance

achievement.

The main hypothesis was that structured practice

with recorded tapes containing programed material would

produce a significant difference in cornet performance

achievement as compared with unstructured, non-programed

practice. There were six accompanying null hypotheses:

1. There would be no significant difference in

performance achievement between students of

above-average music achievement and those of

below-average music achievement.

2. There would be no significant interaction between

music achievement and programed practice with

respect to performance achievement.

3. There would be no significant difference in per-

formance achievement between students of above-

average social status and those of below-average

social status.

4. There would be no significant interaction between

social status and programed practice with respect

to performance achievement.

5. There would be no significant difference in per-

formance achievement between students of above-

average I.Q. and those of below-average I.Q.

6. There would be no significant interaction between

I.Q. and programed practice with respect to per-

formance achievement.

A review of literature related to programed learning

in music performance revealed a concentration of research

in aural perception as an isolated area. Meaningful study

has been conducted in the area of aural-visual perception

in relation to conducting. Very little has been done with sight-singing.

Research relating to programed learning in instrumental performance with aural materials is in its preliminary stages. Except for some implications from three pilot studies, no evidence yet exists dealing with programed practice and performance achievement.

There is no statistical evidence relating to the relationship between instrumental performance and I.Q. A Survey of music educators reveals that music achievement and I.Q. are heavily relied upon in recruitment of instrumental students. A study of programed learning in the area of spelling with elementary students found a rather high correlation between I.Q. and spelling which was eliminated with the introduction of programed learning. This discovery is paralleled by an outcome of the present study concerning I.Q. performance and programed practice.

All studies dealing with aural and aural-visual perception found programed instruction or drill to be significantly more effective than non-programed instruction or drill. Pilot studies dealing with instrumental performance found programed instruction to be feasible. Existent evidence showed programed instruction in instrumental per-

formance to be promising.

Fifty-two fifth grade male first-year cornet and trumpet students were equated according to music achievement, social status and I.Q., and randomly assigned to experimental and control groups. The three independent variables were measured by the Elementary Music Achievement Test One, the Warner Scale of Social Status, and the Otis Quick-Scoring Beta Test for Grades 4-9. The Watkins-Farnum Performance Scale was employed as the post-test.

For ten weeks, experimental and control groups practiced the same lessons. Mode of practice was the only difference between the two groups. The experimental group practiced with programed self-instructional tape-recordings; the control group practiced without the self-instructional recordings.

Two-Way analysis of variance, t-test, and correlation were the statistical procedures used in testing the hypotheses set forth in Chapter I.

Findings

Hypotheses were tested pertaining to certain outcomes: (1) the effect of programed practice upon performance achievement, (2) the interaction between pro-

gramed practice and music achievement, social status, and I.Q., (3) the relationship of performance achievement to music achievement, social status, and I.Q.

1. In terms of performance achievement, structured practice with programed material produced a difference as compared with non-progra med material. The difference was statistically significant at the .01 level of confidence.

2. Performance achievement of the above-average music achievement sub-group, compared with that of the below-average sub-group showed a difference which was statistically significant at the .05 level of confidence.

3. Interaction between music achievement and programed practice, in terms of performance achievement, was not statistically significant at the .05 level of confidence.

4. Performance achievement of the above-average social status sub-group, compared with that of the below-average social status sub-group, did not show a difference which was statistically significant at the .05 level of confidence.

5. Interaction between social status and programed

practice, in terms of performance achievement, was not statistically significant at the .05 level of confidence.

6. Performance achievement of the above-average I.Q. sub-group, compared with that of the below-average sub-group did not show a difference which was statistically significant at the .05 level of confidence.

7. Interaction between I.Q. and programed practice, in term of performance achievement, was statistically significant at the .05 level of confidence.

8. Correlation of I.Q. with performance achievement was significant at the .05 level of confidence for the control group, and of negligible significance for the experimental group. This finding is supported by Porter.[1] (See Chapter II.)

Conclusions

Based upon an analysis of the outcomes of this inves-

Douglas Porter, "Some Effects of Year Long Teaching Machine Instruction," Automatic Teaching: The State of the Art, ed. Eugene Galenter, New York, John Wiley & Sons, Inc., 1959, pp. 85-90.

tigation, the following conclusions are admissible:

1. When beginning instrumentalists practice with
    lesson material structured in a taped, self-
    instructional format as described in this study,
    a substantial increase of efficiency is noted.
    This efficiency in learning and applying nec-
    essary music performance concepts and skills
    is significantly evident in actual instrumental
    performance.

2. Students of above-average music achievement
    exhibit significantly greater performance
    achievement than students of below-average music
    achievement. When programed practice is
    included, however, students of above-average
    music achievement exhibit no significant dif-
    ference in performance achievement from stu-
    dents of below-average music achievement. It
    may be assumed that above-average music achieve-
    ment is not necessary for performance achievement.

3. There is no significant difference in perform-
    ance achievement between students of above-
    average and below-average social status. The
    inclusion of programed practice causes no sig-

nificant difference.

4. With students using the conventional non-pro-
gramed mode of practice there is no significant
difference in performance achievement between
those of above-average I.Q. and those of below-
average I.Q. With students using the programed
mode of practice those of below-average I.Q.
seem to exhibit greater performance achievement
than those of above-average I.Q. It may be
assumed that with programed practice, above-
average I.Q. is not necessary for performance
achievement. In fact, students of below-average
I.Q. may exhibit equal or greater performance
achievement than those of below-average I.Q.

5. There is a positive relationship between I.Q.
and performance achievement. However, almost no
relationship exists between I.Q. and perform-
ance achievement when programed practice is
used. This may be attributed to the signifi-
cant interaction between I.Q. and programed
practice in terms of performance achievement.

Implications of Programed Practice

The adoption of a programed method of individual
practice, such as the format described in this study,
could have the following implications for instrumental
music education:

1. More efficient, rapid growth in performance

   achievement - with above-average I.Q. and

   especially below-average I.Q. students.

2. Higher level of performance for elementary

   instrumental groups.

3. More class time can be devoted to rehearsal,

   and less time devoted to correction of indi-

   vidual problems caused by inefficient practice.

4. Pinkerton,[2] (See Chapter II) reports that in-

   structors rely entirely upon music achieve-

   ment and I.Q. ratings as criteria for selection

   of instrumental students. Students no longer

   need be rejected on the basis of that criteria.

   With programed practice, a student of below-

   average I.Q. or music achievement can achieve

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[2]Frank W. Pinkerton, "Talent Tests and Their Appli-
cation to the Public School Program," Journal of Research
in Music Education, XI (Spring, 1963), pp. 75-80.

comparatively as well in performance as the student who is above-average in those areas. It is recognized that a certain minimum level in music achievement and I.Q. is required for performance achievement.

5. Frustration of better students with slow group progress can be eliminated, thus reducing drop-out percentage.

6. Discouragement of students of below-average I.Q. or music achievement, can be eliminated, thereby reducing drop-out percentage.

7. Greater performance achievement of students may beget higher standards as consumers of music.

8. Outcomes of this study may occur at other levels of instrumental study with older students.

Recommendations

1. In view of this study, a similar investigation to include subjects of lower I.Q. and music achievement is recommended. Such an investi-

gation may determine the minimum levels of
I.Q. and music achievement necessary for mean-
ingful performance achievement - with and with-
out programed practice.

2. A similar study should be made at other levels
of instrumental study to determine whether the
effects of programed practice hold true at all
ages and levels of instrumental study.

3. A study should be made of the interaction
between programed practice and I.Q. A compari-
son should be made between linear and branched
techniques of programed practice in terms of
this interaction.

4. A study should be made investigating reasons
for the interaction between I.Q. and programed
practice.

Summary

This chapter has summarized the study, presented
findings, conclusions, implications, and has uncovered
promising problems for further research.

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APPENDIX A

TEN WEEKLY PROGRAMED LESSONS, TAPED

Definition of Terms

Model performance - The taped performance by trumpet with **piano** accompaniment and vocal counting, of the piece, phrase, or measure to be played.

Response - The **student's** performance of the piece, phrase, or measure under study. The student performs along with the taped piano accompaniment and **vocal** counting.

Reinforcement - The **model** performance repeated, to which the student can compare his own **performance**.

Response-Reinforcement - The student plays along with the model performance and compares while playing.

Practice Tape One

This is practice tape one. We will begin this lesson with a **warm-up** on the chromatic scale. Turn in your

book to the page on which you have the chromatic scale

stapled. Listen very carefully now as we play. Try

to keep your finger under each note as we perform it.

Ready, listen.   (model performance)
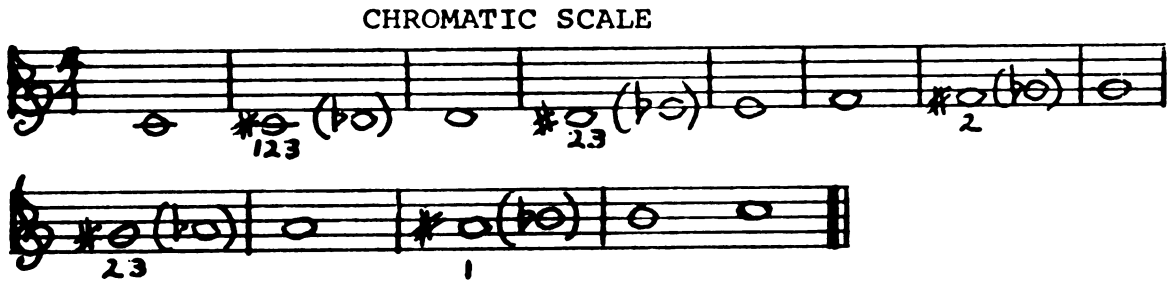
CHROMATIC SCALE

Did you notice that the C# and the Db have the

same fingering? So do the D# and Eb, the F# and Gb,

the G# and Ab, and also the A# and Eb.

Now you play the chromatic scale. Don't blow

loudly; instead, concentrate on buzzing the lips as

smoothly as possible. Ready, play. (response) Now

we will all play it together - our piano player, our

trumpet player, and you. I will also count the beats

for you as you play. Here we go now. One, two, ready,

play. (response - reinforcement)

Please turn now to page 27. This page deals with

8th notes which are usually played two to one beat.

Listen very carefully now as we play number 159. Follow

with your finger under each note as we play. Ready,

listen.   (model performance)

Now our **trumpet player will** rest and let you play

the **first measure.** The **first** measure only, now. Here

we go, ready, play.   (response)

Did you play two 8th notes to the second beat? Was

it exactly like this? **Ready,** listen.   (reinforcement)

The next measure is quite the same except for the half-

note following the two 8th **notes.** Ready, listen.

(model performance)

It was one step higher and had the same rhythm

except for that half note. **Remember** to hold the half

note for the counts of three and four. Play the second

measure now. Ready, play.   (response) Did you do it

exactly like this? Ready, listen.   (reinforcement)

Now let's play the first two measures together. Our trumpet player will play with you. Ready, play. (response-reinforcement)
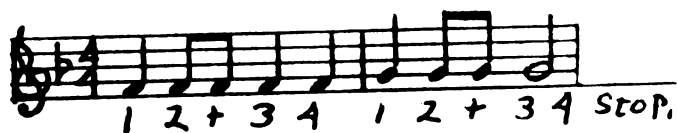
The rhythm is exactly the same in the next two measures, with the notes going a step higher each measure. Listen carefully now to the next two measures. Ready, listen. (model performance)

Now you play. Ready, play. (response) Did you play the 8th notes correctly? Did you play the half note correctly? If you did, it was exactly like this. (reinforcement)

The next two measures have the same counting again. Ready, listen. (model performance)

Did you notice in the first of those two measures we had a Bb. The Bb was played on the count of four in that measure. It is a Bb because of the flat in the key signature. Listen to that measure only now. Ready,

85

listen. (model performance)

Now you play that measure. Ready, play. (response)
Now play that measure and the one following - those two
measures together. Ready, play. (response) Did you
also remember that note?

The next two measures again have the same rhythm as
before. Ready, listen. (model performance)
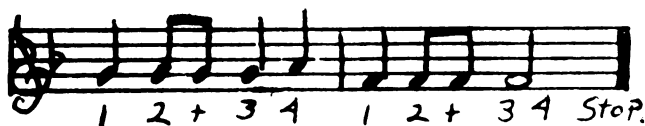
In the measure before the end, the fourth beat
went up to A before coming down to F in the last mea-
sure. **Now you play** those last two measures. Ready,
play. (response) Was it exactly like this? Ready,
listen. (reinforcement) Now let's play all together,
from the beginning and all the way through. One, two,
ready, play. (response-reinforcement)

Now look at number 160. Notice that the two 8th
notes are on the third beat this time. Ready, listen.
(model performance)

There is no flat on the key signature; so we played B♮ this time. Listen carefully to the rhythm of the first measure as we play. Ready, listen. (model performance)

This is the count we will follow all the way through. The only exception will be the measures with the dotted half note and quarter rest. Now you try to play the whole thing from the beginning. (response) Did you play the B instead of the Bb? Did you hold the dotted half notes for three beats and rest on the fourth beat where indicated? Play it through with our trumpet player and see if you are doing everything exactly the same as he is.

Now look at number 161 and be ready to follow with your finger under each note. Ready, listen. (model performance)

This time the 8th notes were played on the third beat and the fourth beat, making it a group of four 8th notes. Listen now to the first measure only. Ready, listen. (model performance)
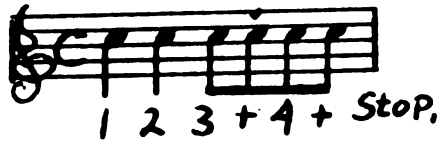
Now you play that first measure. Ready, play. (response) The next measure is a step higher. The counting for this measure is quite easy. Ready, listen. (model performance)

Now listen to the first two measures together. Ready, listen. (model performance)
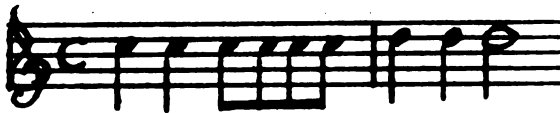
Now you play the first two measures. Ready, play. (response) Did you play those first two measures exactly like this? Ready, listen. (reinforcement)

The next two measures start on high E. Listen very carefully to these next two measures. Ready, listen. (model performance)

Your bottom lip should be very hard when you play that high E. On that measure with the four quarter notes, it goes down from high E to D and C then it slurs down to G. Remember that slur. You will play these two measures now. Ready, play. (response) Did you do it exactly like this? Ready, listen. (reinforcement)

The next two measures are exactly like the first two measures in this exercise, so let's look at the last two measures. Notice now in the next to last measure, that the 8th notes are on a different part of the measure. Let's listen to that measure alone. Ready, listen. (model performance)
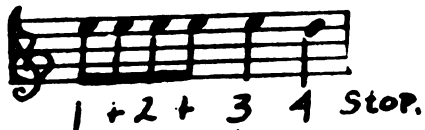
You try that measure now, remembering to make your bottom lip very hard for that high E. Ready, play. (response) Did you play the 8th notes correctly? If so, it was just like this. Ready, listen. (reinforcement) Now we will do the last two measures together. Ready, listen. (model performance)

Now you try those last two measures together. Be ready for that high E. Here we go, ready, play. (response) Did you play those 8th notes correctly, now? Did you hold the C in the last measure for three beats and rest on the fourth beat? If you played it correctly, you sounded exactly like this. (reinforcement)

Now let's play the whole exercise from beginning. You will play it alone now accompanied by our piano player. One, two, ready, play. (response) Now our trumpet player will join you. We will all play it together. Try to make no mistakes. Here we go, one, two, ready, play. (response-reinforcement)

Now, look at number 162. Here we also have groups of four 8th notes. They do not stay on the same pitch though, this time. The 8th notes move back and forth between two pitches. Listen very carefully, keeping your eyes glued to the music. Listen now as we do it for you; ready, listen. (model performance)

Now listen very carefully as we do the first measure for you, the first measure only. Listen very carefully, try to notice everything that we do. Ready, listen. (model performance)

We moved up and back between the C and D to those four 8th notes. Then we went from the C up to the D on the quarter notes, giving one beat each. Now you try that first measure alone. Ready, play. (response) Maybe that was a little too fast. Let's try it a little slower, so you can concentrate on exactly what you're doing here now. A little slower, one, two, ready, play. (response; response, slightly faster; response, faster; response, a tempo) Did you do it exactly like this? Ready, listen. (reinforcement)

Now let's look at the next measure. Again, this
moves back and forth between two different pitches, to
the same rhythm as the first measure. Listen very care-
fully now to that second measure. Ready, listen.
(model performance)
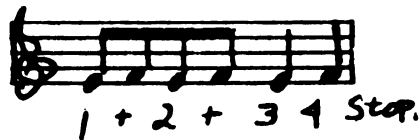
Now you try it. Ready, play. (response) Maybe
we should slow this one down a little bit also to give
you a chance to get the correct fingering there - keep
your fingers moving. Let's try it slowly now. We'll
do it very slow, about this tempo - one, two, ready,
play. (response, slow) Let's do it again. Ready, play.
(response, slightly faster) Again, ready, play. (response,
slightly faster) Again, ready, play. (response, a tempo)
Did you do it exactly like this? Ready, listen, (rein-
forcement)

Now let's look at the next two measures. We have
exactly the same thing in the next measure except on
two different notes, and then we have a dotted half
note followed by a rest. Here we go, ready, listen.
(model performance)

Now you try those two measures. Ready, play.

(response) Maybe we should slow that down a little bit.

Alright, here we go, ready, play. (response, slow;

response, slightly faster; response, a tempo) If you

did it correctly, it sounded exactly like this. Ready,

listen. (reinforcement) I hope you're tonguing each of

these notes very carefully, that you are giving a good

clear tonguing to each note. Now as we go on, the next

two measures are just like what we had played before,

so we'll jump on ahead to the last two measures of

this little piece - the last two measures. Listen care-

fully as we play those last two measures. Ready, listen.

(model performance)

Now you play those last two measures. Here we go,

ready, play. (response) Let's slow these two measures

down a bit also - give you a chance to work that out.

Here we go, ready, play. (response, slow) You're playing

B now, we hope. Let's try it again. Ready, play.

(response, faster) If you did it correctly, it sounded

exactly like this. Ready, listen. (reinforcement)

Now let's try it all the way through from the

beginning. Our trumpet player will also join you, so

we'll all be doing it together. Right from the begin-

ning now, starting on that low C. Here we go, one, two,

ready, play. (response-reinforcement)

This completes practice tape one.

Practice Tape Two

This is practice tape two. We will warm up on

the **Ascending C Chromatic Scale** in half notes this

time. Ready, listen. (model performance)

Instead of blowing air out between the lips,

think more of the lips doing the buzzing. Tongue each

note clearly, whispering the word "tu" or "ta" each

time you do it. Ready, play. (response) Did you sound

exactly like this? (reinforcement)

Now turn to page 35 to the top line of section A.

The first two measures are lip slurs on open G and open

C. To slur up to C, you will harden the bottom lip. To

slur back to G, you will soften the bottom lip slightly.

There is no tonguing involved. Your lips will continue

buzzing all the way through. Ready, listen. (model

performance)

Now you try it. Ready, play. (response) Did you

do it exactly like this? Ready, listen. (reinforcement)

Now let's take the next two measures. This is a

lip slur between the F# and B. The second valve is kept

down all the way through. Ready, listen. (model per-

formance)

Now you play it. Ready, play. (response) Did you

play it exactly like this? Ready, listen. (reinforcement)

The next two measures are lip slurs on the first valve,

between F and Bb. Ready, listen. (model performance)

Now you play it. Ready, play. (response) Did you

sound exactly like this? Ready, listen. (reinforcement)

Now turn back to page 24. We will now perform East-

port March. Notice that there is one flat in the key

signature. Do not forget the repeat signs. First trum-

pets only: (on separate tape) You have rehearsed this

piece several times in band class; so you already
know how it goes. We will play it and you play along
with us to see if you are playing it the same as we
are. Ready, play. (response-reinforcement)


EASTPORT MARCH

Did you take both repeats? If you did, you stayed with us. If you lost your place, perhaps you forgot to repeat. Second trumpets: (on separate tape, same procedure as above, alto line)

Now turn to page 27 to number 164, entitled <u>Polly Wolly Doodle</u>. Notice the flat in the key signature. Also notice that this piece begins on the fourth beat. Listen to the pick ups and the first two measures only. Ready, listen. (model performance)

Now you play it. Ready, play. (response) Did you play the eighth notes correctly? Did you slur correctly? If you did, you sounded exactly like this. Ready, listen. (reinforcement) Now take measure three, and stop at the rest in measure four. Ready, listen. (model performance)
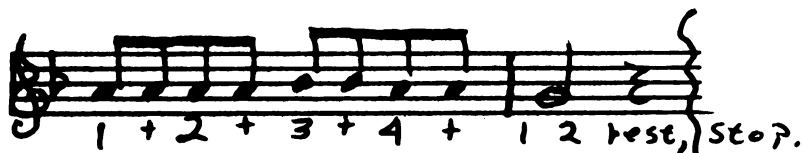
Now play it. Ready, play. (response) Was it exactly like this? Ready, listen. (reinforcement)

Now let's start with the next two 8th notes and continue through measures 5 and 6. Ready, listen. (model performance)

Now you play it. Ready, play. (response) Did you remember the slurs? Was it exactly like this? Ready, listen. (reinforcement) Now listen to the last two measures. Ready, listen. (model performance) Now you try it. Ready, play. (response) Did you sound exactly like this? (reinforcement)

Now you will play it all the way through from the beginning. One, ready, play. (response)

POLLY WOLLY DOODLY
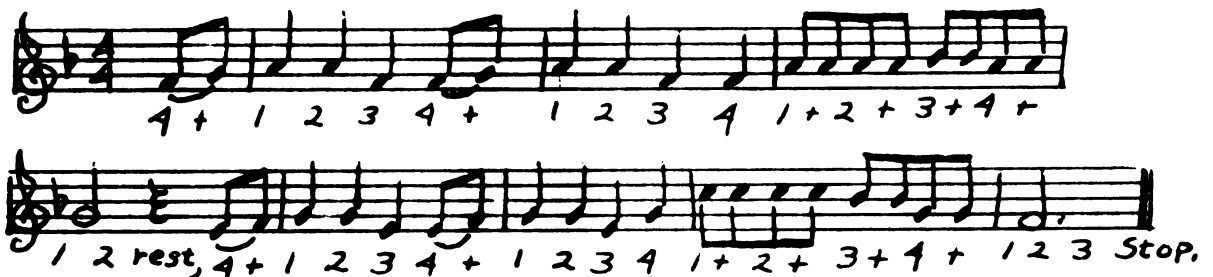
Now play it again, together with our trumpet player. See if you are doing it exactly as he is. One, ready, play. (response-reinforcement)

Our next piece will be from your other book entitled

First Performance. We are going to practice some of

the march entitled Bugle Boy March. First trumpet only:

(on separate tape) We are going to practice the section

beginning at measure 14, taking the first ending, repeat-

ing back from 14, repeating the whole section, taking

the second ending this time and ending on the half note

immediately following the second ending. Remember to

tongue every single note. Our trumpet player is going

to play with me. See if you are doing everything

exactly like he is. Here we go at measure 14, one, two,

ready, play. (response-reinforcement)

Did you play it exactly as he did? Did you remem-

ber the F#, that it is the second valve? Second trum-

pet: (same procedure as above, second part, on separate

tape)

A group of musicians will now perform that same

section. All of the parts will be represented; flute,

clarinet, trumpets, and trombone. You are to play along

with them. See if you can hold your own part. Don't

forget the repeats. One, two, ready, play. (response-

reinforcement) Did you play the F#s where they were .

indicated and did you follow the repeat sign? We will

give you one more chance to play with our group. Remem-

ber to follow the repeat sign and tongue each note.

Ready, play. (response-reinforcement) First trumpets,

if you played your part correctly, you sounded exactly

like this. (reinforcement) Second trumpets, if you

played your part correctly, you sounded exactly like

this. (reinforcement)

This completes practice tape two.

Practice Tape Three

This is practice tape three. We will warm up

with the C ascending chromatic scale, this time in

quarter notes. In four-four time, ready, listen.

(model performance)

Now you play it. Ready, play. (response) Did

you finger every note correctly? Did you buzz every

single note? Did you tongue each note clearly? Let's

try it once more, together with our trumpet player,

this time. Ready, play. (response-reinforcement)

Now turn to number 147, entitled <u>Choral</u>, on page

24. Notice the one flat in the key signature and the

dynamic marking of pp - this means very soft. The main

problem here is getting a breath without losing time.

Notice the breath marks at the end of every two measures.

First trumpets listen to the top line; second trumpets

listen carefully to your part on the bottom line.

Ready, listen. (model performance)

CHORAL
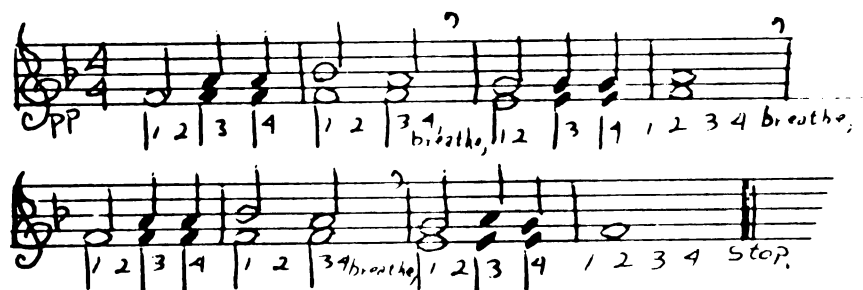
Did you notice how our trumpet players were able

to play this all the way through? They didn't have to

stop and lose a count; they took their breaths very

quickly, just before it was time to attack the next

note. Now you are going to play it. See if you can

do it that same way. Our trumpet players will join

you this time. You play it along with us; see if you can stay right with us. Remember now, the pp. - that means very soft. There is one flat in the key signature; and you have those breath markings - you are to take them very quickly. Here we go - ready, play. (response-reinforcement)

Did you take your breath very quickly, without losing any time from the count? Listen again as our two trumpet players perform it for you. One, two, ready, listen. (reinforcement) They took their breaths so quickly, that actually, you couldn't tell they were even breathing.

Now turn to number 165 on page 27. This piece contains notes of many different values; quarter notes, half notes, dotted half notes, and many 8th notes. Remember that 8th notes are two to one beat. Listen carefully now. Ready, listen. (model performance)

165
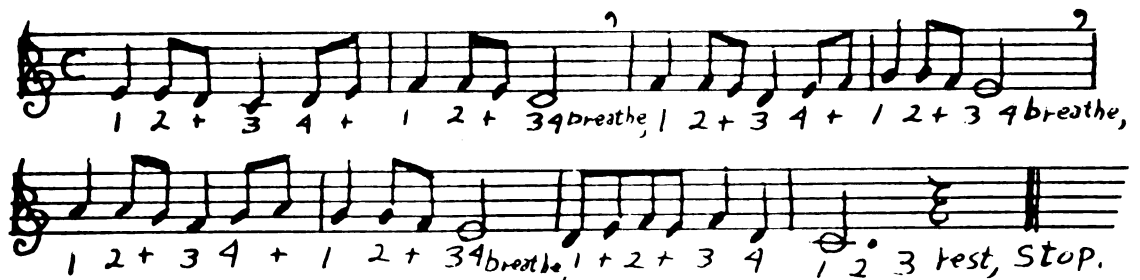
Listen now to the first two measures only. We will play them very slowly. (model performance)

Now you play those first two measures. Ready, play. (response, slow) Let's take it again. Ready, play. (response, slightly faster) Let's take it again, just a little faster. Ready, play. (response, a tempo) If you play it correctly, it sounded just like this. (reinforcement) Now listen very carefully as we perform for you, the next two measures - measures 3 and 4. Ready, listen. (model performance)

Now you try it. Ready, play. (response, slow) Again a little faster, ready, play. (response, slightly faster) Again, ready, play. (response, a tempo) If you played it correctly, you did it exactly like this. Ready, listen. (reinforcement) Now we will do measures 5 and 6. Listen very carefully; ready, listen. (model performance)

Now you try it. Ready, play. (response, slow;

response, slightly faster; response, a tempo) If you

did it correctly, it was exactly like this. Ready,

listen. (reinforcement) Now, measures 7 and 8. Ready,

listen. (model performance)

Now you play these last two measures. Ready,

play. (response, slow) We'll try it again. Ready,

play. (response, slightly faster) Once more, ready,

play. (response, a tempo) The last two measures, if

they were correct, sounded exactly like this. Ready,

listen. (reinforcement) Now you play it all the way

through from the beginning. Make sure you count these

8th notes correctly as you play. And be sure to take

a quick breath at the end of every two measures - that

is, right after each half note, you'll take a very

quick breath before attacking the next note. From the

beginning now, here we go, one, two, ready, play.

(response) Did you do everything correctly? All the 8th notes, were they correct? Did you breath as you were suppose to? If you did, you sounded exactly like this. Ready, listen. (reinforcement) We will do the whole thing through once more. This time you will play with us. Try to stay with us all the way through. Remember to breathe at the end of each two measures and to be able to come in right on the next beat. From the beginning, one two, ready, play. (response-reinforcement)

Now turn to page 35 in your First Performance book. We are going to practice a section of the piece. "Aloha Oe." We will begin on the half note before measure 37 on page 35. That half note is on the count of three. Listen very carefully as our first and second trumpets play it for you. First trumpets, follow along on your part; second trumpets, follow along on your part. Notice that there are two flats in the key signature, and in the fifth measure of the section, we have a sharp and some natural signs. Be ready. Ready, listen. (model performance)

Now you will play with us. We have a whole group

here to perform with us; a flute, trombone, two trumpets,

and a clarinet. Follow along on your part; try not to

get lost; watch those rests now from 37 until 41.

Alright, we're going to come in right on the count of

three, on that half note just before measure 37. Ready,

play. (response-reinforcement) Did you observe the rests?

In some measures you rested on 2 and 4, and in other

measures you rested on 2 and 3. Be very observant of

those rests. Watch again for your sharps, natural

signs, and again be reminded that you have two flats

in the key signature. We are going to do it once more.

You'll play with us again. Be ready. Ready, play.

(response-reinforcement) First trumpets, if you played

your part correctly, you sounded exactly like this.

Ready, listen. (reinforcement) Second trumpets, if you

played your part correctly, you sounded exactly like

this. Ready, listen. (reinforcement)

This completes practice tape three.

Practice Tape Four

This is practice tape four. Today, let's begin

our warmup with the chromatic scale ascending in quar-

ter notes - about this tempo; one, two, three, four.

Now you play it with our trumpet player. Ready, play.
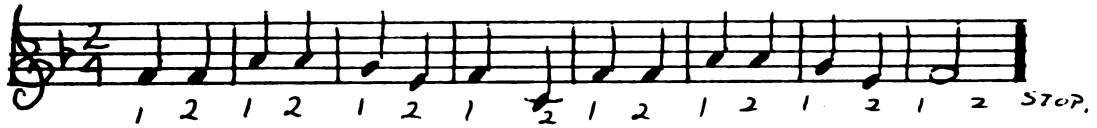
(response-reinforcement)

Now go back. On each pitch, play the pattern of

two 8th notes and a quarter. It would be counted one

and two, one and two. Now you play this with our trum-

pet player. One and two, ready, play. (response-rein-

forcement)

Turn to page 28 in your Belwin book, in the middle

of the page, to Rhythmic Variation, line 169. Line A is

in plain quarter notes. Concentrate on a good attack

and buzzing your lips throughout the entire measure.

Now you listen to our trumpet player do line A. One,

two, ready, listen. (model performance)

Now you play with our piano player. Line A,

one, two, ready, play. (response) Did you buzz your

lips? Did you have a pleasing attack? If you did

exactly what you were told to do, you would have sounded

like this. Ready, listen. (reinforcement)

Now look at line E. This is the same tune, but in

8th notes. Listen as our trumpet player plays it for

you. One and two, ready, listen. (model performance)

It takes two of these 8th notes to equal the same

as one quarter note. Instead of holding the note all

the way through the beat, you play two notes, like "one

and." Now let's try the first two measures. You listen

as our trumpet player slows them down so you can tell

where the 8th notes are. Ready, listen. (model per-

formance)

Now you play with the piano, one and two, ready,

play. (response) Now take those same two measures

again; try to make them a little faster; make your attack

clean. Ready, and play. (response) Did you use your

tongue correctly? Let's go back and repeat them one

more time. One and two, ready, play. (response, a

tempo) If you did it correctly, you should have sounded

like this. Ready, play. (reinforcement) Now look at

the next two measures - that would be measures 3 and 4,

on line E. Listen to our trumpet player as he plays

these two measures for you. Ready, and listen. (model

performance)

These two measures use both 8th notes and quarter

notes. Notice that the third measure is 8th notes and

the fourth measure is quarter notes. Now you go very

slowly with these two measures. One and two and ready,

play. (response) Now let's go over these two measures

again. Make sure you are using your tongue correctly.

Ready and play. (response, slightly faster) Now one
more time - and you listen very carefully to yourself.
Ready and play. (response, a tempo) If you did every-
thing correctly, you should have sounded like this.
Ready, listen. (reinforcement) Now if you'll notice,
measure 5 and 6 are exactly like measures 1 and 2, so
we'll skip to measures 7 and 8. Measure 7 is all 8th
notes and measure 8 is a half note. Listen as our trum-
pet player plays these two measures. (model performance)
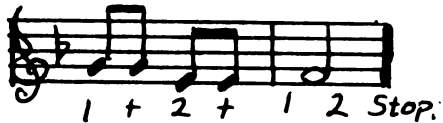
Now you play measures 7 and 8. Slow them down,
using your correct tongue attack. Ready and play.
(response, slow) Go back and repeat them one more time,
just a little faster. Ready and play. (response, a
tempo) If you did everything correctly, you should have
sounded like this. Ready, listen. (reinforcement) Now
you should play all of line E. Try to do everything you
have learned. Ready and play. (response) Now let's all
three do it, you, the piano, and our trumpet player.
Listen as you play with him and try to get everything
exactly as he does it. Ready and play. (response-
reinforcement)

Mrs. Smith just had you practicing 8th notes; she had you play them two to one coutn. Now look on the top of this page, at number 167. Here is a song with 8th notes all through. Regardless of the combination of 8th notes, whether two or four, or six, they are still always played two to one count. Listen very carefully as we play it for you and don't forget that flat in the key signature - that means Bb, now. One, two, ready, listen. (model performance)

Now pay close attention to the first two measures. Here we have some counts that are going to be played as two 8th notes to each count. We also have a high D here. Don't forget that it is played with the first valve. Here we go, the first two measures only, one, ready, listen. (model performance)
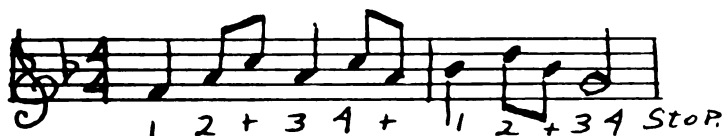
Now you try it, very slowly. Ready, play. (re-

sponse, slow) Let's try it again. Ready, play. (re-

sponse, slightly faster) Once more, a little faster.

Ready, play. (response, a tempo) Did you play all the

8th notes correctly? Did you play that high D correctly?

If you did it all correctly, it was exactly like this.

Ready, listen. (reinforcement) Now let's look at the

next two measures. Listen very carefully as we play

it for you. Ready, listen. (model performance)

Now you try it, very slowly at first. Ready, play.

(response) Let's take it again. Ready, play. (response,

slightly faster) Once more, a little faster, ready, play.

(response, a tempo) Did you sound exactly like this?

Ready, listen. (reinforcement) Now let's go on to the

next two measures. Here we have four 8th notes in a

row. Be ready for them. Ready, listen. (model per-

formance)

Now you try it very slowly. Ready, play.
(response, slow) Let's try it again. Ready, play.
(response, slightly faster) Let's try it again, a lit-
tle faster. Ready, play. (response, a tempo) Did you
sound exactly like this? Ready, listen. (reinforcement)
Now let's take the last two measures. Listen very care-
fully as we play it for you. Ready, listen. (model
performance)
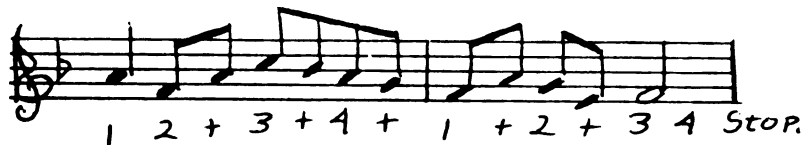
In the first measure, we have six 8th notes in a
row, and they go right into four more 8th notes in the
last measure. Now we are going to try it very slowly,
you and our piano player. Ready, play. (response,
slow) Let's take those two measures again, a little
faster. Ready, play. (response, slightly faster) Let's
take it again. Ready, play. (response, a tempo) Did
you do it exactly like this? Ready, listen. (rein-
forcement)

Now you are going to play it all the way through
from the beginning. After every two measures, you are
going to take that very quick breath that we practiced

on tape four. Here we go, ready, play. (response)

Now our trumpet player will join you. Listen care-

fully; as you play along with him, see if you are doing

everything correctly, as he is. From the beginning now,

ready, play. (response-reinforcement)

This completes tape four.

Practice Tape Five

This is practice tape five. We will begin this

lesson with the descending C chromatic scale in half

notes. Concentrate on the fingerings as you listen to

our performance. Ready, listen. (model performance)
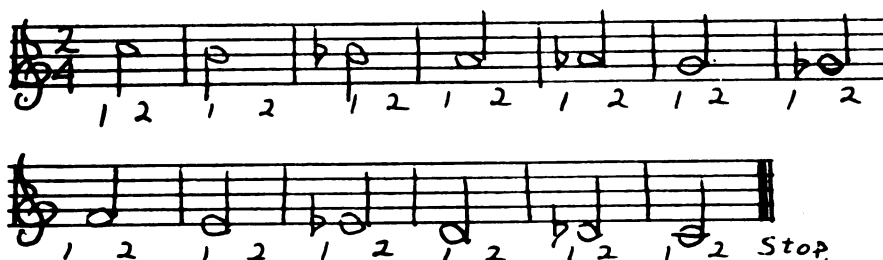
Now you play it; be sure to buzz your lips for

two complete beats and to breath properly. Ready, play.

(response)

Did you finger the flats correctly? Did you buzz

your lips for two complete beats each time? Did you

breathe correctly?

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Let's do it again, this time together with our
trumpet player. Ready, play. (response-reinforcement)

Turn to page 28, number 169, line d. Notice now
the 8th rests are performed. Ready, listen. (model
performance)

The 8th rests, like the 8th notes, are two to one
beats, and also counted one, and.

Listen now to the first two measures only, as we
slow down. Ready, listen. (model performance)

For the first beat, we played on one and rested on
and; for the second beat, we played on two as well as
the and of two, for the two 8th notes. You play those
two measures now. Ready, play. (response, slow; response,
slightly faster; response, faster; response, a tempo)
Did you sound like this? Ready, listen. (model per-
formance)

Did you notice that measure 4 was slightly different?
For the second beat, we played on the beat and rested on
the and of the beat, just like the first beat. Now you
play measures 3 and 4. Ready, play. (response, slow;
response, slightly faster; response, faster; response,
a tempo) Did you sound like this? Ready, listen.
(reinforcement) Measures 5 and 6 are exactly like mea-
sures 1 and 2, so we will skip to measures 7 and 8.
Ready, listen. (model performance)

Now you play it. Ready, play. (response, slow;
response, slightly faster; response, faster; response,
a tempo) Did you sound exactly like this? Ready, listen.
(reinforcement) Now you play it all the way through from
the beginning being ready for the slight change of rhy-
thm in measure 4. Ready, play. (response) Now play
it together with our trumpet player; see if you are do-
ing everything exactly as he is. Ready, play. (response-

reinforcement)

Turn to page 29, number 171. As we perform this for

you, notice the 8th rests. Ready, listen. (model per-

formance)

Did you notice that when the 8th rests occurred,

they were on the and of the beat? Pay close attention

as we perform measures 1 and 2 slowly. Ready, listen.

(model performance)

Now you play it. Ready, play. (response, slow;

response, slightly faster; response, faster; response,

a tempo) Did you sound like this? Ready, listen.

(reinforcement) Now measures 3 and 4, ready, listen.

(model performance)

Now you play it; don't forget the Bb. Ready,

play. (response, slow; response, slightly faster;

response, faster; response, a tempo) You should have

sounded exactly like this. Ready, listen. (reinforce-

ment) The rhythm is slightly different for measures 5

and 6. Ready, listen. (model performance)

Now you play it. Ready, play. (response, slow;

response, slightly faster; response, faster; response,

a tempo) Did you sound exactly like this? Ready, listen.

(reinforcement) Now measures 7 and 8, ready, listen.

(model performance)

Now you play it; don't forget the Bb. Ready, play.

(response, slow; response, slightly faster; response,

faster; response, a tempo) You should have played it

exactly like this. Ready, listen. (reinforcement)

Now you play it all the way through from the beginning.

Ready, play. (response) Now play it together with our

trumpet player, see if you are doing everything exactly

as he is. Ready, play. (response-reinforcement)

"Tryout Number 14" has various groupings of 8th

notes. Ready, listen. (model performance

Pay close attention to measures 1 and 2 as we

slow it down. Ready, listen. (model performance)

Now you play it; tongue each note clearly, whis-

pering "tu" as you buzz your lips. Ready, play.

(response, slow; response, slightly faster; response,

faster; response, a tempo) You should have sounded

exactly like this. Ready, listen. (reinforcement)

Now measures 3 and 4. Ready, listen. (model performance)

Now you play it. Ready, play. (response, slow,

slightly faster, faster, a tempo) You should have

sounded exactly like this. Ready, listen. (reinforce-

ment) Measures 5 and 6 are exactly like measures 1 and

2, so we will skip on to measures 7 and 8. Ready, listen.

(model performance)

Now you play it. Ready, play. (response, slow,
slightly faster, faster, a tempo) You should have
sounded exactly like this. Ready, listen. (reinforce-
ment) Now, you will play it all the way through from
the beginning. Ready, play. (response) Now play it
together with our trumpet player, see if you are doing
everything exactly as he is. Ready, play. (response-
reinforcement)

This completes practice tape five.

Practice Tape Six

This is practice tape six. We will begin this
lesson with a review of some lip slurs. Turn to page
35, to section A. We will do the first only. Remember
that only the first note of each group is tongued, the
rest are all slurred. You play it together with our
trumpet player. Ready, play. (model performance)

Did you buzz your lips all through each slur?
Did you hold the correct fingering all through each
slur? Let's play together again. Ready, play.
(response-reinforcement)

Now we will do the descending C chromatic scale in
quarter notes. Pay close attention to fingering as we
perform it for you. Ready, listen. (model)

Now you play it. Ready, play. (response) Play
it again, together with our trumpet player, see if you
are doing everything exactly as he is. Ready, play.
(response-reinforcement)

Turn to page 29. We will review number 173, en-
titled "Tryout Number 14." You will play it together with
our trumpet player. Ready, play. (model performance)

TRYOUT NUMBER 14

Now you play it alone. Ready, play. (response)
Play it once more, together with our trumpet player to

see if you are doing everything exactly as he is.

Ready, play. (response-reinforcement)

Now look at number 176 on page 29. Notice how our trumpet player leaves a space between each of the staccato notes, which are indicated by the staccato dots. Ready, listen. (model performance)

AMARYLLIS

Did you notice the slurs in the first and second endings? This time, we will perform measures 1 and 2 only. Ready, listen. (model performance)

Now you play, ready, play. (response) Did you leave a space between each staccato note? If you did, you sounded exactly like this. Ready, listen. (reinforcement) Now measures 3 and 4. Ready, listen. (model performance)

Now you play it. Don't forget the 8th notes and slurs in measure 4. Ready, play. (response) If you played the staccato notes correctly, you sounded exactly like this. Ready, listen. (reinforcement) From here, the piece repeats back from the beginning, skips the first ending and ends with the second ending. Listen to the second ending only. Ready, listen. (model performance)

Now you play it. Ready, play. (response) If you played the 8th notes correctly and slurred where you were supposed to, you sounded exactly like this. Ready, listen. (reinforcement) Now you play it all the way through from the beginning. Don't forget the staccato notes, the 8th notes, the slurs, and the separate endings. Ready, play. (response) Now play it together with our trumpet player, and see if you are doing everything exactly as he is. Ready, play. (response-reinforcement)

Turn to page 30, to number 181. This is quite easy,

so you will play it with us. Ready, play. (model per-

formance)

Now look at number 182. This is exactly the same

as 181 except for the tie. The first quarter note will

be tied to the first of the two 8th notes of the second

beat. Listen carefully to the first measure. Ready,

listen. (model performance)

Did you notice that our trumpet player tied beats

one and two together, then played again on and of beat

two before playing the half note for beats three and

four. Pay close attention as we perform all of number

182 for you. Ready, listen. (model performance)

Did you notice that the dotted quarter note followed by the 8th note was played exactly like the quarter tied to the first of two 8th notes? Listen again to measures one and two. Ready, listen. (model, slowly)

Now you play it. Ready, play. (response; slow, slightly faster, faster, a tempo) Now look at measures 3 and 4. Ready, listen. (model performance)

Now you play it. Ready, play. (response; slow, slightly faster, faster, a tempo) If you did it correctly, you sounded exactly like this. Ready, listen. (rein-forcement) Now look at measures 5 and 6. Ready, listen. (model performance)

Now you play it. Ready, play. (response; slow, slightly faster, faster, a tempo) If you did it correctly, you sounded exactly like this. Ready, listen. (rein-forcement) Now look at measures 7 and 8. Ready, listen.

(model performance)

Now you play. Ready, play. (response; slow, slightly faster, faster, a tempo) If you did everything correctly, you sounded exactly like this. Ready, listen. (reinforcement) Now play it all the way through from the beginning. Ready, play. (response) Did you play everything correctly? Did you remember, incidentally, that it is a B♮ in the next to last measure? Play it together with our trumpet player to see if you are doing everything exactly as he is. Ready, play. (response-reinforcement)

This completes practice tape six.

Practice Tape Seven

This is practice tape seven. We will begin this lesson with the ascending and descending chromatic scale on C. We will perform a dotted quarter and 8th note on each tone of the chromatic scale. Concentrate on the fingering as you listen. Ready, listen. (model performance)

Now you play it. Ready, play. (response) Did

you give each note its correct value? Was your finger-

ing correct? Play it again, this time with our trumpet

player to see if you are doing everything exactly as he

is. Ready, play. (response-reinforcement)

Turn to page 30, to number 187, entitled America

the Beautiful. Here is a familiar song which also con-

tains that dotted quarter and 8th combination. The

key signature indicates that both the B and E are to

be flatted unless signified otherwise by a natural sign.

Play it with us. We will begin on the count on 4.

Ready, play. (model-response)

Did you observe the flats, expecially the Eb? Did

you observe that one B#? Was your rhythm correct? Did

you observe the breath markings? Play it alone now; see

if you can include all these very important details in
your performance. Ready, play. (response) Play it
again, this time together with our trumpet player.
See if you are doing everything exactly as he is.
Ready, play. (response-reinforcement)

Now turn to page 32, to number 196. Here we have
16th notes, which are played four to one count. Look
at the first measure. For beat one, we have to play
four 16th, and for beat two, a quarter note. The 16th
notes are counted one-a-and-a. You count that aloud
with me, over and over again. Ready, count. One-a-
and-a, one-a-and-a, one-a-and-a, one-a-and-a. Now we
will play the first measure only. Ready, listen. (model
performance)

Now we will play the first 4 measures. Ready, listen.
(model performance)

Pay close attention now to the first 2 measures only. Ready, listen. (model, slowly) Now you play it. (response; slowly, slightly faster, faster, a tempo) If you played it correctly, you sounded exactly like this. (reinforcement) Now look at measures three and four. Ready, listen. (model performance)

Measure three has 4 sixteenths on beat one, 2 eighths on beat two. The eights didn't move as fast because you need only 2 of them for 1 count. The sixteenths are twice as fast because you need 4 for one count. Listen to it once more. Ready, listen. (model, slowly) Now you play it. Ready, play. (response; slow, slightly faster, faster, a tempo) If you played it correctly you sounded exactly like this. Ready, listen. (reinforcement) Now play it from the beginning to the double bar after measure four. Ready, play. (response) Play it again, together with our trumpet player to see if you are doing everything exactly as he is. Ready, play. (response-reinforcement)

Now look at the second half of line 196. Ready,

129

listen.   (model performance)

Now look at the first 2 measures of this section

only. Ready, listen. (model slowly)

Now you play it. Ready, play. (response; slow,

slightly faster, faster, a tempo) If you played it

correctly, you sounded exactly like this. Ready, listen.

(reinforcement) Look now at the last 2 measures. Ready,

listen. (model, slowly)

Now you play it. Ready, play. (response; slow,

slightly faster, faster, a tempo) If you played it

correctly, you sounded exactly like this. Ready,

listen. (reinforcement) Now you play those 4 measures;

ready, play. (response) Did you play 4 sixteenths to

1 count? Were the eights 2 to 1 count? Was the quarter

note a full count, and the half note 2 full counts?

Play it again, together with our trumpet player to see
if you are doing all of it correctly. Ready, play.
(response-reinforcement)

Now look at number 200, entitled "Mocking Bird."
This contains the 4 sixteenth note pattern; it contains
groups of eighth notes; it contains the 1 beat rest.
Ready, listen.   (model performance)

As you noticed, there is one flat in the key sig-
nature and it begins on the 4th beat. Look now from
the beginning up to and including the 2nd rest. Ready,
listen. (model, slowly)

Now you play it. Ready, play. (response; slow,
slightly faster, faster, a tempo) Was it exactly like
this? Ready, listen. (reinforcement) Now look from
the next quarter note up to and including the next rest.
Ready, listen. (model, slowly)
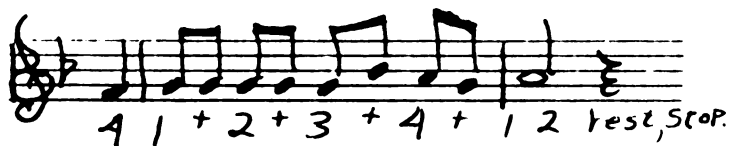
Now you play it; ready, play. (Response; slow, slightly faster, faster, a tempo) Did you sound exactly like this? Ready, listen. (reinforcement) The next two measures are exactly like the beginning, so we will skip on the quarter note just before the last 2 measures. Ready, listen. (model)
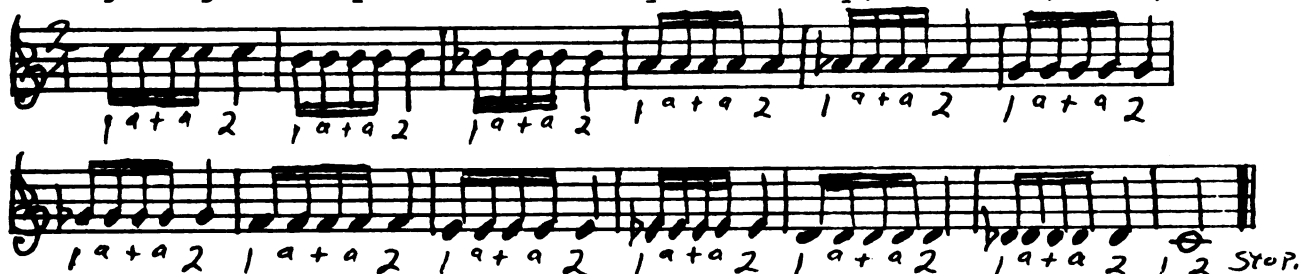

Now you play it; ready, play. (response; slow, slightly faster, faster, a tempo) Did you sound exactly like this? Ready, listen. (reinforcement) Now you play it from the beginning. Ready, play. (response) Now play it together with our trumpet player to see if you are doing everything correctly. Ready, play. (response-reinforcement)

This completes practice tape seven.

Practice Tape Eight

This is practice tape eight. We will begin this lesson with the descending C chromatic scale in two-four time. On each tone of the scale, we will perform 4 sixteenths and a quarter note. Concentrate on the

fingering as we perform it for you. Ready, listen (model)

Now you play it. Ready, play. (response) Play it

again, together with our trumpet player to see if you

are doing it exactly as he is. (response-reinforcement)

By now, you should be more accustomed to the six-

teenth notes. You should count them to yourself as

one-a-and-a, one-a-and-a. Turn to page 32, to number

199. Here we have groups of sixteenth notes which move

scale-wise. Listen to the first 2 beats only. Ready,
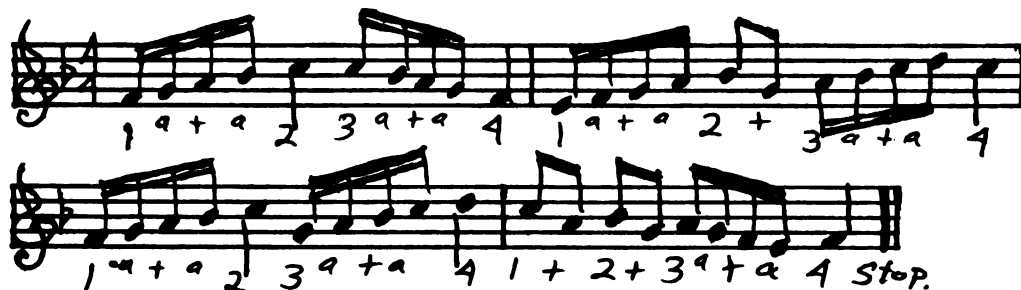
listen. (model)

Beat one was 4 sixteenths and beat two was, of

course, a quarter note. Your fingers and tongue have

to move very quickly on the sixteenth notes. Now let's

look at beats three and four of this first measure.

Ready, listen. (model)

On beat three there were 4 sixteenths, which were

counted three-a-and-a, which moved down scale-wise. On

beat four we had a quarter note. Listen to all of

number 199 now. Count along with me as you watch your

part. Ready, listen. (model)

Now we will go back and take the first measure

only. Listen very carefully. We will play it very

slowly for you. Ready, listen. (model, slowly)

Now you play it; ready, play. (response, slow,

slightly faster, faster, a tempo) Did you do it exactly

like this? Ready, listen. (reinforcement) Now look at

the next measure. Ready, listen. (model)

Now you play it; ready, play. (response; slow,

slightly faster, faster, a tempo) Did you sound exactly

like this? Ready, listen. (reinforcement) Now let's

look at the next measure. Ready, listen. (model)

Now you play it; ready, play. (response; slow,
slightly faster, faster, a tempo) Did you sound exactly
like this? Ready, play. (reinforcement) Now let's look
at the last measure. Ready, listen. (model)

Now you play it; ready, play. (response; slow,
slightly faster, faster, a tempo) Did you sound exactly
like this? Ready, listen. (reinforcement) Now you try
it all the way through from the beginning. Ready, play.
(response) Let's try it again, this time together with
our trumpet player. Check very carefully as you play to
see if you are doing everything exactly as he is. Ready,
play. (response-reinforcement)

Now look at number 197. Here we have a different
rhythm. Look at the first measure of 197. Look at count
one. We have an eight note combined with 2 sixteenths,
and for count two, the same thing - an eighth with 2 six-
teenths. There is a definite count for this type rhythm.
Do you think you could figure out what it is? Well, for

this first measure it would be one-and-a-two-and-a.

You see, we have an eighth note, which is the first half

of the beat, then on the second half we have 2 sixteenths.

That is why we count it <u>one</u> for the eighth, and <u>and-a</u>

for the 2 sixteenths on the second half - they are twice

as fast as that eighth note. Listen to that first mea-

sure only. Ready, listen. (model)

We will do it again. Listen again; ready, listen.

(model) This is, basically, the rhythm all the way

through number 197. Count aloud with me as we play it

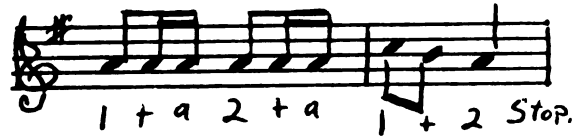all the way through for you. Ready, listen. (model)

Now listen to the first 2 measures only. Ready, lis-

ten. (model)

Now you play it; ready play. (response, slow, slightly

faster, faster, a tempo) Did you sound exactly like

this? Ready, listen; (reinforcement) Now look at the

next 2 measures. The rhythm is identical to the first
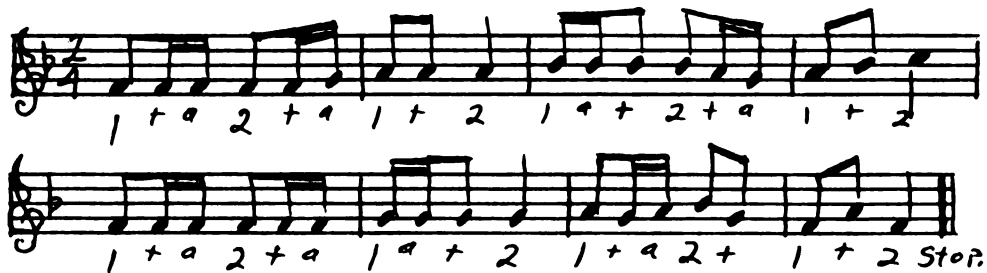
2 measures. Ready, listen. (model)

Now you play it; ready, play. (response; slow,

slightly faster, faster, a tempo) Did you sound exactly

like this? Ready, listen. (reinforcement) Now let's

go on to the next 2 measures. Ready, listen. (model)

Now you play it; ready, play. (response; slow,

slightly faster, faster, a tempo) Did you sound exactly

like this? Ready, listen. (reinforcement) Now look at

the last 2 measures. Ready, listen. (model) Now you

play it; ready, play. (response; slow, slightly faster,

faster, a tempo) Did you sound exactly like this? Ready,

listen. (reinforcement) Incidentally, that was an F#,

that next to last note. Now you are going to play it all

the way through from the beginning. Ready, play. (response)

Now our trumpet player will join you. Check very carefully

as you play along with him to see if you are doing every-

thing exactly as he is. Ready, play. (response-rein-
forcement) We are going to do it once more together with
our trumpet player to give you a second chance. Here
we go, ready, play. (response-reinforcement)

Now look at number 198. Here, each count is divided
into the eighth note combined with 2 sixteenths, as with
number 197. So again, the count is one-and-a. There are
two tricky spots in number 198. If you look quickly at
the third measure, 1st beat, you see the first half of
the count as 2 sixteenths and the second half as an
eighth note - this also occurs on the first beat of the
3rd measure from the end. See if you can count this pat-
tern aloud to yourself. Well, the count would be one-a-
and because you have 2 sixteenths on the first half of
the count, and the eight for the second half, or the and,
making it one-a-and. Now let's take it from the begin-
ning. Except for those 2 measures, the rhythm is like
197 - one-and-a, two-and-a, etc. Count aloud with me as
you listen. Ready, listen. (model)

Now look at the first 2 measures only. Ready,
listen. (model)

Now you play it; ready, play. (response; slow,
slightly faster, faster, a tempo) Was it exactly like
this? Ready, listen. (reinforcement) Now we have that
tricky combination - the first beat of the next measure.
Listen very carefully to it as we play the next 2 measures.
Ready, listen. (model)

Now you play it; ready, play. (response; slow,
slightly faster, faster, a tempo) Did you sound exactly
like this? Ready, listen. (reinforcement) Now let's go
on to the next two measures. Ready, listen. (model)

Did you notice that on the second of these two
measures we also have that one-a-and combination. Now
those two measures, ready, play. (response; slow, slightly
faster, faster, a tempo) Was it exactly like this? Ready,

listen. (reinforcement) Now let's look at the last two

measures. Ready, listen. (model)

Now you play it; ready, play. (response; slow,

slightly faster, faster, a tempo) Did you sound exactly

like this? Ready, listen. (reinforcement) Now you play

all the way through from the beginning; ready, play.

(response) Now play it again. Our trumpet player will

join you. You can check against his performance as you

play with him to see that you are doing everything exactly

as he is. Ready, play. (response-reinforcement)

This completes practice tape eight.

Practice Tape Nine

    We will begin this week's lesson with the ascend-

ing and descending chromatic scale. We will do it in

eighth notes this week. You play aong with the piano,

thinking very carefully of the fingering as you play.

One, two, ready, play. (model-response)


    Did you finger every note correctly? Play it

again, this time with our trumpet player and see if you

are playing everything exactly as he is. One, two,

ready, play. (response-reinforcement)

    Did you do everything exactly as he did? Was

your fingering correct? Did you breathe where you were

supposed to? Let's try it once more together with our

trumpet player. One, two, ready, play. (response-

reinforcement)

    Now turn to page 32, to number 202. This exercise

contains the dotted eighth followed by the sixteenth.

The beat is divided into this combination: the dotted

eighth is exactly like 3 sixteenths tied together, and

then the 4th sixteenth played alone. I'll count the

first 2 measures to indicate exactly how this rhythm

is to be counted. Listen very carefully. Ready,

listen. One -- a two -- a one, two.

Listen very carefully as our trumpeter demon-

strates those first 2 measures for you. Count along

with me as you listen. Ready, listen. (model)
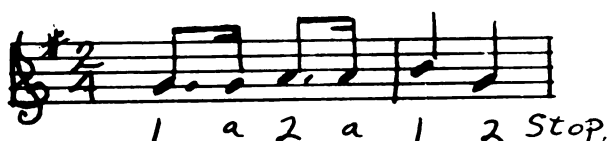
That rhythm will be used all through this little

piece. Now we are going to play it all the way through.

You play along with us. Listen carefully to the count.

Pay attention to our trumpet player to see if you are

doing everything exactly as he is. One, two, ready,

play. (model-response)

Now listen as we go back and play the first 2

measures. Ready, listen. (model)

Now you play it. (response; slow, slightly fas-

ter, faster, a tempo) If you did it correctly, it

sounded exactly like this. Ready, listen. (reinforce-

ment)

Now listen to the next two measures. Ready, listen.

(model)

Now you play it. Ready, play. (response; slow,

slightly faster, faster, a tempo) If you did these two

measures correctly, you sounded exactly like this.
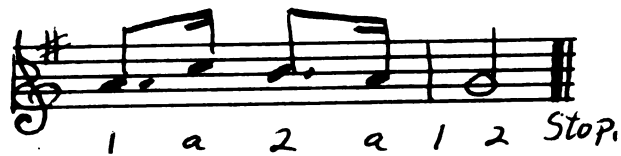
Ready, listen. (reinforcement)

Now let's take the next two measures. Ready,

listen. (model)

Now you play it. Ready, play. (response; slow, slightly faster, faster, a tempo) If you did these two measures correctly, you sounded exactly like this. Ready, listen. (reinforcement)
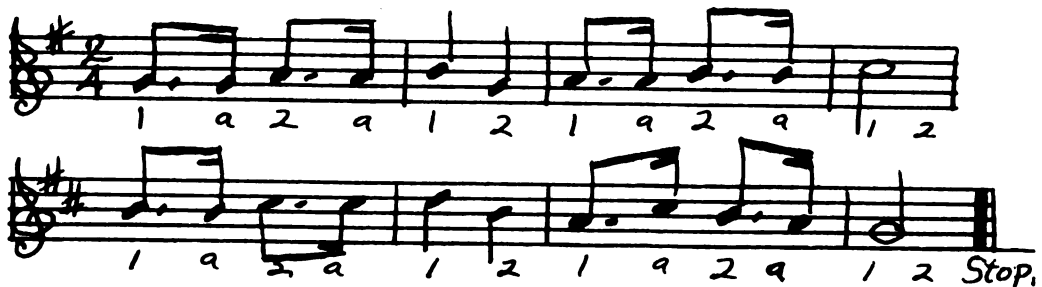
Now let's listen to the last two measures. Ready, listen. (model)

Now you play it. Ready, play. (response; slow, slightly faster, faster, a tempo) If you played the last two measures correctly, you sounded exactly like this. (reinforcement)

Now let's play it all the way through from the beginning. Our trumpet player will join you, see if you are doing everything exactly as he is. One, two, ready, play. (response-reinforcement)

Turn to your manuscript, to the folk song entitled

"Country Gardens." Look at the notes. You will notice

that we have that dotted eighth followed by the sixteenth

combination. We also have two flats in the key signature.

Be ready to finger these notes correctly. Listen very

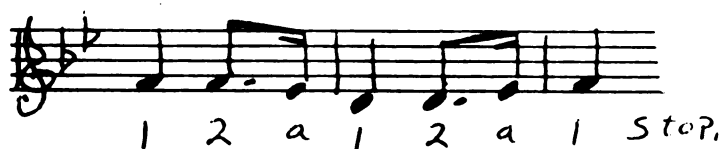carefully as we play it for you. Ready, listen. (model)

Now listen to the first two measures only. Ready,

listen. (model)

Now you play it. Ready, play. (response; slow,

slightly faster, faster, a tempo) If you played those

two measures correctly, you sounded exactly like this.

Ready, listen. (reinforcement)

Now look at measures 3 and 4, and the first note

of measure 5. Ready, listen. (model)

Now you play it. Ready, play. (response; slow,

slightly faster, faster, a tempo) If you played those

two measures exactly as you should have, you sounded

exactly like this. Ready, listen. (reinforcement)

Now we will take it from the quarter note just

preceeding the last two measures -- that is, on the low

Bb. Ready, listen. (model)

Now you play it. Ready, play. (response; slow,

slightly faster, faster, a tempo) Did you sound exactly

like this? Ready, listen. (reinforcement)

Now you play it all the way through from the begin-

ning. One, two, ready, play. (response) Did you observe

the two flats - the Bb and Eb? Was your rhythm correct?

Did you slur where it was indicated? Let's do it once

more, making sure that you observe all of these details.

Our trumpet player will join you. See if you are doing

everything exactly as he is. One, two, ready, play.

(response-reinforcement)

For the next piece, we have the popular song entitled "Yesterday." You will hear no model perform-ance of this peice. You will be required to sight-read it, having never played it before. You will have to pay very close attention to all the notes. The piano will give a two measure introduction, then you will be-gin playing. Count your two measures. Ready, go.

(response)

Did you stay with the count all the way through? Incidentally, did you remember what D.C. al fine meant? It meant to go back to the beginning and continue to fine. Let's do it again, this time together with our trumpet player to see if you are doing everything exactly as he is. The piano will still play the two measures as introduction so be sure to count those two measures before

coming in. One, two, ready, go. (response-reinforce-ment) Did you play all the slurs where indicated? Did you observe the ties? The rests? Did you rest where indicated, even though the piano is playing where your part indicates a rest?

Now you try it again, be sure to observe all the indications. Again, the piano will give you a two mea-sure introduction. Ready, go. (response) Now we will do it again. This time our trumpet player will join you. The piano once again will give you a two measure introduction. Be sure that you try to do everything exactly as our trumpet player does. Ready, go. (re-sponse-reinforcement)

This completes practice tape nine.

Practice Tape Ten

This is practice tape ten. We will begin this lesson with the chromatic scale, ascending and descend-ing. This time we will use the dotted eighth and six-teenth rhythm that you learned from lesson nine. Our trumpet player will play with you. See if you are doing everything exactly as he is. One -- a two -- a ready -- a play. (model-response)

Now turn to page 32, to number 205, entitled
"Maryland." This song contains the dotted eighth followed
by the sixteenth -- that pattern which we had drilled so
much with tape nine. Notice also, that it begins with
a pick-up note, which is on the count of three. You play
along with us; be sure that you play the dotted eighth
and sixteenth combination exactly as our trumpet player
does. You will come in on the count of three. Ready,
play. (model-response)

Now listen very carefully to the pick-up and first

two measures Ready, listen. (model)

Now you play it. Ready, play. (response; slow,

slightly faster, faster, a tempo) If you played that

exactly as you should have, you sounded exactly like

this. Ready, listen. (reinforcement)

Now look at measure 3, and two beats of measure

4. Ready, listen. (model)

Now you play it. Ready, play. (response; slow,

slightly faster, faster, a tempo) If you did everything

correctly you sounded like this. Ready, listen.

(Reinforcement)

The next two measures are exactly like the first

two measures, so we will skip on to measures 7 and 8.

Ready, listen. (model)

Now you play it. Ready, play. (response; slow,

slightly faster, faster, a tempo) If you did it cor-

rectly, you sounded exactly like this. Ready, listen.

(reinforcement)

Next, look at measure 9 up to the breath mark in

measure 12. Ready, listen. (model)

Now you play it. Ready, play. (response; slow,

slightly faster, faster, a tempo) If you did all of

that correctly, you sounded exactly like this. Ready,

listen. (reinforcement)

The rest of the piece is exactly like the first

four measures. So now you are ready to play it all the

way through. Don't forget the F#; also, don't forget

that pick-up at the beginning. I'll count "ready play,"

and you come in on three. Here we go. Ready, play.

(response) Now play it again, our trumpet player will

join you. Be sure you are doing everything exactly as

he is. Ready, play. (response-reinforcement)

Now turn to the song entitled, "San Francisco."

This will be a sight-reading practice. There will be

no model performance. You will be required to play right from the beginning, never having played these notes before. Caution! We have two flats in the key signature, and it begins with some pick-ups. You notice it begins on the count of two. I will count "one, two, ready, now, play" and you will come in on the count of two. Here we go. One, two, ready, now, play. (response)

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Did you observe all the rests? R :member that
your part has a rest indicated in places where the piano
is still playing. Did you observe all the slurs? There
were several ties also. Did you hold them long enough?
And did you play all of the accidentals correctly?
Let's do it again, this time our trumpet player will
join you. I will count at the beginning exactly as I
did before. One, two, three, ready, now, play. (re-
sponse-reinforcement)

You will have one more chance to play it alone.
Be sure to play all those accidentals with correct
fingering. Watch those ties and be sure to observe
the rests and slurs. One, two, three, ready, now, play.
(response) Let's play it again. This time our trumpet
player will join you. Be sure you are doing everything
exactly as he is -- the fingerings, the rests, the ties,
and the slurs.

This completes practice tape ten.

APPENDIX B

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TABLE XVII

RAW SCORES AND DATA

Experimental Group					Control Group				
Student Number	Music Achievement	Social Status	I.Q.	Performance Achievement	Student Number	Music Achievement	Social Status	I.Q.	Performance Achievement
Sub-Group 1: High MA., High SS., High I.Q.									
1	65	14	115	17	1	65	20	128	22
2	75	14	139	31	2	65	19	116	10
3	66	18	125	5*	3	66	23	118	50
4	77	23	115	77	4	63	20	112	17
5	65	14	128	55					
6	66	17	122	10					
Sub-Group 2: High MA., Low SS., Low I.Q.									
7	65	36	97	52	5	64	31	110	26
8	63	27	102	70	6	70	33	106	19
9	66	28	105	23	7	69	25	90	8
Sub-Group 3: High MA., High SS., Low I.Q.									
10	69	14	100	31	(Did not complete the experiment)				
11	61	14	109	63					
12	65	18	108	31					
Sub-Group 4: High MA., Low SS., High I.Q.									
13	74	27	119	30	8	67	35	121	37
14	64	27	116	4	9	59	27	119	45
15	68	27	115	25					
16	63	27	118	7					

TABLE XVII (Continued)

Experimental Group					Control Group				
Student Number	Music Achievement	Social Status	I.Q.	Performance Achievement	Student Number	Music Achievement	Social Status	I.Q.	Performance Achievement

Sub-Group 5:   Low MA., High SS., High I.Q.

17	42	20	112	18	10	50	23	118	15
18	47	23	125	31	11	51	18	124	15
					12	52	14	119	9
(Did not complete					13	56	23	125	8
the experiment)					14	55	23	125	1
					15	40	18	112	9

Sub-Group 6:   Low MA., High SS., Low I.Q.

19	58	16	108	63	16	52	17	106	14
20	46	20	87	32	17	58	21	110	17
21	49	18	109	41	18	50	20	106	3
					19	50	14	89	2

Sub-Group 7:   Low MA., Low SS., High I.Q.

22	56	27	115	17	(Did not complete				
23	50	27	112	13	the experiment)				

Sub-Group 8:   Low MA., Low SS., Low I.Q.

24	50	40	102	24	20	49	27	101	4
25	41	37	108	28	21	54	31	96	6
26	45	31	94	29	22	39	30	100	14
27	54	27	102	21	23	42	31	110	8
					24	46	27	106	14
					25	51	31	105	5

*This student had a physical handicap impeding performance achievement - discovered after data analysis.

APPENDIX C

TABLE XVIII

SUMS AND TOTALS FOR MUSIC
ACHIEVEMENT SUB-GROUPS

	Experimental	Control	Total
Above Mean	$X = 531$ $X^2 = 25,943$ $N = 16$	$X = 234$ $X^2 = 7,868$ $N = 9$	$X = 765$ $N = 25$
Below Mean	$X = 317$ $X^2 = 11,059$ $N = 11$	$X = 143$ $X^2 = 1,699$ $N = 16$	$X = 460$ $N = 27$
Total	$X = 848$ $N = 27$	$X = 377$ $N = 25$	$X = 1225$ $N = 52$

TABLE XIX

SUMS AND TOTALS FOR SOCIAL
STATUS SUB-GROUPS

	Experimental	Control	Total
Above Mean	$X = 505$ $X^2 = 24,179$ $N = 14$	$X = 182$ $X^2 = 4,466$ $N = 14$	$X = 687$ $N = 28$
Below Mean	$X = 342$ $X^2 = 12,794$ $N = 13$	$X = 186$ $X^2 = 5,028$ $N = 11$	$X = 528$ $N = 24$
Total	$X = 847$ $N = 27$	$X = 368$ $N = 25$	$X = 1215$ $N = 52$

TABLE XX

SUMS AND TOTALS FOR
I.Q. SUB-GROUPS

Above Mean	X = 340	X = 237	X = 577	
	X^2 = 13,662	X^2 = 7,435		
	N = 14	N = 12	N = 26	
Below Mean	X = 508	X = 140	X = 648	
	X^2 = 23,340	X^2 = 2,132		
	N = 13	N = 13	N = 26	
Total	X = 848	X = 377	X = 1225	
	N = 27	N = 25	N = 52	

APPENDIX D

Description of Test 1

Test 1,* of the *Music Achievement Tests*, provides standardized and diagnostic data on three musical skills: (1) pitch discrimination, (2) interval discrimination, and (3) meter discrimination. None of these three parts requires any skill in music reading, but, rather, requires responses based on auditory tasks.

Part 1—Pitch Discrimination
Subtest a (Two Tones)
Subtest b (Three Tones)
Part 2—Interval Discrimination
Subtest a (Three-Tone Patterns)
Subtest b (Phrases)
Part 3—Meter Discrimination
(Duple and Triple meter)

*Artists used on the recording were string players from the Chicago Symphony Orchestra: Karl Fruh, cello; and Sol Bobrov, violin. Dr. Ruth Crockett was pianist.

Part 1 — Pitch Discrimination

General Discussion

Pitch discrimination—the ability to determine which musical tones are higher and which are lower—is one of the most fundamental musical skills. Without this skill, instructional communication in music would be greatly hampered, if not impossible, both in the area of appreciation and in the area of performance. The teacher trained in music may feel that pitch discrimination is so obvious that pupils of school age already possess the ability to tell higher from lower. Such an assumption is false, however: the research of Repina and others with three-, four-, and five-year-old children shows that the skill is a learned response, seemingly acquired easily by some pupils but for others requiring specific learning activities and repeated practice. This fact is corroborated by the daily experiences of thousands of elementary music teachers. Work in the development of this part of the test indicated that many students reach sixth-grade level without acquiring this basic skill.

Pitch Discrimination is placed first in MAT to reflect its fundamental role in music achievement. Since it is the easiest part of the test, it can serve to give pupils a feeling of security and to put them at ease for the other two parts of Test 1.

In *Subtest a*, the half-step was selected as the smallest interval because it is basic to the tonal patterns commonly found in the instructional program. When pitch discrimination is taught in the early stages of music instruction, instruments such as the piano (where the smallest interval is the half-step) are the usual teaching media. Discrimination of pitch with less than half-step intervals is more difficult and becomes important when the emphasis is on performance activities. In arriving at the present version of the subtest, the author tried questions containing all possible combinations of half-step intervals as well as larger intervals. (For a complete discussion, see the MAT Interpretive Manual.) In this subtest, test items in which both pitches are the same are easy and have low discriminating power, but are included to make the three-choice answer possible. The discriminating power of the other items is thus greatly increased over that offered by a two-choice answer.

Subtest b was developed to measure pitch discrimination in a context closer to that of the actual musical situation. Beyond simple comparison, the listener must also retain a previous pitch

(tonal memory) with which to make his comparison, and in this respect he practices the same skill used in performing or in listening. In performing, the pupil often returns to the same tone after an interval of one or two tones; he needs to retain the first pitch for accuracy of intonation and for proper phrasing. In listening, he organizes his entire concept of the melody and harmony by retaining certain pitches and relating the music to them, so that he recognizes tonality, themes and motifs, repetition, and alternation or variety within the music, and thus "makes sense" out of it.

The larger number of possibilities for construction of test items allowed by the addition of the third note makes this subtest more powerful than *Subtest a* in its discriminations. However, preliminary experiments with the test showed that many of the more skilled pupils were able to obtain maximum scores on this part as well. One seemingly important factor was rejected after preliminary trials as having little effect on the test. This was the factor of which pitch to listen for—highest or lowest. Although most of the pupils and the teachers used in preliminary trials of *Subtest b* expressed a strong preference for a particular way, the preferences were nearly equally divided between selecting highest or lowest pitch. Scores showed no differences in difficulty between the two ways. Therefore, selection of the lowest pitch was arbitrarily decided upon for use in this subtest.

Subtest a (Two Tones)
This subtest is composed of 15 items. In each item the pupil is required to listen to two tones and to determine which tone is higher, or whether the tones are the same. The pupil answers each question by filling in a blank marked 1, 2, or S (first tone higher, second tone higher, or the tones the same).

Subtest b (Three Tones)
This subtest is composed of 10 items. In each item the pupil is required to decide which of three tones played is the lowest. This requires the same skill as does the two-tone subtest, but is made more complex by the addition of a third tone. Some items require the pupil to compare tone 1 with tone 2, and then tone 2 with tone 3. Other items require the comparison of tones 1 and 3 (2 obviously not the answer and acting as a distractor). In this latter case, *tonal memory* is necessary if the pupil is to retain accurately the sound of the first tone so that he can compare it with tone 3. Answers are made by filling in blanks

Part 2 — Interval Discrimination

General Discussion
The Interval Discrimination part of Test 1 is related to Pitch Discrimination (Part 1), but measures a distinctly different skill—that is, recognition of distance between pitches. Knowledge of absolute intervals such as third, fifth, seventh, and second appears to be less fundamental and less useful than recognition of intervals that are scalewise and those that leap. An awareness of scalewise or leaping movement in music which is sung, played, or listened to is essential for a complete understanding of the music and is requisite to verbalization about music and musical patterns. Thus, it is necessary in all teaching situations where the teacher communicates with pupils about specifics in music.

Subtest a (Three-Tone Patterns) presents interval questions in the simplest form possible. The three-tone pattern was deemed easier than a two-tone pattern, for the additional tone gives the pupil one more comparison to help him decide upon the nature of the intervals, without taxing his tonal memory. This portion of the test is useful for diagnostic purposes since failure to achieve in this area strongly indicates either a lack of understanding of the concept leap-scale, or a lack of experience in making such judgments about music.

Subtest b (Phrases) presents complete phrases from folk songs and art music, the songs being among those common to several series of music textbooks. Familiarity with the songs may give an advantage of some pupils; however, in preliminary testing no evidence of such bias was detected. If the student recalls the selection and any discussion about it one might expect the familiar numbers to have an advantage. This remembering of specifics from the music class is, of course, not undesirable in an achievement test. Extensive testing has shown no evidence of familiarity affecting this subtest in either way. (See the MAT Interpretive Manual for a full discussion of this point.)

Repeated tones are not to be counted in determining whether the music moves scalewise or by leaps. Emphasize this point with students.

If a pupil shows achievement in *Subtest a* but not in *Subtest b* of the Interval Discrimination part, the teacher may infer that the pupil has adequate understanding but needs more practice

to cope with the distractors offered by the melodic test items. Since the subtests are closely related, the two must be considered together in measuring achievement in this area.

Subtest a (Three-Tone Patterns)

This subtest is composed of 10 items. It requires the pupil to listen to one measure of three tones and decide whether all tones are related step by step like a scale or whether a "leap" (or "skip") occurs between any two consecutive tones. The pupil answers by filling in the blank marked S (scalewise), L (leaps), or ? (in doubt).

Subtest b (Phrases)

This subtest is composed of 18 items. It requires that the pupil be able to distinguish music that moves scalewise from that which leaps in a phrase. The pupil decides whether the phrase moves generally in a scalewise manner or generally leaps from one tone to another ignoring repeated tones. Directed experiences in singing and listening should produce this ability within a pupil. Test items are answered similarly to those of Subtest a: S (scalewise), L (leaps), or ? (in doubt).

Part 3—Meter Discrimination (Duple and Triple Meter)

General Discussion

Meter, like pitch, is a fundamental of music, for any organization of rhythm is difficult without recognition of basic metric structure. An awareness of meter is essential both in performance and in listening, for the vast bulk of Western music uses a consistent meter as its basis for rhythmic unity and variety. To hear when music changes from a basic two to three, or when the meter is irregular, requires that some feeling for regular pulse be established.

In the preliminary stages of this part of the test, many different items were tried. Simple nonmelodic patterns were played on a rhythm instrument: patterns were developed in the context of scalewise melodies; the metronome was used to indicate the pulse by a series of beats preceding each test item: rhythm instruments such as the wood block, triangle, and drum were added to melodic items to emphasize the pulse: items were preceded by six pulses counted out to indicate tempo. In each case, the procedure proved to be inferior to the one selected.

As a result, the final form of this part consists of 15 items, each of which is a phrase taken from a familiar elementary school song, played on the piano, and including a harmonic accompaniment. Pupils are required to distinguish between duple and triple meters. The element of song familiarity enhances this particular test part if the students pay attention to the task at hand. Pupils who know a song well should find it easier to recognize the pulse, to hear the pattern of strong and weak pulses, and to retain the memory of the melody long enough to help in determining the correct answer. However, the results of testing some 30,000 teachers and pupils has indicated that familiarity only to the extent of knowing the song did not affect the results. In other words, students seemingly may know the song but do not know enough about the song, i.e., have not discussed its meter in sufficient detail, to influence the results of this part of the test.

The pupil hears the phrase once, the phrase being of sufficient length that he has time to establish the pulse and then recognize the combination of accented and unaccented pulses as falling into a duple or triple meter. Since the melodies are presented as complete phrases, some of them terminate before the end of the measure, having begun on a pick-up note or notes. This termination in no way interferes with the discriminating power of the items.

Pupils who have had classroom practice in listening for meter will achieve higher scores on this part than will those students who lack experience in this activity. Answers are made by filling in the blanks marked 2 (duple meter), 3 (triple meter), or ? (in doubt).

APPENDIX E

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SOCIAL CLASS IN AMERICA

MAKING THE PRIMARY RATINGS

The I.S.C. should normally be based upon ratings on occupation, source of income, house type, and dwelling area.[2] If the data for any one of these four ratings are lacking, the other three should be computed. If the data for two of the four are lacking, no Index should be attempted.

Each of the four status characteristics is rated on a seven-point scale which ranges from a rating of "1," very high status value, to "7," very low status value. These rating scales are presented in very brief form in Table 4. The scales are described in much more detail in Chapter 9; anyone planning to use the I.S.C. should certainly refer to the interpretations, qualifications, and definitions given in that chapter.

In the case of occupation and of house type, two alternate rating plans are available. It is probable that either of the alternate plans may be used with a reasonable expectation of good results. The most complete statistical validation is available for the form which was used in the main analysis of Jonesville, but for both occupation and house type later modifications were introduced which, in the judgment of the present investigators, offer some improvement over the original scales. In some cases, the nature of the data available may suggest a preference for some specific form of rating. It may well be, also, that further investigation will develop still further refinement and improvement of these rating scales, particularly as they are applied to new communities.

SECURING A WEIGHTED TOTAL OF THE RATINGS

The ratings on the separate status characteristics are combined into a single numerical index by assigning to each one a weight and securing a weighted total of the separate ratings. The weights are based on evidence from the Jonesville study and are designed to secure the maximum degree of social-class prediction.[3] When the

[2] See pp. 178-81 for suggestions as to the possible use of scales for amount of income and education as elements in the I.S.C. Before trying these two characteristics, however, the reader should read the evidence presented in Chapter 11 as to the relative value of these characteristics for predicting social-class placement.
[3] See Chapter 11 for a description of the derivation of these weights.

COMPUTING THE INDEX OF STATUS CHARACTERISTICS

data are available for all four of the ratings, the ratings should be multiplied by the following weights.

Occupation	
Source of Income	4
House Type	3 NOT INCLUDED
Dwelling Area	2

TABLE 4

SCALES FOR MAKING PRIMARY RATINGS OF FOUR STATUS CHARACTERISTICS [*]

Status Characteristic and Rating	Definition	Status Characteristic and Rating	Definition
Occupation: Original Scale		**House Type: Original Scale** (continued)	
1. Professionals and proprietors of large businesses		6. Medium-sized houses in bad condition; small houses in bad condition	
2. Semi-professionals and smaller officials of large businesses		7. All houses in very bad condition; dwellings in structures not intended originally for homes	
3. Clerks and kindred workers			
4. Skilled workers		**House Type: Revised Scale**	
5. Proprietors of small businesses		1. Excellent house	
6. Semi-skilled workers		2. Very good house	
7. Unskilled workers		3. Good houses	
Occupation: Revised Scale		4. Average houses	
(See Table 7 on page 140)		5. Fair houses	
		6. Poor houses	
Source of Income		7. Very poor houses	
1. Inherited wealth			
2. Earned wealth		**Dwelling Area**	
3. Profits and fees		1. Very high: Gold Coast, North Shore, etc.	
4. Salary		2. High: the better suburbs and apartment house areas, houses with spacious yards, etc.	
5. Wages		3. Above average: areas all residential, larger than average space around houses; apartment areas in good condition, etc.	
6. Private relief		4. Average: residential neighborhoods, no deterioration in the area	
7. Public relief and non-respectable income		5. Below average: area not quite holding its own, beginning to deteriorate, business entering, etc.	
House Type: Original Scale		6. Low: considerably deteriorated, run down and semi-slum	
1. Large houses in good condition		7. Very low: slum	
2. Large houses in medium condition; medium-sized houses in good condition			
3. Large houses in bad condition			
4. Medium-sized houses in bad condition			
5. Small houses in good condition; apartment buildings			

[*] The more extended description of these categories and qualifications as to their use concerning their use should be read by anyone undertaking to make actual ratings of these characteristics.

APPENDIX F

WATKINS-FARNUM PERFORMANCE SCALE

FORM A

Score Sheet For B♭ Cornet, Clarinets, Baritone 𝄞

Name ———————————— **Date** ————

Instrument ———————— **Years Studied** ———

School ———————— **Grade** ——— **Age** ———

PROGRESS CHART

SCORE

Average score ————
Student's score - - - - -

Years Studied
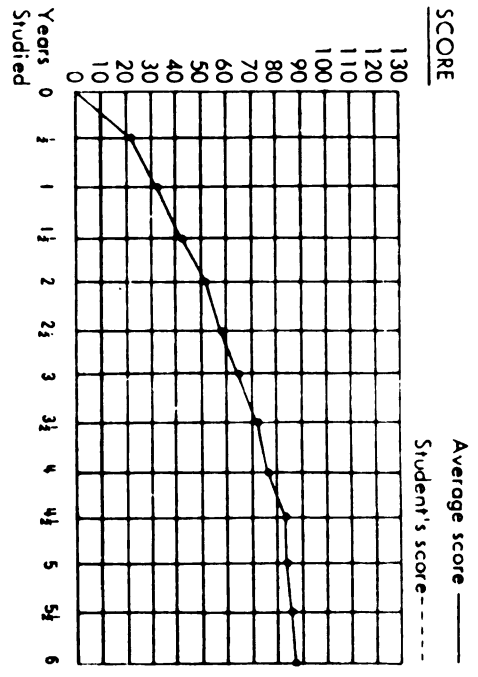
SCORING SUMMARY

(Student's score is "possible score" less errors)

	Possible score	Errors	Score
Ex.			
1.	13	"	"
2.	"	10	"
3.	"	10	"
4.	"	10	"
5.	"	10	"
6.	"	10	"
7.	"	10	"
8.	"	10	"
9.	"	10	"
10.	"	10	"
11.	"	10	"
12.	"	15	"
13.	"	9	"
14.	"	10	"

GRADE ☐   **TOTAL SCORE** ☐

Remarks ————————————

GRADING CHART

GRADES FOR CORNET CLARINET BARITONE

Years	½	1	1½	2	2½	3	3½	4	4½	5	5½	6
A	35	50	62	70	77	83	88	90	92	94	96	98
B	25	40	48	55	61	66	70	74	78	82	84	86
C	15	30	35	40	45	50	54	58	62	65	67	69
D	5	15	25	30	35	40	44	47	50	52	54	56

Sample—At the end of one year if the score of a clarinet player is 50 or higher the grade will be A. At the end of one year a score of between 30 and 39 will earn a horn player a B.

Errors may be indicated in two ways:

1. Draw a cross through the incorrect measure.
2. Indicate the type of error by using the symbols on page 4 and 5.

Pitch	P	Change of tempo	T
Time	R	Expression	E
Slur	S	Holds or pauses	R
Rest	R	Repeats	:‖

Test begins here: Check only one error per measure.

WATKINS-FARNUM PERFORMANCE SCALE EXERCISES

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APPENDIX G

STUDENT ATTITUDE

A. The practice tapes contained:

1. Too much talking

2. Just the right amount of listening and playing

3. Too much listening, not enough playing

4. Too much explaining

5. Not enough explaining

6. Just the right amount of everything

B. The taped lesson:

1. Moved too fast

2. Moved too slow

3. Moved at just the right pace

C. Would you like to have the practice tapes changed in any way?

1. Yes

2. No

a) If your answer is yes, in what way would you like to have the practice tapes changed?
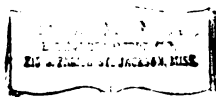
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